



L-A-D FOUNDATION

Since 1962



Annual Report
October 2015



COVER PHOTO: L-A-D Foundation Founder and Chairman, Leo A. Drey, poses by a large oak on Pioneer Forest in the 1950s. Leo began purchasing land in 1951 to demonstrate an economically-successful and environmentally-sustainable method of uneven-aged management known as “single-tree selection.” With the goal of restoring the natural beauty of Ozark woodlands and streams, Leo worked for decades to acquire and restore land throughout Southern Missouri. At one time the largest land-owner in Missouri, Leo Drey donated his Pioneer Forest land to the L-A-D Foundation in 2004, ensuring it would continue to be protected and managed responsibly into the future as a not-for-profit entity. Today, the L-A-D Foundation remains committed to furthering the conservative method of management espoused by Leo Drey, and Pioneer Forest continues to be one of the nation’s leading examples of environmentally-responsible timber harvest, with more than 50 years of research on sustainable management.

Mr. Drey passed away May 26, 2015 at the age of 98. The L-A-D Foundation honors his memory and life’s achievements in this year’s annual report.

ANNUAL REPORT

of the L-A-D Foundation October 2015

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CONTENT: This report includes articles and editing contributed by Denise Henderson Vaughn. Other articles were composed by the L-A-D and Pioneer Forest staff. Additional review was provided by L-A-D Foundation Board Members.

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The L-A-D Foundation

Founder: Leo A. Drey

The L-A-D Foundation is a Missouri private operating foundation dedicated to exemplary stewardship of Pioneer Forest and other natural and cultural areas and to scientific research, education, public recreation, and encouragement for projects and policies that have a positive influence on the Missouri Ozark region and beyond.

- L-A-D Foundation Mission Statement

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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From the President

The L-A-D Foundation's Annual Report is a summary of the year's achievements and changes. This year it is appropriate that we pause and celebrate the life of our founder, Leo Drey, and reflect on the Foundation's stewardship of Leo's lands and legacy.

The story of Leo's persistent and successful acquisition of Ozark forestland is the stuff of legend, and his role in Missouri's conservation history is equally remarkable. Leo began his life's work modestly, seeking out individual landowners and acquiring land piecemeal. He fondly remembered his very first land purchase in 1951. In 1954, he was able to advance his vision a giant step with the purchase of nearly 90,000 acres from National Distillers Corporation. This purchase was the largest ever in Missouri for conservation purposes. Leo continued acquiring land for 30 years, accumulating the nearly 154,000 acres he called Pioneer Forest. Pioneer has for more than 60 years represented Leo's philosophy of conservative productive forestry. It remains so.

Widely known as a conservation forester, Leo also had a strong interest in protecting areas of unique natural history or cultural value. He organized the L-A-D Foundation in 1962 to be a steward of such special places, and began to donate property to the Foundation for those purposes. Some notable examples of such tracts: Grand Gulf in Oregon County, a spectacular cave and karst site; Dillard Mill in Crawford County, a remarkably complete and picturesque mill along the Huzzah Creek; and Hickory Canyons, in Ste. Genevieve County, a richly vegetated valley in Ozark Boarder sandstone country. The L-A-D Foundation owns Dillard Mill and Grand Gulf, and donates the leases to manage these areas as Missouri State Parks. The Foundation donates leases for Hickory Canyons and six others to the Missouri Department of Conservation for management as Missouri Natural Areas.

In 2004, Leo and his wife Kay donated most of Pioneer Forest, 140,000 acres, to the L-A-D Foundation. This property includes the Roger Pryor Pioneer Backcountry, an undivided tract of land measuring fourteen miles east to west, ten miles north to south, and situated along the northeast flank of the Current River. The Backcountry is a working forest but also includes primitive outdoor recreation. The Backcountry is generally considered the largest single expanse of undeveloped land in Missouri.

Leo understood the remarkable importance of unspoiled rivers to the integrity of the Ozarks, especially the Current and the Eleven Point. Familiar to many conservationists is Leo's personal work with the Dennig family to acquire their nearly 7,000 acres along the Eleven Point to protect Greer Spring and surrounding lands. That property was made available at a bargain sale to the Mark Twain National Forest and is now considered the heart of the Eleven Point National Scenic River.

The loss of a mentor and a friend is never easy, but all of us, and all Missourians for generations to come, will continue to benefit from all that Leo Drey left behind.

Many thanks to our staff and to that of Tower Grove Park for their excellent work in arranging for the Celebration of Leo's Life on June 29. Thanks as well to the organizing committee for that event, which produced a memorable and meaningful evening for all who could attend.

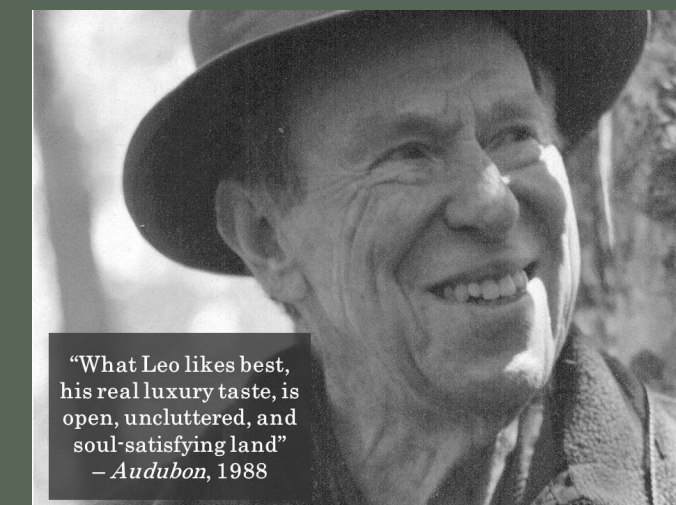
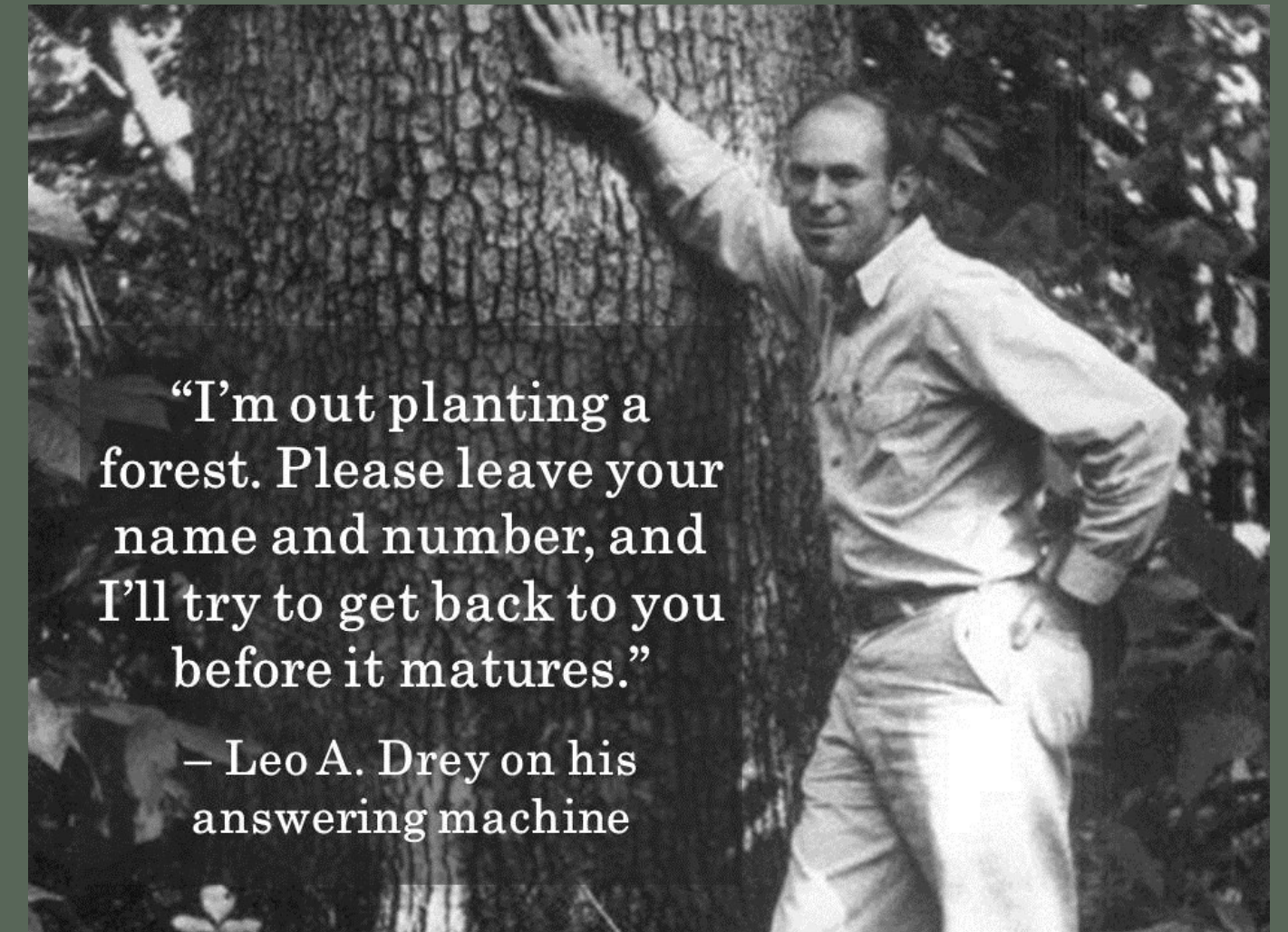
Sincerely,

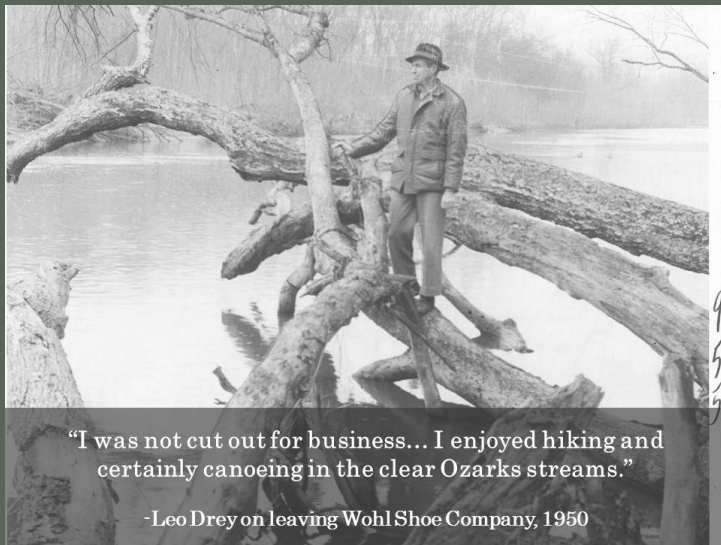
John A. Karel
President, L-A-D Foundation

The Life of Leo Drey



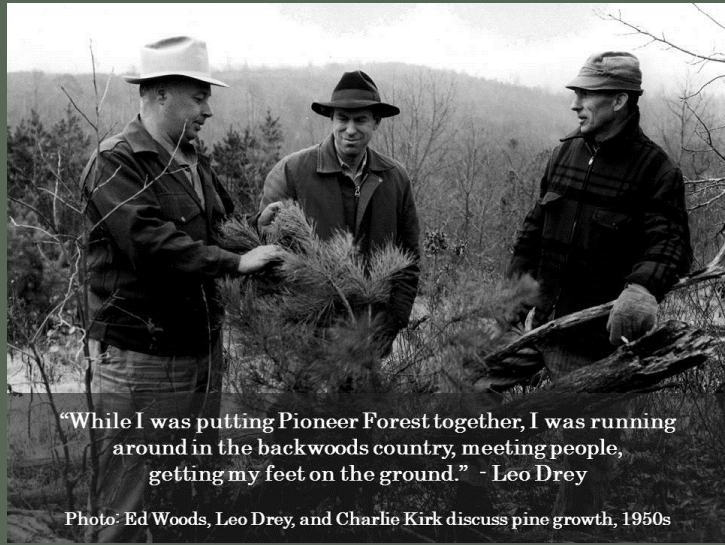
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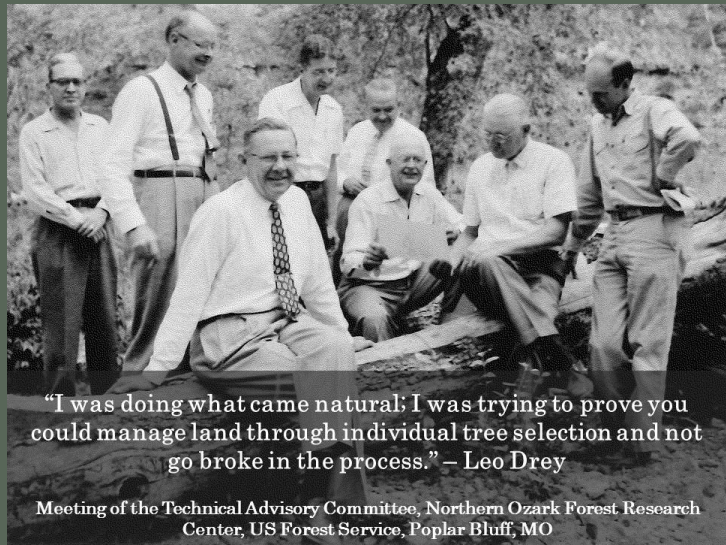
"I was not cut out for business... I enjoyed hiking and certainly canoeing in the clear Ozarks streams."

-Leo Drey on leaving WohlShoe Company, 1950



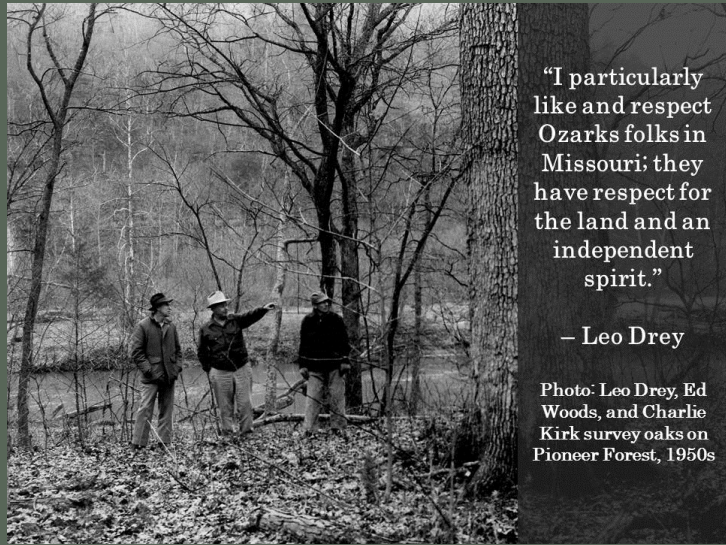
"While I was putting Pioneer Forest together, I was running around in the backwoods country, meeting people, getting my feet on the ground." - Leo Drey

Photo: Ed Woods, Leo Drey, and Charlie Kirk discuss pine growth, 1950s



"I was doing what came natural: I was trying to prove you could manage land through individual tree selection and not go broke in the process." - Leo Drey

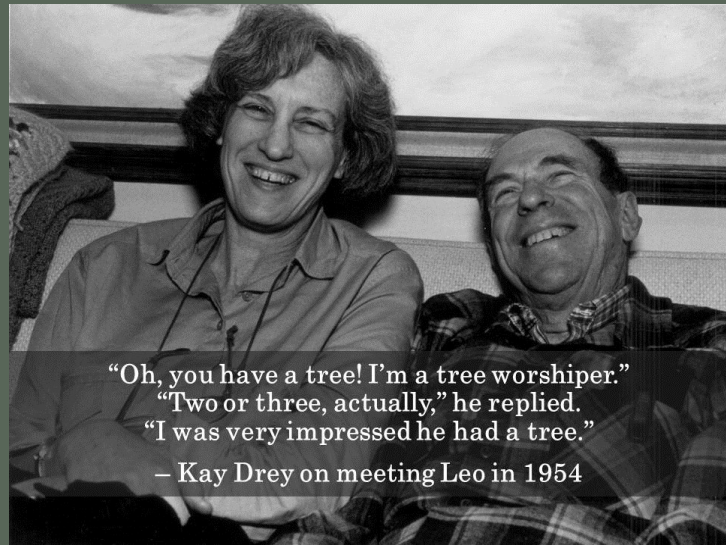
Meeting of the Technical Advisory Committee, Northern Ozark Forest Research Center, US Forest Service, Poplar Bluff, MO



"I particularly like and respect Ozarks folks in Missouri; they have respect for the land and an independent spirit."

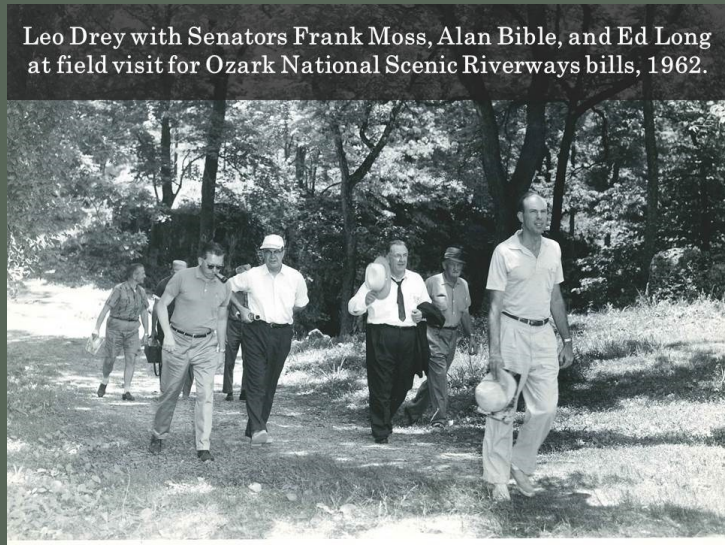
- Leo Drey

Photo: Leo Drey, Ed Woods, and Charlie Kirk survey oaks on Pioneer Forest, 1950s

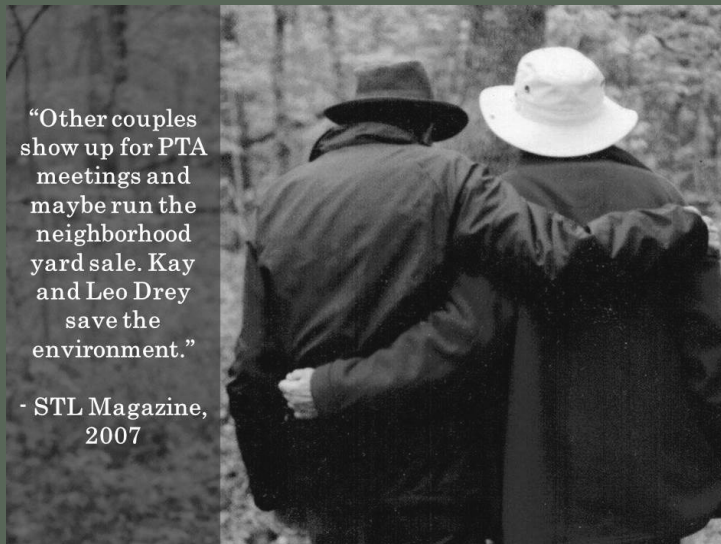


"Oh, you have a tree! I'm a tree worshiper."
"Two or three, actually," he replied.
"I was very impressed he had a tree."

- Kay Drey on meeting Leo in 1954

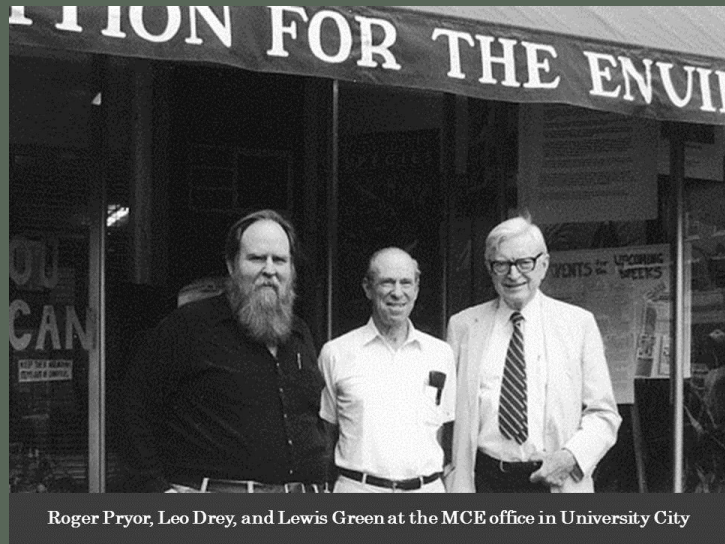


Leo Drey with Senators Frank Moss, Alan Bible, and Ed Long at field visit for Ozark National Scenic Riverways bills, 1962.

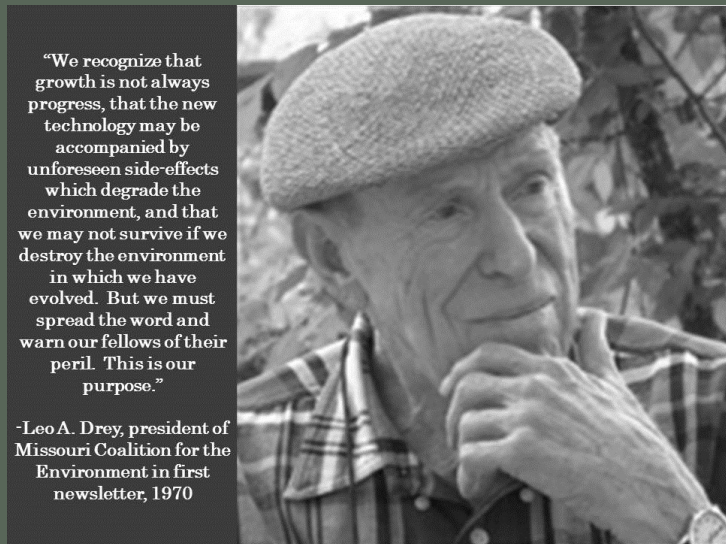


"Other couples show up for PTA meetings and maybe run the neighborhood yard sale. Kay and Leo Drey save the environment."

- STL Magazine, 2007



Roger Pryor, Leo Drey, and Lewis Green at the MCE office in University City



"We recognize that growth is not always progress, that the new technology may be accompanied by unforeseen side-effects which degrade the environment, and that we may not survive if we destroy the environment in which we have evolved. But we must spread the word and warn our fellows of their peril. This is our purpose."

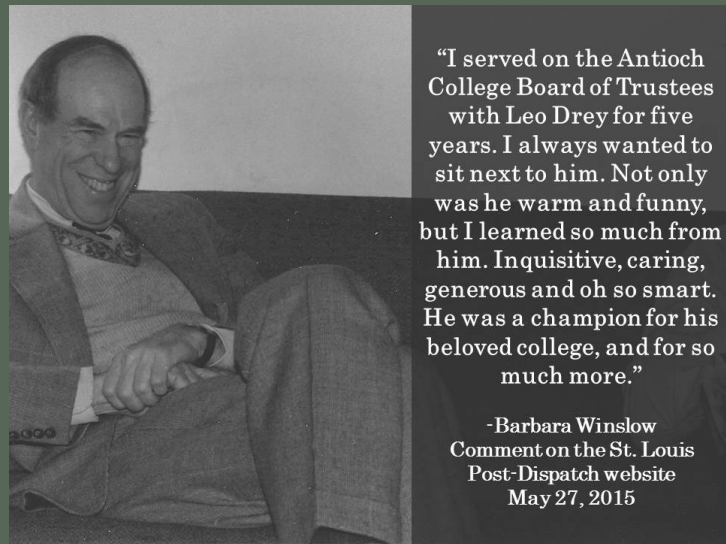
-Leo A. Drey, president of Missouri Coalition for the Environment in first newsletter, 1970



Every State Should Have a Leo Drey

THE SON OF THE DOOR Leo Drey has the door open. He's not just a man who opens the door to a new way of thinking, but a man who opens the door to a new way of living. He's not just a man who opens the door to a new way of thinking, but a man who opens the door to a new way of living. He's not just a man who opens the door to a new way of thinking, but a man who opens the door to a new way of living.

Audubon, 1988, after Leo's Greer Spring purchase



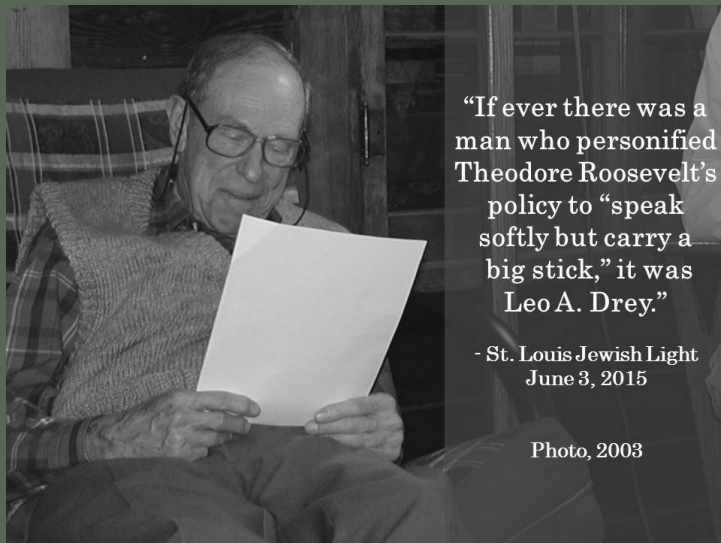
"I served on the Antioch College Board of Trustees with Leo Drey for five years. I always wanted to sit next to him. Not only was he warm and funny, but I learned so much from him. Inquisitive, caring, generous and oh so smart. He was a champion for his beloved college, and for so much more."

-Barbara Winslow
Comment on the St. Louis Post-Dispatch website
May 27, 2015



"[We] embrace the fundamental humanitarian concept that we are stewards of the land—that we hold it in trust for ourselves and future generations. In the light of that truth we believe that progress can no longer be defined simply as economic growth."

-Leo Drey in a letter from the Missouri Coalition for the Environment to the St. Louis County Planning Commission



"If ever there was a man who personified Theodore Roosevelt's policy to 'speak softly but carry a big stick,' it was Leo A. Drey."

- St. Louis Jewish Light
June 3, 2015

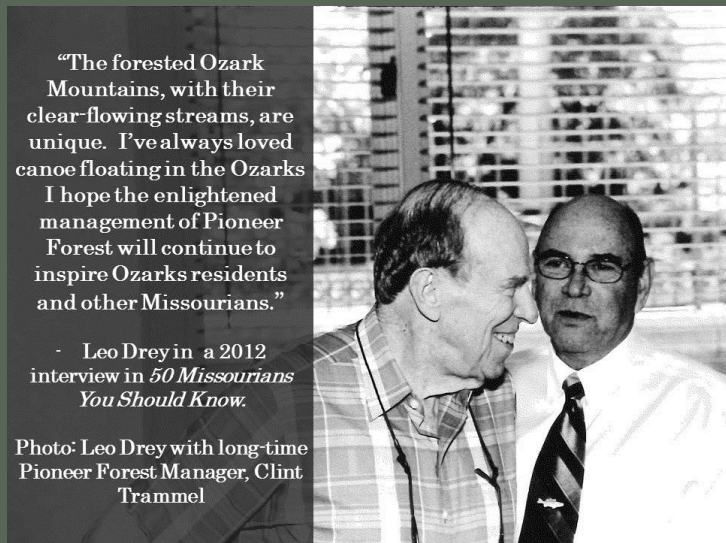
Photo, 2003



Lauri, Kay, Leonard, Eleanor, "Little Leo," and Leo Drey



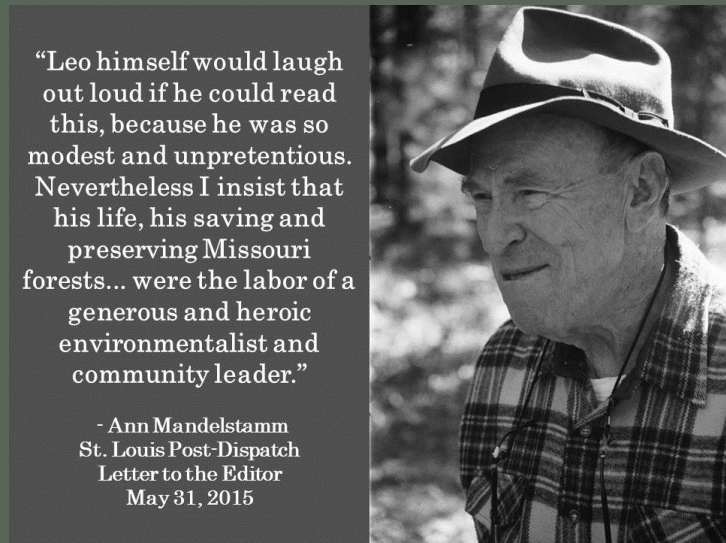
Leo Drey with Pioneer Forest and L-A-D staff, 2011



"The forested Ozark Mountains, with their clear-flowing streams, are unique. I've always loved canoe floating in the Ozarks. I hope the enlightened management of Pioneer Forest will continue to inspire Ozarks residents and other Missourians."

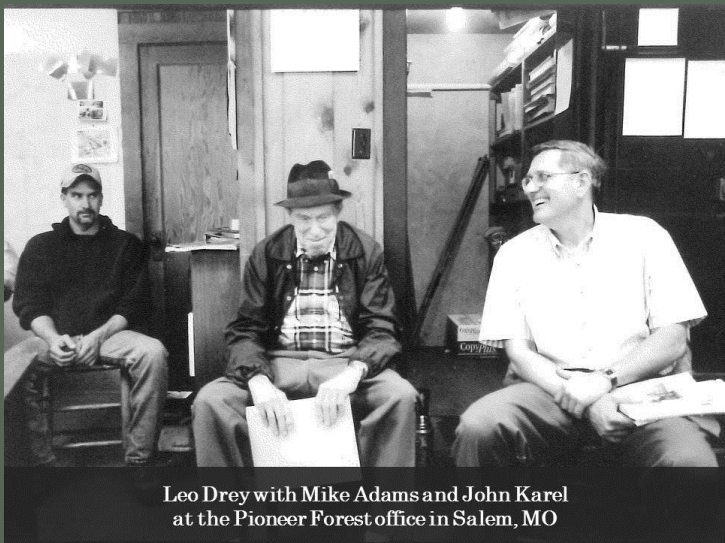
- Leo Drey in a 2012 interview in *50 Missourians You Should Know*.

Photo: Leo Drey with long-time Pioneer Forest Manager, Clint Trammel



"Leo himself would laugh out loud if he could read this, because he was so modest and unpretentious. Nevertheless I insist that his life, his saving and preserving Missouri forests... were the labor of a generous and heroic environmentalist and community leader."

- Ann Mandelstamm
St. Louis Post-Dispatch
Letter to the Editor
May 31, 2015



Leo Drey with Mike Adams and John Karel at the Pioneer Forest office in Salem, MO

1970 profile of
Leo and Kay
Drey's work,
St. Louis Post-
Dispatch

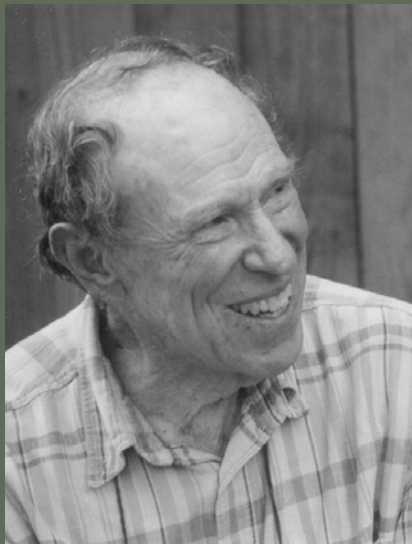


Mr. and Mrs. Leo Drey at their home in University City. (Post-Dispatch Photo by Lloyd Spahnower)

A Woodman Who Spares His Trees



Lewis Green, founder of Great Rivers Environmental Law Center, and Leo Drey. Together, Lew and Leo fought numerous campaigns for county parks and other environmental issues.



"Our fathers taught us to stand for ethics and stewardship; no cause too small, no reward worth compromised integrity. The earth cannot fight for itself; it needs somebody to fight for it. And find the humor in corruption, so that you retain the strength to rise and lift another day."

— Anne Green Romig

Comment on the St. Louis Post-Dispatch website, May 27, 2015

Photo, 2004



The Drey family at the annual Pioneer Forest Community Dinner in Salem, 2007.

Left to right: Lauri Drey, Leo Drey, Kay Drey, Eleanor Drey, Leonard Drey, Rennie Saunders, and grandson, Little Leo



Roger Pryor Pioneer Backcountry dedication 2001. Trail system subsequently was leased to Missouri State Parks.



Happy 50th, Leo Drey

St. Louis Post-Dispatch on the 50th anniversary of Pioneer Forest, 2001

Remembering Leo Drey

CELEBRATING THE LIFE OF LEO DREY

L-A-D Foundation Founder and Chairman, Leo A. Drey, passed away peacefully on May 26, 2015. He was 98.

Friends and family gathered to celebrate the life of Leo Drey at the Stupp Center in Tower Grove Park on June 29, 2015. Guests were able to visit, share memories, view pictures and articles of Leo's life's work, and page through numerous tributes from across the state. More than 200 people came to honor a man who left a remarkable legacy to Missouri.

The L-A-D Foundation is committed to the work inaugurated by Leo Drey, to steward important natural and cultural resources in the Ozark region.



L-A-D Board Director Susan Flader (left), Leo's daughter Lauri Drey (center), and family friend Tom Engelhardt (right) were among the many speakers who shared their memories of Leo.



L-A-D Board Director Wayne Goode presents Kay Drey with the Post-Dispatch Weather Bird drawn in memory of Leo.



L-A-D President John Karel thanks guests for their support and invites continued sharing of stories.

Remembering Leo Drey



The Stupp Center in Tower Grove Park provided an excellent space for viewing pictures and articles from the life of Leo Drey, as well as for guests sharing their own written stories.



Guests gathered outside to listen to speakers pay tribute to Leo's life work and his lasting legacy.



Guests enjoyed food and conversation after the presentations.

PHOTOS BY: DENISE HENDERSON VAUGHN

L-A-D Foundation

REMEMBERING LEO DREY
PIONEER FOREST MANAGEMENT
LAND CONSOLIDATION
RESEARCH
OUTREACH AND EDUCATION
STEWARDSHIP AND RECREATION
GRANTMAKING AND COMMUNITY SUPPORT
PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

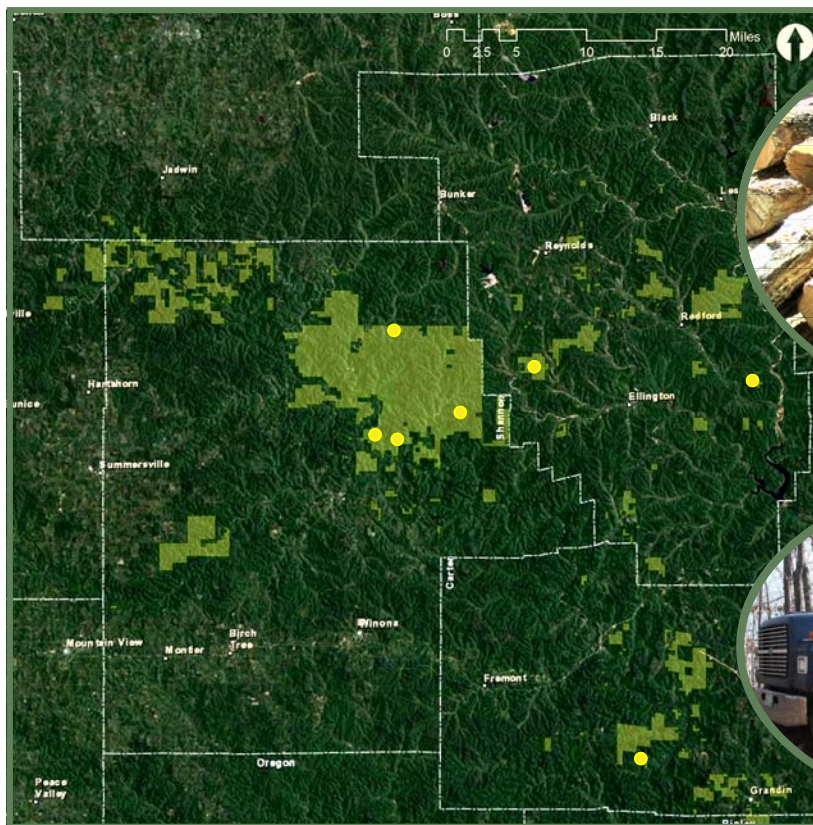
Pioneer Forest Management



GREG IFFRIG

TIMBER SALES

Over the past year, we had been marking and administering four timber sales. In July, Wisdom Sawmill and Logging joined as one of our crews, bringing to five the number of crews working on Pioneer. We also awarded a successful bid on a sale near Clearwater Lake, and have been marking and scaling another sale to be bid near Eastwood/Van Buren. After getting off to a slow start due to weather, Pioneer Forest still expects to harvest 5 million board feet of sawtimber, 3 million board feet of blocking and 1.5 million board feet of pulpwood.



Location of timber sales on Pioneer Forest, 2015



Timber harvest, 2014.
NEAL HUMKE



Timber harvest by the crew of Ron Tuttle, a long-time logger working on Pioneer Forest.
JASON GREEN

TIMBER SALES BY WEIGHT

Pioneer Forest now sells timber by weight. The new practice has several advantages over selling timber by volume. Our foresters report more efficient marking operations, since less time is spent assessing the volume of each tree. Additionally, it is expected that income will increase per tree, as Pioneer will now be paid for parts of the tree not previously accounted for. Timber sale by weight is a standard practice in the southern part of the United States and becoming increasingly common in Missouri.

Pioneer Forest Manager Jason Green and Chief Forester Brandon Kuhn reviewed these changes for the Board of Directors at its annual spring board meeting in Salem.

BOUNDARY LINE MAINTENANCE

Pioneer Forest has approximately 575 miles of boundary lines. We had hoped to refresh 100 miles this winter, however poor weather restricted work to only 80 miles. Property line maintenance remains a top priority, and staff members anticipate remaining on pace to meet our long-term goals.

BACKCOUNTRY ISSUES

Feral Hogs. The Ozark Region has been increasingly plagued by feral hogs in recent years. Hogs have tremendous reproductive potential, as seen this past year within the Roger Pryor Pioneer Backcountry. Feral hogs appear to be especially attracted to glade areas, with devastating results. We have seen signs of hogs all over the Backcountry, including in glade areas of Jerktail Mountain.

Pioneer Forest has used several methods to control the population. Of 80 hogs killed last year, a handful were trapped, with most tracked and shot. Efforts in 2015 have yielded another 27 killed. Hogs are wary, and will continue to be a significant problem. Left unchecked, we could expect even more devastating damage to glades and fragile areas.

Illegal Off-Road Vehicle Use. Recently Pioneer Forest has experienced a surge of illegal off-road vehicle use. In May, Facebook posts showed people riding UTV's, Jeeps, and four-wheel drive vehicles in Big Creek. Missouri Department of Conservation agents were aware of our situation and offered to help. Conservation agents worked Big Creek in the weeks that followed, issuing tickets for riding in the creek, and organized a show of force for the 4th of July weekend, writing several more citations.



Above, Chief Forester Brandon Kuhn demonstrates timber scaling using the old method of sales on volume. The process required estimating the volume of the tree pre-harvest. Below, the new method of timber sales on weight still requires selecting and marking timber, but no longer requires volume estimation for each tree.

PHOTOS BY: JASON GREEN



We are now mobilizing to reduce this problem. In the Backcountry we will post the signs shown here to notify the public that motorized vehicle use is acceptable only on public roads. Our new signs will clearly distinguish our private forest roads, which are not available for public vehicular traffic. Larger signs will be placed at our entrances that will list expectations for our lands. We have support from the Shannon County Prosecutor and the Conservation Agents, and feel confident that these efforts will reduce illegal off-road vehicle use.



SECOND SEASON CONTINUES ECOLOGICAL RESTORATION OF SPECIAL DESIGNATION AREAS

Our 2015 stewardship crew includes two members returned from last year: Melanie Matchett and Ian McLaughlin. These returning members provide useful continuity. Three new members were hired to complete our five-person stewardship crew, with members originating from Missouri, Illinois, Wisconsin, and New York. Each member contributed diverse expertise gained from backgrounds in fire and natural resource management.

Through February and early March, the crew worked to complete fire line and prepare burn units as well as remove invasive cedar trees from glades. Months of planning came together on March 21, 22, and 23, when members of our staff were joined by National Park Service employees to complete the burn of the 1837-acre unit on Jerktail Mountain. Favorable weather continued through early April, when the crew was able to complete two additional burns of our shortleaf pine woodland units.



Signs will be put up throughout the Backcountry to clearly state our expectations for recreational use of the land.

CLARE HOLDINGHAUS

PIONEER'S JERKTAIL MOUNTAIN

Jerktail Mountain includes a large glade complex with woodland areas intermixed across the landscape. Forested sections contain significant areas of timber composed primarily of oak, pine, and hickory species. It also offers some of the most scenic vistas on Pioneer Forest.

Due to the varying topography, several distinct plant communities exist. Following careful planning and an adaptive timber harvest approach, post-burn vegetation surveys have indicated that we already have achieved significant increases in herbaceous plant biodiversity across both woodland and glade areas. Since Jerktail Mountain is managed differently than most of Pioneer Forest, it has been designated as a Special Ecological Management Area.



Seasonal stewardship crew, from left to right: Nathalie Woloszyn, Melanie Matchett, Ian McLaughlin, Jacob Pulfer, and Andrew Braun.



With prolonged snow cover through February our seasonal crew was able to complete other beneficial tasks such as removing invasive cedar trees from a glade.



Seasonal crew with National Park Service staff after completing Jerktail Mountain prescribed burn, March 2015.

PHOTOS BY: NEAL HUMKE

WILDLIFE CONSERVATION SOCIETY GRANT UPDATE

In 2013 the L-A-D Foundation received a grant from the Wildlife Conservation Society (WCS) of the U.S. to increase the Foundation's capacity to manage areas of particular environmental interest. Grant funds were designated for the establishment of a seasonal fire crew to conduct prescribed burns to increase the adaptability of fire-dependent shortleaf pine woodland and glades.

As of March 31, 2015, the Foundation had met or exceeded all goals set out within the WCS grant, including:

- Completing more than 2,100 acres of prescribed burning of Ozark woodland and glade ecosystems
- Developing partnerships and joint burn plans with agencies throughout the region
- Establishing a system of monitoring to measure the effects of burn activities
- Communicating our achievements and discoveries through a variety of media outlets: web pages, webinars, and local newspaper reports

Overall, the grant through WCS has allowed the L-A-D Foundation to increase its ability to reintroduce fire to fire-dependent ecosystems. Management has increased in just two years, from 160 acres to 2,100 acres.

Monitoring of the plant and animal populations in burn management areas is currently underway. Data gathered through monitoring will supplement existing Pioneer Forest data to give a more comprehensive understanding of the area's natural communities.



Equipment purchased through WCS grant.



Virgin Pine prescribed burn, March 17, 2015.



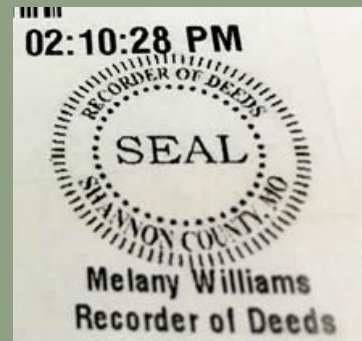
Jerktail Mountain prescribed burn, March 23, 2015.

PHOTOS BY: NEAL HUMKE

L-A-D Foundation

REMEMBERING LEO DREY
PIONEER FOREST MANAGEMENT
LAND CONSOLIDATION
RESEARCH
OUTREACH AND EDUCATION
STEWARDSHIP AND RECREATION
GRANTMAKING AND COMMUNITY SUPPORT
PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

Land Consolidation



GREG IFFRIG

ADDING TO PIONEER'S LILY POND TRACT, REYNOLDS COUNTY

Named for a small sinkhole pond and natural area, Pioneer's Lily Pond tract in Reynolds County consisted of 1880 acres that required crossing through neighboring property for access. In the summer of 2014, the Kellogg family, our neighbor to the west, contacted the Foundation about purchasing their land.

Our on-the-ground inspection indicated the 790-acre Kellogg farm was mostly forested and of good quality, with an opportunity for a Pioneer-style selective cut in the near future. The Kellogg tract sits atop a ridge between Sinking Creek and its tributary Harrison Valley, located a mile-and-a-half northwest of Redford, between Centerville and Ellington. The Kellogg property was recognized as an excellent addition that further consolidated a larger tract, secured access by way of a county road, and improved opportunities for future timber management.



The Foundation received donation assistance from Nadist LLC to acquire the property as part of Pioneer Forest LLC in December 2014. The sale has been ratified by the Board at its April 2015 meeting. The Lily Pond tract is now 2,670 acres.

ADDING ADJOINING LAND TO PIONEER NEAR AKERS FERRY

An 80-acre tract of forest had been offered to Pioneer for sale; it is comparable to adjoining Pioneer Forest lands. It fills a gap within a significant block of the Forest near Akers Ferry in Shannon County. It joins Pioneer Forest on three sides and meets the guidelines of our consolidation policy.

This transaction was completed at the end of March 2015.

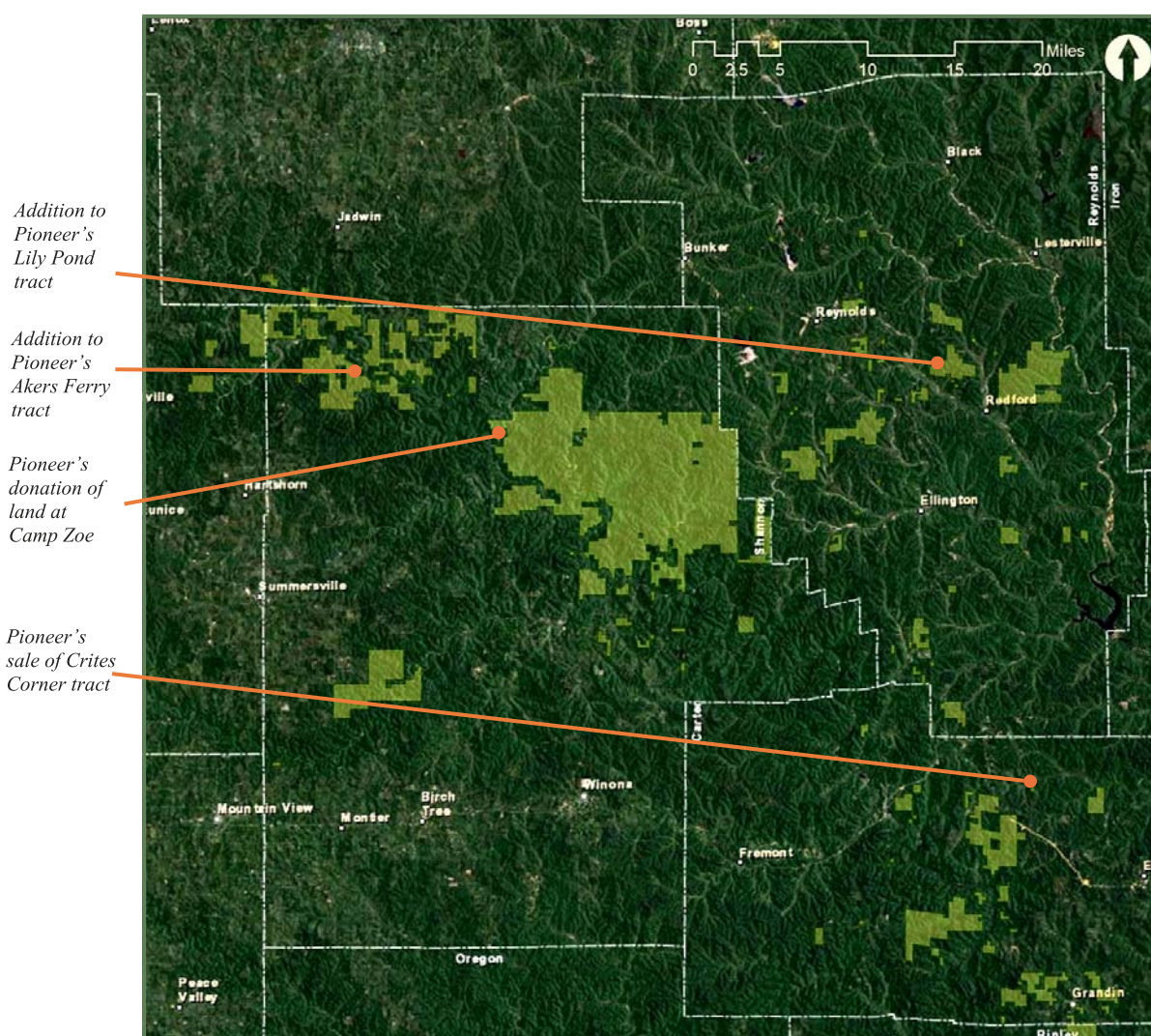
SALE OF A PIONEER FOREST 40-ACRE TRACT NEAR CRITES CORNER, CARTER COUNTY

Located eight miles east of Van Buren and north of Highway 60, this small tract was isolated relative to other Pioneer-owned land, with no opportunity to connect it to a more sizeable piece of the forest. The tract has been increasingly difficult to access and timber production was poor.

The Pioneer Forest staff had recommended selling this tract since 2007. In May of this year it was sold. Income from the sale is earmarked for replacement lands adjoining Pioneer Forest.

DONATION OF 51 ACRES TO MISSOURI DEPARTMENT OF NATURAL RESOURCES

At the request of the State of Missouri, 51 acres of Pioneer Forest land adjoining the new state park at Camp Zoe were donated to the state to facilitate ease of installation of utilities and services. See page 25 for more on Camp Zoe development.



L-A-D Foundation

REMEMBERING LEO DREY
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ADMINISTRATIVE ISSUES

Research



Botanical sampling on Jerktail Mountain.
NEAL HUMKE

BOTANICAL RESEARCH ON PIONEER'S PINE WOODLANDS AND JERKTAIL MOUNTAIN



Botanical sampling plot established on Jerktail Mountain by National Park Service researchers. NEAL HUMKE

The National Park Service (NPS), in conjunction with the Institute of Botanical Training in Salem, completed vegetation monitoring to document recent management effects on Jerktail Mountain on Pioneer Forest in Shannon County. Dan Drees, who monitors fire effects for the NPS, compared 2014 pre-burn data with 2015 post-burn data. He reported that average species richness of native herbaceous plants (mainly wildflowers and grasses) increased by 37% on two of the glade monitoring plots and by 137% on two woodland monitoring plots just ten weeks following the area's first prescribed burn.

AVIAN RESEARCH

Two of the Foundation's Ecological Management Areas (Jerktail Mountain and Virgin Pine-Randolph area) were included as part of a larger breeding bird survey across the Forest Service's Collaborative Forest Landscape Restoration Program (CFLRP). This study, headed by Frank R. Thompson (US Forest Service, Northern Research Station) and Melissa Roach (graduate student, University of Missouri -- Columbia), records bird species diversity and density in managed natural areas with approximately 250 plots on federal, state, and private lands. Results are expected in the spring of 2016, with surveys continuing.



*Prairie Warbler (*Setophaga discolor*) in Chinquapin Oak. This is one example of a species that thrives on thinned and burned Ozark glades such as those owned by the L-A-D Foundation.*

SUSAN FARRINGTON

WHITE NOSE SYNDROME CONTINUES ITS SPREAD ACROSS MISSOURI

The L-A-D Foundation is a collaborative partner in the Missouri hibernating bat survey led by researchers with the Missouri Department of Conservation. This year, of 374 bat hibernacula surveyed, 134 sites showed visible signs of white-nose syndrome. White-nose syndrome is caused by a fungus (*Pseudogymnoascus destructans*) and has been confirmed in eight Missouri counties and detected in another 24 as of April 2015.

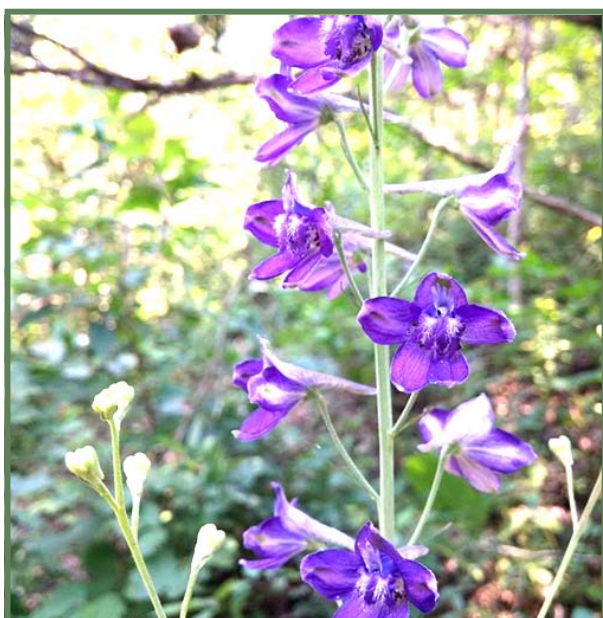
LAD-owned Cookstove Cave in the Roger Pryor Pioneer Backcountry (with a significant population of Indiana bats) and Medlock Cave along the Current River near the NPS Flying W area (with gray bats) are both in Shannon County. Each of these caves has been gated, and Cookstove has been visited every two years to recount bat populations and was sampled this past winter. The presence of white-nose syndrome was confirmed, but the numbers of Indiana bats were up.

MDC researchers note that for caves with the first year of visible fungus, the bat population counts tend to be higher than previous years; this has been reported in eastern states as well. Trends by species also reflect what eastern states have reported that little brown bats, tri-colored bats, and northern long-eared bats show declines most quickly.

White-nose syndrome continues to spread across Missouri, even as far west as Springfield and Kansas City. Extreme southwest Missouri has escaped the fungus thus far.

TALL LARKSPUR RESEARCH

The National Park Service conducted field monitoring of tall larkspur (*Delphinium exaltatum*) at three areas within the Riverways (Devils Well, Pistol Barrel, and Welch Lodge) which are being managed to help this globally-rare plant to survive. L-A-D property includes two sites--one near Welch Lodge and another near Devils Well. Data from 2015 show significant population increases in both locations -- in some cases attracting deer browse of plants attempting to bloom. Accomplishments thus far are promising.



Tall larkspur (*Delphinium exaltatum*), a species L-A-D has been working to restore.

TESA MADSEN-MCQUEEN



A National Park Service researcher helps to monitor larkspur populations on a plot near Akers Ferry. Baseline data were established prior to cedar removal this winter.

NEAL HUMKE

PROMISING REPORTS FROM CAVE AND KARST MONITORING IN PERRY COUNTY

Attention has been focused on a recently listed endangered species, the grotto sculpin (*Cottus specus*), only known to live in the caves of Perry County. The city of Perryville has shown interest in preserving and better managing its caves. As part of that effort, in early May the Missouri Speleological Survey (MSS) revisited 15 caves around Perryville; some had not been assessed by MSS for more than 30 years.

One particular cave that had been visited in previous decades had a reputation for bad air quality, detergent bubbles in the water, and trash throughout. Richard Young explored this cave back then and again in May.

“Such a vast improvement has been made. I immediately noticed the cave no longer smelled as it did before,” said Young, as quoted in the May 5, 2015, Perryville News/Republic Monitor. Now, he said, “the water is clean and clear, and we saw several species of life, including cave salamanders, amphipods, isopods, crickets, a carp minnow, and a rare pink planarian.” The latter are worm-like creatures that are very sensitive and can only survive in clean, healthy cave habitat.

Two months later, five cavers with the Middle Mississippi Valley (MMV) Grotto found so many grotto sculpin that after 80 they gave up counting them. They were in a branch of the Berome Moore Cave system in rural Perry County, a part of which extends underneath L-A-D Foundation property at its Ball Mill Resurgence Natural Area / Blue Spring Branch Area.

MMV member Annette Brostmeyer, who provided photos of the July 18 trip, said most of the sculpin they saw were about three inches long, but it was “hard to tell exactly, since they are fast little critters.” They also saw some juvenile sculpin, and several times they spotted at least four sculpin in one pool.

They also observed a frog, isopods, and a cave salamander. All of this is very encouraging for L-A-D’s goals in this important region.



Long-time MMV Grotto member Richard Young looks into a pool while in a cave beneath Perryville in May.
TONY SCHMITT



Cave salamander seen within Berome Moore Cave system.
ANNETTE BROSTMAYER



Grotto sculpin were seen in a July 2015 trip within the Berome Moore Cave system.
ANNETTE BROSTMAYER

L-A-D Foundation

REMEMBERING LEO DREY
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Outreach and Education



BBQ guests read an article about Pioneer Forest.
DENISE HENDERSON VAUGHN



Members of the Middle Mississippi Valley Grotto and L-A-D staff dug 1980s-era trash out of a rocky crevice in a sinkhole.

PERRY COUNTY KARST SINKHOLE CLEANUP

The L-A-D Foundation has been working with the Middle Mississippi Valley Grotto and members of the Missouri Cave and Karst Conservancy to encourage sinkhole cleanups on private land in Perry County. This effort may improve local groundwater quality and could increase survival chances for the federally endangered grotto sculpin, which live in the local caves.

A test sinkhole cleanup took place April 4 on land owned by a neighbor to the Foundation's Ball Mill Resurgence/Blue Spring Branch property. L-A-D Foundation provided lunch, garbage bags, trucks, and paid for all trash disposal. The 13 participants quickly scouted and mostly cleaned a quarter-acre sinkhole. But then in one small, rocky crevice, workers discovered tightly packed trash at least four feet deep, which yielded much of the day's trash haul.

Cleanup work is expected to continue this fall/winter. We are seeking matching funds for ongoing sinkhole cleanups in the Berome Moore Cave drainage area for the next two to three years.



Sinkhole cleanup volunteers contributed 60 individual hours and filled more than 50 heavy-duty trash bags. They also removed an inner tube, tires, a washing machine, hardware, wiring, bolts, and a double car seat.

PHOTOS BY: DENISE HENDERSON VAUGHN

NATIONAL SPELEOLOGICAL SOCIETY CONVENTION IN MISSOURI



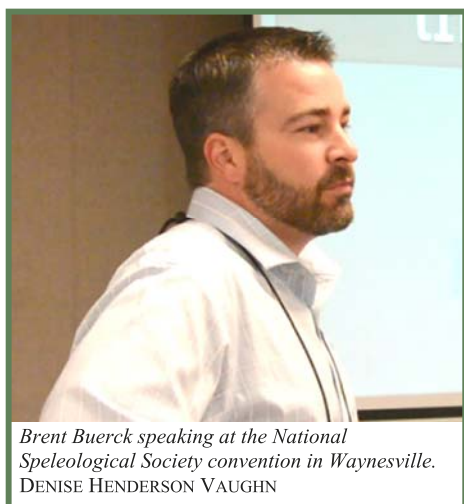
On behalf of the Foundation, journalist Denise Vaughn assembled a display and PowerPoint featuring L-A-D's efforts to protect karst features on our lands. It highlighted the Foundation's work to help improve groundwater quality in Perry County, and it showed our cooperation with the Cave

The L-A-D Foundation had an opportunity in July to tell cavers nationwide about our long-term efforts to protect caves and karst.

The 2015 annual NSS Convention, held July 13-17 in Waynesville, featured hundreds of cave-related activities, such as workshops, booths, and field trips. Karst resource managers and caving volunteers from across the country discussed topics such as white nose syndrome, new cave discoveries, and new methods for safely exploring, protecting, and photographing caves.



Caver Jim Sherrell with the Middle Mississippi Valley Grotto tells a story to Denise Vaughn while pointing to a photo of Ball Mill Resurgence, which is owned by the L-A-D Foundation. Close-up of that photo is shown top left. GREG IFFRIG



Brent Buerck speaking at the National Speleological Society convention in Waynesville. DENISE HENDERSON VAUGHN

Research Foundation and various grottos for cave surveying, mapping, research, and monitoring on Pioneer Forest lands. The Foundation also has provided grants for a variety of karst-protecting projects, such as: the Missouri Cave and Karst Conservancy's cleanup of Goodwin Sink; Ozark Underground Lab's protection of Tumbling Creek Cave; and Springfield Plateau Grotto's publishing and then reprinting of their booklet *Caring for Your Karst*.

A highlight of the NSS convention was the presentation by Brent Buerck, city administrator of Perryville, Mo., who told of efforts by his city and the surrounding county to clean up Perry County karst while improving the quality of underground water for residents. This project also benefits the grotto sculpin, recently listed as endangered. His comments were well-received by the audience and complimented by a U.S. Fish and Wildlife Service staff member.



Shannon County Commissioner Herman Kelly showed up in style with this classic Chevy.
DENISE HENDERSON VAUGHN

NINTH ANNUAL COMMUNITY DINNER

Pioneer Forest held its ninth community dinner on April 22 at its campus in Salem. Members of the Gorman family and Tiny's Bar-B-Q catered this year's dinner with smoked barbecue pork and chicken and sides. Joleen and Brian Durham, owners of the Piney River Brewing Company in Bucyrus, provided beer for pre-dinner socializing.

Thank you to our more than 150 neighbors, friends, colleagues, and guests from across the Ozarks, and to all who helped us with food, parking, setup, and arrangements.



Guests visited while waiting (left) for a dinner prepared by Tiny's Bar-B-Q (center), then heaped their plates with all the fixin's as they went through the buffet line (right).

PHOTOS BY: DENISE HENDERSON VAUGHN

L-A-D FOUNDATION STAFF INVITED TO SPEAK AT NATIONAL ADAPTATION FORUM

Attendees at the second National Adaptation Forum, held May 12-14 in St. Louis, discussed climate change and the need to respond to and prepare for its effects. This biennial gathering of academics and professionals from public and private organizations and community groups also was attended by students and media representatives from across the nation.

L-A-D Foundation Land Stewardship Coordinator Neal Humke participated in a panel discussion May



Participants listen during a Wildlife Conservation Society session of the National Adaptation Forum, held May 12-14, 2015 in St. Louis.
DARREN LONG, WCS

13 to describe Pioneer's climate adaptation project funded by the Wildlife Conservation Society (WCS). The grant allows us to acquire tools and develop management protocols for our efforts to restore fire-adapted Ozark pine woodlands and glades in the most promising areas within Pioneer Forest.

INTERIOR HIGHLANDS SHORLEAF PINE

L-A-D Stewardship Coordinator Neal Humke attended the annual Interior Highlands Shortleaf Pine Meeting on April 20 and 21 in West Plains. He joined employees from the Missouri Department of Conservation, US Forest Service, and other agencies in discussing issues surrounding shortleaf pine landscapes in Missouri. Pioneer Forest includes several areas of natural shortleaf pine, including the Virgin Pine Area along Highway 19 in Shannon County.

PRESENTATION TO MISSOURI FOREST RESOURCES ADVISORY COMMITTEE

Pioneer Forest Manager Jason Green and Chief Forester Brandon Kuhn gave a presentation at the March 11, 2015 meeting of the Missouri Forest Resources Advisory Committee (MoFRAC) detailing Pioneer Forest's new practice of selling timber by weight. Their presentation was well received, covering the economic benefits and potential challenges to this new method.

VISITS TO L-A-D FOUNDATION LANDS

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

- **October 23 - November 3, 2014:** Sierra Club, Missouri Chapter, volunteers conducted trail maintenance on the Blair Creek section of the Ozark Trail as part of a 10-day trail event.
- **December 10, 2014:** Gary Grigsby, University of Missouri National Public Radio station, visited Pioneer Forest to discuss white oak mortality and sustainable timber harvest.
- **November 13, 2014:** Jim Guldin, Southern Research Station (U.S. Forest Service) and L-A-D Advisory Council member, Hot Springs, Arkansas, visited Pioneer shortleaf pine management areas.
- **February 11, 2015:** Jim Blanton, Seattle, Washington, long-time member of the Ozark Society visited L-A-D Foundation office in St. Louis.
- **March 11, 2015:** Larry Johnson, Acting Superintendent of the Ozark National Scenic Riverways, visited Pioneer Forest for introduction, orientation, and review of collaborative efforts.
- **March 27 - 29, 2015:** Sierra Club, Missouri Chapter, volunteers conducted maintenance on Laxton Hollow Trail.



L-A-D Advisory Council member Jim Guldin (second from right) visits Pioneer Forest with L-A-D Foundation Board President John Karel (left), Board Liaison Greg Iffrig (second from left) and Advisory Council member Dave Larsen (far right). November 2014.
JASON GREEN

- **April 24 - 26, 2015:** Sierra Club, Missouri Chapter, volunteers conducted maintenance on Bushy Creek Trail.
- **May 1, 2015:** Si Balch, Consulting Forester, Manomet Center for Conservation Sciences, Plymouth, Massachusetts, visited Pioneer Forest to discuss the Center's interest in forest management alliances.
- **June 5, 2015:** Southern Illinois University - Carbondale, School of Forestry Summer Camp, 34 students visited to learn about Pioneer's method of forest management.
- **June 24, 2015:** University of Missouri - Columbia, School of Forestry Summer Camp, 14 students visited to learn about Pioneer's uneven-aged, single-tree selection method of forest management.

L-A-D Foundation

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PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

Stewardship and Recreation



Coneflower on a Pioneer Forest glade.
NEAL HUMKE

TRAILS

The L-A-D Foundation works to ensure public opportunities for rewarding outdoor experiences, including hosting more than 70 miles of trails through L-A-D Foundation land.

This year, volunteers from the Sierra Club helped to maintain the Blair Creek Section of the Ozark Trail, Brushy Creek Trail, and Laxton Hollow Trail.

L-A-D Foundation and Pioneer Forest staff also began working with Missouri State Parks on two new trails through the Roger Pryor Pioneer Backcountry as part of the development of the former Camp Zoe into a new state park.

A full list of Foundation trails can be found in the appendices of this report.



Volunteers with the Sierra Club conducted trail maintenance at Brushy Creek as part of a 10-day trail event in the fall of 2014.



Above, flagging a new trail through the Roger Pryor Pioneer Backcountry in July 2015 as part of the new Camp Zoe state park development. NEAL HUMKE

Left, several National Park Service horse trails cross Pioneer Forest land near Jerktail Mountain.

PHOTOS BY: NEAL HUMKE

CHALK BLUFF RESTORATION

Spray paint graffiti on Chalk Bluff was spotted in mid-April by floaters on the Jacks Fork River. Chalk Bluff is owned by the L-A-D Foundation, and the Ozark National Scenic Riverways holds a scenic easement on the property. The graffiti, 11 letters forming three large words, was near the top of a 60-foot cliff covering an area about 12 feet wide and 24 feet tall. All of it was clearly visible by floaters.

Detective work by a citizen and National Park Service law enforcement quickly located the perpetrator who confessed, then pleaded guilty on June 17 in federal court to a misdemeanor vandalism charge. He paid court-imposed fines and restitution to the L-A-D Foundation.

Restoration began June 27 when a rappelling team with the Cave Research Foundation brought their equipment and experience to Chalk Bluff. Three cavers volunteered 20 hours each over three days to remove the spray paint. They demonstrated impressive professionalism and responsibility to natural resources. The Foundation is grateful for the speed with which this issue was successfully resolved and appreciative to have the skill of the Cave Research Foundation team at work on our lands.



Top photo: First picture of the graffiti posted to social media in April by a floater on the Jacks Fork River.

ACCESSED ONLINE

Middle photo: Restoration of Chalk Bluff was completed in late June. These images depicting the before and after condition illustrate just how completely the volunteers were able to remove the paint, restoring the view of this impressive bluff.

TONY SCHMITT

Photo at left: Volunteers with the Cave Research Foundation hung on rope for three days, using wire brushes, vinegar, and water to remove paint from the cliff face. Top: Tony Schmitt; middle: Dan Lamping; below: Joe Sikorski.

CHRIS FIGGE,
NATIONAL PARK SERVICE



LEASED LANDS

Grand Gulf State Park. Grand Gulf State Park lies in the Central Plateau region of Missouri, an area that early explorer Henry Schoolcraft called “high oak prairies.” It is within an ecoregion known as the Howell-Oregon Counties Oak Woodland Dissected Plain. Centuries ago, this region was a mosaic of prairie, savanna, and open oak woodlands.

Priority attention at Grand Gulf naturally is focused on its spectacular, mile-long cave collapse, which is both scenic and geologically significant. However, the surrounding mature oak woodland is impressive in its own right. Visitors leaving the small parking area can cross the natural bridge to walk a recently completed loop trail and observe an interesting species of oak, known as Southern red oak or Spanish oak (*Quercus falcata*).

This species is widespread in the Southeastern United States, including the lower southern and southeastern counties in Missouri. Its distinctive leaves are generally long and narrow with three-to-five bristle-tipped lobes, the first pair of which is often the longest and sickle-shaped. The word “falcata” refers to a sword whose blade is said to pitch forward, concave near the hilt but convex near the point. This distinctive shape and sweep can be seen in the leaves scattered on the forest floor beginning each fall.

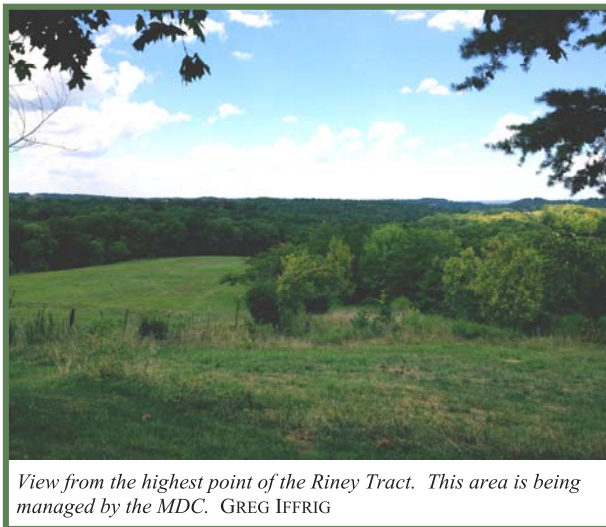


Southern red oak leaves at Grand Gulf State Park.
GREG IFFRIG

Management Plan for Lily Pond Under Review. Lily Pond in Reynolds County is a small Missouri Natural Area surrounded by a much larger 2700-acre piece of Pioneer Forest land known as the Lily Pond Tract. The Lily Pond area was purchased by the Missouri Chapter of The Nature Conservancy in 1961 for its unique sinkhole pond elements, and then designated as a Missouri Natural Area in 1975. In 2006, the Conservancy donated that property to the L-A-D Foundation, to continue its management as a Missouri Natural Area.

Over the past year, L-A-D staff worked with Missouri Department of Conservation staff to prepare a new management plan for the area. That draft plan now has now been completed and is under review by the Foundation’s Stewardship Committee.

Management Plan for Ball Mill Resurgence/Blue Spring Branch Nears Completion. Staff members with L-A-D and the Missouri Department of Conservation have worked together over the past year to write the next ten-year management plan for the Foundation’s Ball Mill Resurgence/Blue Spring Branch properties in Perry County. The draft of management objectives and strategies has been completed, area maps are being revised, and the draft plan should be released soon for review.



View from the highest point of the Riney Tract. This area is being managed by the MDC. GREG IFFRIG

Acquisition of L-A-D lands in Perry County in 2007 reserved a ten-year hunting lease on 139 acres of the Shafer tract. As a result, it will not be open to the public until 2017. L-A-D hopes that its Riney Tract (71 acres), where there are no public use restrictions, will be open to the public soon. There has been general agreement for doing this from the Conservation Department staff.

TALL LARKSPUR RESTORATION

This winter, the L-A-D staff worked to restore a rare tall larkspur (*Delphinium exaltatum*) plant population on a glade near Devils Well in Shannon County. Cedar trees which have grown into otherwise open areas were cut and removed this past winter. By removing these trees, the area was open, with more sunlight able to reach the flowers and grasses that grow in these areas. Observations in May included the Missouri evening primrose (*Oenothera missouriensis*), pale beard tongue (*Penstemon pallidus*), prairie phlox (*Phlox pilosa*), lead plant (*Amorpha canescens*), butterfly weed (*Aesclepias tuberosa*), large-flowered tickseed (*Coreopsis grandiflora*), and eastern shooting star (*Dodecatheon meadia*). The tall larkspur restoration is being monitored by the National Park Service.



View from the southeastern most tall larkspur corner, prior to cutting.



Same view taken during cutting and pile burning.



June 2, 2015, photo of this dolomite glade shows the herbaceous growth.

PHOTOS BY: NEAL HUMKE

SUMMER STEWARDSHIP: REMOVAL OF INVASIVE PLANT SPECIES

A three-member crew from the AmeriCorps St. Louis Emergency Response Team worked to treat exotic invasive species in July at the Virgin Pine/Randolph tract and Jerktail Mountain. The crew's prior training in herbicide application was utilized to locate and spot-treat sericea lespedeza (*Lespedeza cuneata*). Spotted knapweed (*Centaurea maculosa*) was removed from the Virgin Pine area by pulling all flowering stalks and hauling them away.

Exotic invasive species pose an ever-increasing threat to the native biodiversity of our natural areas. An integrated management approach focusing on the highest threats, with ongoing monitoring and treatment, is essential to minimize their negative impacts.



Herbicide application equipment.



AmeriCorps members Alison Tune, Drew Bingley, and Tom McGuire pose with a pile of hand-pulled spotted knapweed at the Virgin Pine area.



Sericea lespedeza (*Lespedeza cuneata*) at a former log landing on the Randolph Tract. Untreated in the background.

PHOTOS BY: NEAL HUMKE

L-A-D Foundation

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PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

Grantmaking and Community Support



L-A-D Board members present a grant check to Friends of the Eleven Point River for restoration of Greer Mill.
GREG IFFRIG

FOUNDATION GRANT PROGRAM

Since 1962, the L-A-D Foundation has given more than 100 grants totaling more than \$460,000 to a variety of non-profit organizations for projects that benefit the natural or cultural resources of the Missouri Ozark region. L-A-D Foundation grants have supported projects as diverse as restoration of historic buildings, trail-building and maintenance, educational initiatives, research into Ozark flora and fauna, water quality improvement initiatives, and youth participation in outdoor leadership and environmental programs.

2015 Grant Program

The Grants Committee received 20 letters of inquiry requesting a total of more than \$87,000 this spring. After consideration, the Grants Committee selected ten finalists to submit full proposals by August 31, 2015. The Committee will review these proposals, and make a recommendation at the fall Board meeting in October.

2014 Grant Recipients

In the fall of 2014, seven grants were awarded to the following organizations:

- **Friends of the Eleven Point River** - Greer Mill roof replacement in Oregon County
- **Great Rivers Environmental Law Center** - Advocacy for the Ozark National Scenic Riverways to comply with National Environmental Policy Act standards
- **Historic Current River Line, Inc.** - Signage and website development illustrating the importance of an historic railroad line through Howell, Carter, and Shannon Counties.
- **Mark Twain Forest Watchers** - Enabling citizen participation in Mark Twain National Forest management
- **Missouri Cave and Karst Conservancy** - Equipment for cleanup of Goodwin sinkhole in Laclede County
- **Ozark National Scenic Riverways** - Contribution to the Haunting in the Hills interpretive event at Alley Springs in Shannon County
- **Ozark Trail Association** - Creation and publication of 5,000 Ozark Trail maps

HIGHLIGHTS FROM THE 2014 L-A-D FOUNDATION GRANTS



Greer Mill in 2013 before roof replacement.



Greer Mill with the new red metal roof funded in part by a 2014 L-A-D Foundation grant.

Volunteers, including those with HistoriCorps and Passport in Time, worked with US Forest Service staff to replace the roof and further stabilize the foundation of Greer Mill.

PHOTOS BY: WILLIAM MACNEILL, US FOREST SERVICE



US Forest Service silviculturalist discussing the Blackwell Ridge Project on the Poplar Bluff District of the Mark Twain National Forest. The Mark Twain Forest Watchers actively obtained and disseminated information about numerous Forest Service land management plans this year.

HANK DORST



The 2014 Haunting in the Hills event in Shannon County was a success, with many activities including historical re-enactment, music, and a pumpkin contest.

FAYE WALMSLEY,
OZARK NATIONAL SCENIC RIVERWAYS

COMMUNITY SUPPORT

Pioneer Forest continues its history of supporting the Ozark region through community grants and scholarships to graduating high school seniors. This year, Pioneer Forest contributed more than \$7,000 to the students and organizations below.

HIGH SCHOOL SCHOLARSHIPS

Bunker High School. Kaleb Martin will be attending Eastern Illinois University this fall where he plans to study engineering.

Eminence High School. Brock Cooley plans to study natural resource management at Missouri State University this fall.

Summersville High School. Markita Bryson will be going to Missouri State University - West Plains where she will be studying teaching and playing volleyball.



Pioneer Forest technician Matt Skaggs presents graduating Bunker high school senior Kaleb Martin with the Pioneer Forest scholarship. May 2015.
JASON GREEN

COMMUNITY GRANTS

Stream Team 1028 (Jadwin, MO). In February, Pioneer Forest donated funds to support a cleanup of the Upper Current River that took place in the spring of 2015.

B.E.S.T Foundation: Funds from Pioneer Forest are helping the B.E.S.T Foundation increase the music program at the Eminence School District.

Shannon County Relay for Life: Pioneer Forest donated funds in May 2015 to support the Shannon County Relay for Life. This event raises money for the American Cancer Society's support of cancer research and provides support for cancer patients.

Heaton Cemetery: Pioneer Forest helped support cleanup efforts for Heaton Cemetery this June. Heaton is an historic cemetery in Shannon County that contains graves that date back as early as 1890.

Bunker Timber Museum: Pioneer Forest made donations to the Bunker Timber Museum in October 2014 and June 2015. Located in an historic church, this museum seeks to preserve the history of the Bunker area in Reynolds County.

Salem United Methodist Church: Pioneer Forest supported Salem United Methodist Church's backpack program in June 2015. This program helps meet the needs of children in the area.

L-A-D SUPPORTS THE MISSOURI PARKS ASSOCIATION WITH BOOK DISTRIBUTION

The L-A-D Foundation assisted the Missouri Parks Association in funding the distribution of a revised and expanded edition of *Exploring Missouri's Legacy*. This book is an in-depth look at Missouri state parks and historic sites, with an emphasis on how the system represents Missouri's diverse cultural and natural assets. Originally published more than 20 years ago, this updated edition includes new photographs, additional parks and historic sites, and a fresh look designed to engage new audiences. Distribution of the book to schools will help inspire new generations of conservationists.

L-A-D Foundation

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PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

Public Policy Issues



The Lower Eleven Point National Scenic Riverways is one of the longest stretches of uninterrupted river in the state.

STATE PARK AT CAMP ZOE

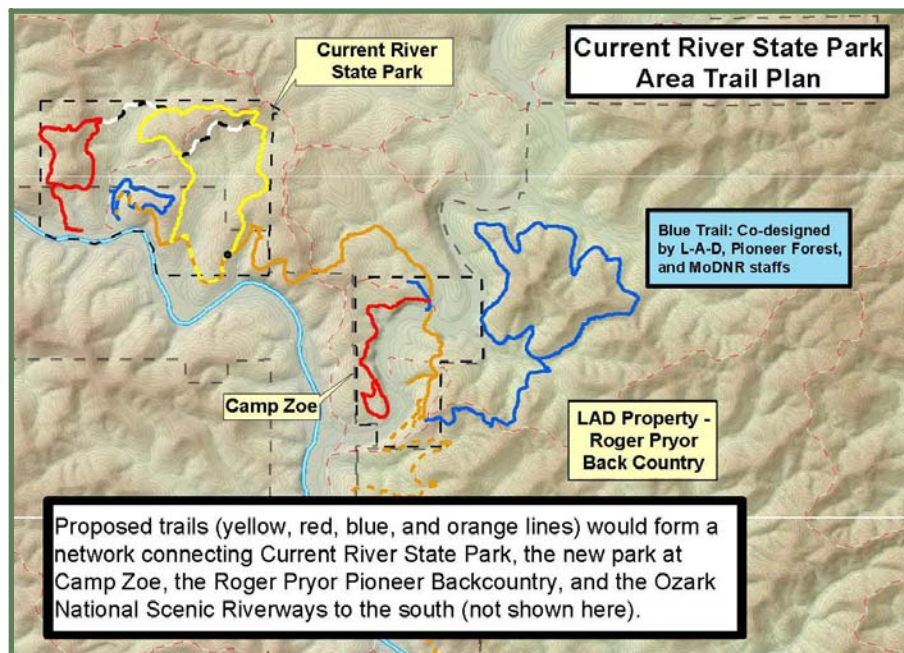
In September 2014 the MoDNR asked the L-A-D Foundation for assistance with the DNR's proposed development of the new state park at Camp Zoe. The Foundation's Pioneer Forest joins three sides of the park's property, and state officials requested the conveyance of several small areas to accommodate utilities, improve access for service vehicles, and allow for public entry from Highway 19.

The L-A-D Foundation has a long history of support of Missouri State Parks, and in this case we are neighbors. The Foundation took an interest in the new park early on, although the Foundation has had no input in the design of the park. In October 2014, the Board discussed details of the proposal with engineers hired by the state. Park plans required four small pieces of land from Pioneer Forest, totaling 51 acres. The Foundation provided the requested easements, and have conveyed that land at no cost to the State of Missouri.

Recent news reports show that the intensity of the development at this new park is unprecedented. L-A-D is dismayed by the disruptions of soil and natural vegetation taking place at the Camp Zoe site.

The L-A-D Foundation has been working with the Missouri State Parks staff to help determine some trail routes that are to lead from the new park at Camp Zoe to the Roger Pryor Pioneer Backcountry. We have worked to ensure that the location of the trails can accommodate timber harvests and avoid ecologically-sensitive areas.

MAP PRODUCED BY THE
MISSOURI DIVISION OF STATE
PARKS



ELEVEN POINT NATIONAL SCENIC RIVER

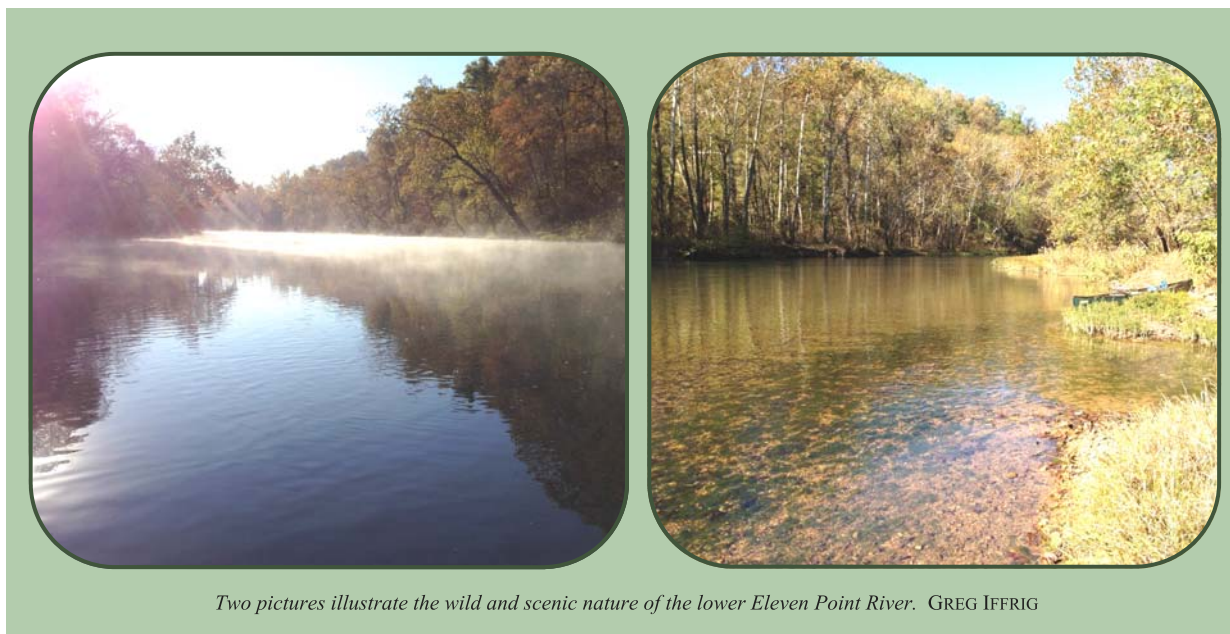
The Eleven Point National Scenic River was designated by Congress in 1968 as one of the seven original components of the Wild and Scenic Rivers System, Public Law 90-542. This national river in Missouri is a 44-mile long, narrow corridor along both sides of the river; all of it managed by the Mark Twain National Forest. Half of the lands are in fee title ownership by the US Forest Service. The other half, including most of the lower section, are in private ownership and are protected by restrictive easements, which were acquired by the US Forest Service.

Recently the L-A-D Foundation has become aware of the State of Missouri's interest in acquiring new state park land along the lower end of the Eleven Point National Scenic Riverways. A new state park could protect the watershed and bring back a more natural landscape. However, ownership could also threaten the quiet character of this stretch of river.

Ozark rivers have long been under increasing development pressure. Opening new roads has been a common intrusion along riverbanks, bringing motor vehicles that interrupt peaceful river recreation. This lower section of the Eleven Point River is a nearly nine-mile float without roads or motorized intrusion. It may well be the longest stretch of such quiet, scenic river left in Missouri.

The location suggested as a new state park along the Eleven Point is currently protected by federal easements on a few large, privately owned tracts. Public ownership is an invitation for thousands to visit the river, and protecting the existing easements and maintaining the high quality of this stretch of the river will be a conservation priority for state and national organizations that understand the high value of this fast-disappearing resource.

The L-A-D Foundation encourages a strong State and Federal partnership to protect this unique river resource for continued public enjoyment of its scenic and peaceful recreation opportunities.



Two pictures illustrate the wild and scenic nature of the lower Eleven Point River. GREG IFFRIG

L-A-D Foundation

REMEMBERING LEO DREY
PIONEER FOREST MANAGEMENT
LAND CONSOLIDATION
RESEARCH
OUTREACH AND EDUCATION
STEWARDSHIP
GRANTMAKING AND COMMUNITY SUPPORT
PUBLIC POLICY ISSUES
ADMINISTRATIVE ISSUES

Administrative Issues



Fall 2014 meeting of the Board.
GREG IFFRIG

SPECIAL RESOURCE STEWARDSHIP DESIGNATIONS ON PIONEER FOREST

In recognition of the diversity of Pioneer Forest lands, the Board has developed a Special Resource Stewardship Designation policy. Special designations on Pioneer now include Missouri Natural Areas (beginning with the Current River Natural Area recognized in 1955), Forest Reserves (adopted in 1995), and Ecological Management Areas (beginning with Pioneer's Randolph Tract in 2009).

This policy document defines the purpose for each of these three categories in relation to the Foundation's overall mission. It also defines the staff-driven approach to designating special areas, and includes a process for the Board to review and approve proposals to establish or expand special designation areas. Pioneer Forest already emphasizes careful management of native species and retention of characteristic forest structure, making Pioneer lands an ideal buffer for these additional, more specialized designations.

The policy document was presented to the Board and approved April 23, 2015. Along with the policy, the following specific designations were approved:

Cookstove/Squaredance Cave Forest Reserve, 12 acres; a gated cave protecting one of Missouri's most significant populations of Indiana bats.

Pineknot Shortleaf Pine Ecological Management Area, 330 acres; this Pioneer Forest tract is located within the larger Mark Twain National Forest Pineknot project to restore pine woodland.

Virgin Pine/Randolph Tract Shortleaf Pine Ecological Management Area, These 500 acres are under Pioneer management; we also have identified a 500-acre expansion area to be managed in the future.

Jerktail Mountain Ecological Management Area, 1160 acres of glades and woodlands.

Tall Larkspur Ecological Management Areas, 85 acres in two units designated to restore conditions favorable to recently discovered larkspur populations.



LEFT: Spiderwort on a glade.

RIGHT: View from the glades on Jerktail Mountain.

NEAL HUMKE

FINANCIAL CONSOLIDATION

Under the direction of Treasurer Wayne Goode, the L-A-D and Pioneer Forest staff worked with accountant Marilee Sauer to streamline L-A-D and Pioneer Forest accounting. Because Pioneer Forest and the L-A-D Foundation are a single financial entity, most L-A-D operational expenses, including rent, utilities, office equipment, and computer expenses, have been reallocated to the Pioneer Forest accounting system. Benefits of this change will include clearer financial reporting and reduced time spent dividing expenses between entities. All updates to accounting practices were implemented by the start of fiscal year 2016.

BOARD CONTINUES TO IMPROVE ITS RISK MANAGEMENT PROCESS

Former Board member Rindy O'Brien encouraged the Foundation to adopt best management practices, comply with federal laws and requirements, and establish policies which are necessary for guiding the board and staff in their operation of the Foundation. Rindy also conducted sessions for the board and staff to define near-term accomplishments which led to the Foundation's first Strategic Plan completed in 2012, and adopted by the Board in January of 2013.

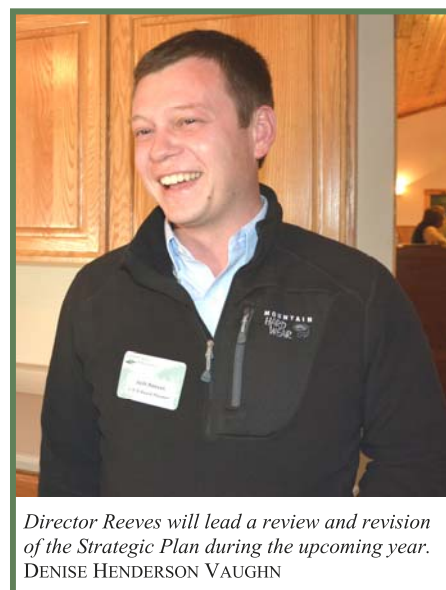
More recently, with strengthened IRS standards regarding tax laws, attorneys with Lowenhaupt and Chasnoff, LLC have further helped the Foundation on these matters to reduce its risk of non-compliance. The L-A-D Foundation hopes that these attorneys can serve as our "eyes and ears" in the non-profit world.



Former Director Rindy O'Brien (left) and Vice-President Susan Flader (right) discuss Foundation matters at a 2008 Board meeting.
GREG IFFRIG

The Board is actively engaged in the following matters:

- The Finance Committee is currently reviewing an Investment Policy to be approved this year.
- A Bylaws Task Force is being chaired by Vice President Flader to review the current bylaws and bring recommendations for changes to the Board.
- The Foundation's most recent Strategic Plan has expired and needs to be updated. Director Josh Reeves has agreed to lead the review with a group of Board and Advisory Board members and staff.



Director Reeves will lead a review and revision of the Strategic Plan during the upcoming year.
DENISE HENDERSON VAUGHN

BOARD ADDITIONS

Jim Guldin joins the Advisory Council. Jim is a supervisory research ecologist with the Southern Research Station of the US Forest Service in Arkansas, a position he's held since 1992. Prior to that, Jim worked for 10 years teaching silviculture on the faculty of the Department of Forest Resources at the University of Arkansas at Monticello. Jim's expertise lies in the management of pine, pine-oak, and oak-pine forests, emphasizing natural regeneration, and the theory and practice of uneven-aged silviculture. He earned his PhD in silviculture and quantitative ecology in 1982 from the University of Wisconsin in Madison. Jim's nomination to the Advisory Council was approved by the Board at its fall meeting in October 2014.



Steve Mahfood joins the L-A-D Foundation Board of Directors.

Steve served eight years as Director of the Missouri Department of Natural Resources, leading its environmental, state parks, energy, geological, and cultural resource programs. He was chair of the North American Free Trade Agreement Governmental Environmental Advisory Commission, and for 13 years served on the U.S. Environmental Protection Agency's Environmental Financial Advisory Board. In 1989 he received the "United States Presidential Environmental Achievement Award." Currently he advises the Nature Conservancy and other organizations on environmental, energy, natural resource and climate change issues. Steve received his BA from Rutgers University and is a graduate of the Yale University Environmental and Management Leadership Program. Steve's appointment to the Board occurred at its summer meeting in July of 2015.



STAFF ADDITIONS



Clare Holdinghaus, L-A-D Foundation Office Manager. A native St. Louisan, Clare worked for 3 years with the AmeriCorps St. Louis Emergency Response Team as a field team leader and as a project manager. She worked throughout the Ozark region, including on Pioneer Forest and at the Foundation's Ball Mill Resurgence/Blue Spring Branch area. She also worked extensively in the AmeriCorps office, supporting the overall operation of the program, developing educational materials, reporting on grants, maintaining files, and completing audit reviews. She graduated from Beloit College with a Bachelor of Arts degree in Philosophy and Political Science. Clare began working with the Foundation on January 30.



Neal Christensen, Pioneer Forest Technician, Van Buren District. Neal is from Van Buren, and since 2005 worked for the Missouri Department of Conservation (MDC). For the past three years, Neal has worked as a Resource Technician in Van Buren, conducting timber sale administration and becoming familiar with the MDC's uneven-aged management, timber stand improvement, timber marking, Natural Areas inspection (including the L-A-D Foundation's Lily Pond Natural Area), and prescribed fire management. Neal is familiar with timber markets and sawmills in the Van Buren/Ellington area. He began work on July 1.

SUSAN FLADER RECEIVES NATIONAL CONSERVATION SPECIAL ACHIEVEMENT AWARD

In March, L-A-D Foundation Vice President Susan Flader received the National Conservation Special Achievement Award from the National Wildlife Federation.

Susan was cited for her dedication and passion for protecting and enhancing Missouri's State Parks, one of the finest state systems in the nation. The National Wildlife Federation commented that: "Dr. Susan Flader, Professor Emeritus in Environmental History at the University of Missouri, has been a tremendous asset to both her students and the State of Missouri, inspiring hundreds of present and future conservation leaders." We know Susan for her leadership in the L-A-D Foundation as its Vice President and long-time Chair of the Stewardship Committee. She also has served for many years on the Board of Directors for the Aldo Leopold Foundation, and was one of the founding directors of the Missouri Parks Association, serving in the past as its President and now current editor of its newsletter, *Heritage*. Among her numerous books and articles, she is editor of the landmark book *Exploring Missouri's Legacy -- State Parks and Historic Sites* which she is in the process of updating. Congratulations!



Susan Flader (left) with National Wildlife Federation CEO, Collin O'Mara (far right) and NWF Directors Clark Bullard (second from left) and Deborah Spalding (second from right).
KAILA DRAYTON, NATIONAL WILDLIFE FEDERATION (NWF)



John Karel (center) accepts the Conservationist of the Year award from CFM Executive Director Brandon Butler (left) and Bass Pro Shops representative David Smith (right),
CONSERVATION FEDERATION OF MISSOURI

CONSERVATIONIST OF THE YEAR AWARDED TO FOUNDATION PRESIDENT JOHN KAREL

At its Annual Meeting in March the Conservation Federation of Missouri (CFM) awarded John Karel its highest award, Conservationist of the Year.

John was noted for his life-long career in state and local parks, conservation, and historic preservation which has greatly influenced the quality and character of natural resources that all Missourians enjoy today. John recently retired after a 27-year career as Director of Tower Grove Park in St. Louis where he led the efforts to reverse the decline of the park, providing its rich legacy of architectural preservation, natural beauty, and outdoor recreation for all to enjoy. Before that John served as Director of Missouri State Parks when the one-half of one-tenth of one percent sales tax was first passed by Missouri voters, and since then has provided hundreds of millions of dollars in public funding for parks programs, projects, and operations.

The L-A-D Foundation supported the nomination, noting John's role as its President since 1999. He has guided its management of lands dedicated to sustainable forest management, directed protection and stewardship of its Missouri Natural Areas and other significant places, and supported projects that have a positive influence in the Missouri Ozarks. Congratulations!

DILLARD MILL NAMED TO NATIONAL REGISTER OF HISTORIC PLACES

On January 14, 2015, the Dillard Mill Historic District was officially entered into the National Register of Historic Places. L-A-D owns Dillard Mill State Historic Site, an area of 130 acres, and leases it to the Missouri Department of Natural Resources, Missouri State Park System.

Derek Gaden, an internationally known millwright, repaired the building and machinery in 1980 and inspected the property again in 1997. In a 2014 email, he wrote of the mill, “It was exactly as [the former millers] had left and used it and with absolutely no frills. All machinery was there and all connecting elevators and spouts were in place. Nothing had been changed. Even the 110 volt direct current generator was connected and able to light the building.

I have never before seen such a complete mill and have not seen one to match Dillard Mill since.”

On March 23, 2015, the L-A-D Foundation Board of Directors toured Dillard Mill and observed the machinery in action. Our thanks to Dillard Mill State Historic Site Director Yvonne Bobbitt, and all the State Park employees and the volunteers who keep this special place in good working order!



Dillard Mill at sunrise, 2013. PHIL KAMP



Top left: L-A-D Board members observe the waterway built on Huzzah Creek that powers machinery at Dillard Mill.



Bottom left: Original machinery has been carefully restored to working condition by volunteers and Missouri State Parks staff.



Right: Volunteer Larry Marcum gave an excellent presentation on the history of the mill.

PHOTOS BY: CLARE HOLDINGHAUS

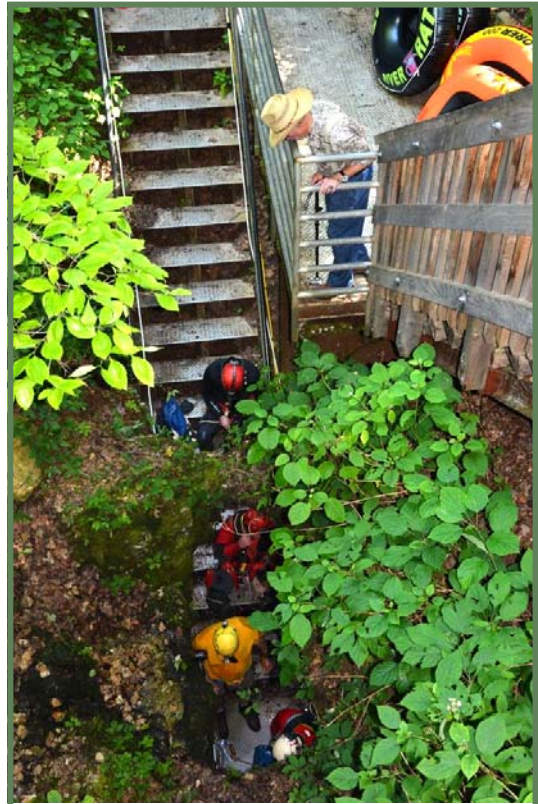


Researchers used boats to explore the vast dome-shaped interior of Devils Well in Shannon County.
DAN LAMPING, CAVE RESEARCH FOUNDATION

JERRY VINEYARD RE-VISITS DEVILS WELL

Board Director Jerry Vineyard visited Devils Well on June 25 to witness the first exploration of the cave in more than three decades. A team of researchers with the Cave Research Foundation ventured through a small opening at the bottom of a funnel-shaped sinkhole and rappelled through 90 feet of open space onto the surface of the underground lake. Researchers examined the status of the cave and looked for signs of cavefish, crawfish, and other life. Visibility was poor due to recent rains, but the team was able to produce the first photos of the cave in nearly 40 years, as well as investigate conditions in preparation for future monitoring trips.

Jerry Vineyard was part of the team that explored Devils Well in 1956. That visit and subsequent explorations provided data for Jerry's 1961 master's thesis, in which he demonstrated that the water from the Devils Well system ultimately emerges at Cave Spring on the Current River (owned by the L-A-D Foundation). The subterranean lake was measured at 400 feet long, 100 feet wide, and up to 100 feet deep. His research provides the baseline data for this recent exploration and for new rounds that are expected to continue in the future.



Jerry Vineyard watches the descent into Devils Well.
DENISE HENDERSON VAUGHN/ ST. LOUIS POST DISPATCH



Dan Lamping, president of the Missouri Speleological Survey, emerges from the trip into Devils Well. Jerry Vineyard co-founded the Missouri Speleological Survey in 1956.
DENISE HENDERSON VAUGHN/ST. LOUIS POST DISPATCH

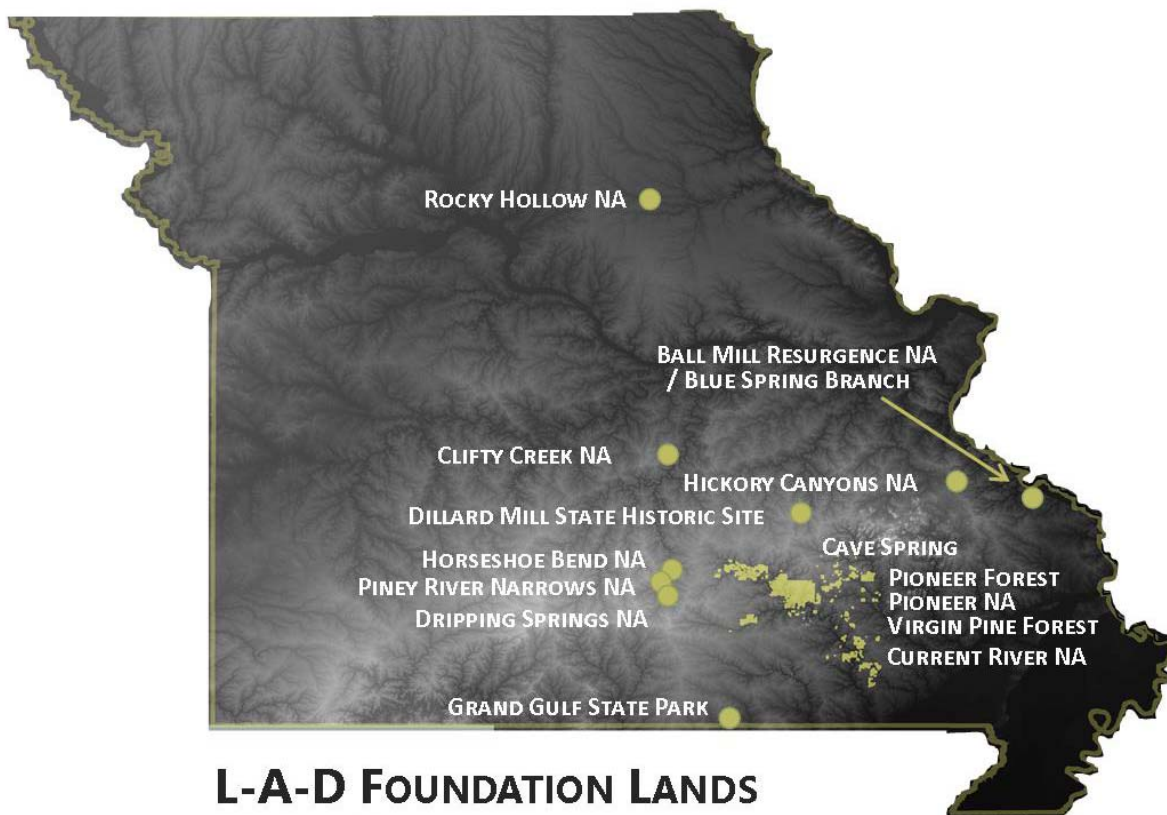


The water from Devils Well reemerges at Cave Spring on the Current River after traveling through an underground water system. Cave Spring is owned by the L-A-D Foundation.
DENISE HENDERSON VAUGHN/ST. LOUIS POST DISPATCH

Appendices



LOCATION AND LISTING OF L-A-D FOUNDATION LANDS



NA = Natural Area

L-A-D FOUNDATION LANDS

<u>SPECIAL AREA</u>	<u>COUNTY</u>	<u>SPECIAL DESIGNATION</u>	<u>SIZE</u>
PIONEER FOREST (INCLUDING THE SPECIAL AREAS BELOW)			143,038.25 ACRES
Blair Creek Hanging Fen	Shannon	Forest reserve ¹ , 2011	25 acres
Bluff School, Medlock Cave	Shannon	Forest reserve, 1995	51 acres
Cookstove/ Squaredance Cave	Shannon	Forest reserve, 2015	12 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
Jerktail Mountain	Shannon	Ecological management area, 2015	1,160 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
Pineknot Shortleaf Pine	Carter	Ecological management area, 2015	330 acres
Pioneer 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
Tall Larkspur	Shannon	Ecological management areas, 2015	85 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
Virgin Pine, Randolph Tract	Shannon	Ecological management area, 2015	500 acres

<u>SPECIAL AREA</u>	<u>COUNTY</u>	<u>SPECIAL DESIGNATION</u>	<u>SIZE</u>
RIVERWAYS CORRIDOR LANDS			1,123.55 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)			2,291.56 ACRES
Ball Mill Resurgence ⁵	Perry	State Natural Area, 1979, 19.61 acres; addition of 183.2 acres in 2007; addition of 77 acres in 2012 Total area 279.9 acres Total area under lease	276.63 acres
Clifty Creek	Maries	State Natural Area, 1971 Total acres under lease	230 acres
Dripping Springs	Texas	State Natural Area, 1973 Total acres under lease	8.59 acres
Hickory Canyons ⁶	Ste. Genevieve	State Natural Area, 1973, 420 acres; addition of 560.91 acres in 1979; addition of 18.68 acres in 2013; addition of 94.75 acres in 2014; Total area under lease	1,094.34 acres
Horseshoe Bend ⁷	Texas	State Natural Area, 1973, 69 acres Total acres under lease	233 acres
Piney River Narrows	Texas	State Natural Area, 1971, 50 acres Total area under lease	258 acres
Rocky Hollow	Monroe	State Natural Area, 1973, 188 acres; National Register of Historic Places, 1974; Total area under lease	191 acres
LANDS LEASED TO MISSOURI DEPARTMENT OF NATURAL RESOURCES			289 ACRES ⁸
Dillard Mill	Crawford	State Historic Site, 1977	130 acres
Grand Gulf State Park	Oregon	National Natural Landmark ⁹ , 1971 and State Park, 1984, 159 acres State Natural Area, 1986, 60-acre portion Total area	159 acres
Trails and Trailhead of the Roger Pryor Pioneer Backcountry	Shannon	Lease to Missouri State Parks, 2014 More than 50 miles of existing or under construction trails	
OTHER LANDS			270.69 ACRES
Lands acquired but not yet leased	Perry	Recreation land	3.27 acres
Lower Rock Creek	Madison	Recreation land	226 acres
Virgin Pine	Shannon	Scenic remnant corridor	41.42 acres
TOTAL L-A-D FOUNDATION LAND OWNERSHIP			147,013.05 ACRES

Footnotes:

¹The concept for Forest Reserves was initially discussed by Pioneer Forest staff in 1994. In 1995, the management plan for each of these areas was described along with its boundaries. Following Leo Drey's agreement and the endorsement of the Foundation Board, the program was adopted. Additions were made in 2011.

²The Society of American Foresters Committee on Natural Areas was organized in 1947.

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.

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.

⁵The total area of Ball Mill includes 3.27 acres recently acquired by the Foundation and not yet leased to MDC.

⁶The total area of Hickory Canyons includes 113.43 acres recently acquired by the Foundation and not yet leased to MDC.

⁷Horseshoe Bend includes 11 acres recently acquired by the Foundation and not yet leased to MDC.

⁸State 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") at the top of page 36.

⁹The 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 National Natural Landmarks.

L-A-D Foundation Trails

- **Ball Mill Resurgence Trail**, Perry County: A one-mile trail loops from a small parking lot into the Blue Spring Branch valley and the resurgence.
- **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.
- **Brushy Creek Trail**, Shannon County: A 19-mile nested loop trail provides access to the interior of our Roger Pryor Pioneer Backcountry. Access to this trail is from the Himont Trailhead.
- **Cave Spring Trail**, Shannon County: A 4.6-mile moderately difficult round-trip hike connects Devils Well and Cave Spring, crossing Pioneer and National Park Service lands with access at Devils Well.
- **Clifty Creek Natural Area Trail**, Maries County: A 2.5-mile walk with scenic overlooks across the Clifty Creek valley, near the creek junction with 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.
- **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.
- **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 loop trail (0.80 mile) takes visitors across the natural bridge, alongside the gulf, and then through a very interesting mature oak woodland on the plateau.
- **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 one-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 two-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 two-mile interpretive drive through Pioneer Forest shows visitors the half-century tradition of Pioneer's careful and conservative method of selectively harvesting trees. The Drive starts along the east side of Highway 19 near the Virgin Pine Walk.
- **Roger Pryor Pioneer Backcountry Equestrian Trail**, 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.
- **Virgin Pine Walk**, Shannon County: This one-mile interpretive walk south of Round Spring leads through an old shortleaf pine stand where several trees are aged at more than 200 years.

Glossary of Terms

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

Age class – An aggregation of trees essentially of 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 (biodiversity) – The existence of a variety of plants, animals, and other living beings in particular regions or ecosystems.

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

Blocking – Structural wood products used to package and ship manufactured goods.

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).

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 that is left unmanaged or is managed to reduce the impact that 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 would only be 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 Swainson's 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.

Dolomite – A carbonate sedimentary rock consisting of double carbonates of calcium and magnesium. Associated in Missouri with karst topography.

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 coarse 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 percent 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 percent 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.

Fen – A type of wetland characterized by pH neutral or alkaline chemistry of the water. Fens are usually fed by mineral-rich groundwater sources and are dominated by grasses and sedges.

Feral – Having escaped or been released from domestication and become wild, for example feral hogs.

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

Forest – An area dominated by trees forming a closed canopy and interspersed with multilayered shade-tolerant sub-canopy trees, shrubs, vines, ferns and ground flora that is rich in spring ephemerals. Trees attain heights of 60 to over 100 feet.

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.

Glade – Open, exposed bedrock areas dominated by drought-adapted herbs and grasses in an otherwise woodland or forest matrix.

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 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).

Hibernaculum - A refuge, such as a cave, where an animal will hibernate during winter.

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.

Igneous – A rock that has solidified from lava or magma.

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 effects 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 examples are springs, losing streams, underground drainage and water reservoirs, caves, natural bridges, and sinkholes.

Kerf (also Kirf) - The width of a cut a saw makes in cutting through wood; In usage, the thinner kerf on these blades dramatically increase the yield on a given log.

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

MBF – Thousand board feet.

MDC - Missouri Department of Conservation

MMBF – Million board feet.

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).

Mesic – (Of an environment or habitat) containing a moderate amount of moisture.

NA - Natural Area

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 ecosystem 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.

Prescribed Fire – (Prescriptive fire management) The knowledgeable and controlled application of fire to a specific land area to accomplish preplanned resource objectives.

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 – Grasslands interspersed with open-grown scattered trees or groupings of trees. They are strongly associated with prairies and are dominated by prairie grasses and forbs. Canopy cover is usually less than 30 percent, but greater than 10 percent.

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, which 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 percent 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 percent to 90 percent 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 percent 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 that allows 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.

Talus – A slope formed especially by an accumulation of rock debris.

Threatened species – Any species likely to become endangered within the foreseeable future and is 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 – A measurement of the variability of the land surface in a particular area that takes into account slope, shape, and aspect within the landscape.

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 bladder nut 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 and is 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.

WCS - Wildlife Conservation Society; a non-profit conservation organization whose missions are to save wildlife and wild places worldwide through science, conservation action, and education, and to inspire people to value nature.

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, but greater than 30% canopy cover.

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



October 2015.

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*.

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The L-A-D Foundation has benefited from the generous gifts of our founder, the late Leo Drey. Other individuals have given gifts of land, their time, and grants to assist us in our work with Ozark Forests, protecting natural and cultural areas, and encouraging research, education, and programs that provide a positive influence in Missouri, especially the Ozark region. If you are interested in supporting our work, please contact us.