



Eastern Region Mark Twain National Forest 06/2018 FS-R9-93

Reflecting on 2017, USDA Forest Service's Mark Twain National Forest met the Forest Service strategic goals in the work we accomplished.

Uplifting and empowering our employees through a respectful, safe working environment. Managing 1.5 million acres of public land is a meaningful challenge. Despite additional strain from record flooding and a busy year of firefighting, Mark Twin National Forest employees promoted safety in all aspects of their work. They took on challenges as a team in 2017 to overcome all obstacles that came their way.

Being good neighbors and providing excellent customer service. Serving others is what the forest does. The busy timber and mining programs support local jobs across the forest. When we do a restoration project or prescribed fire, we contact neighbors to get input about how to best implement our project and help meet their needs or address concerns. Our recreation staff maintains a vast and diverse network of trails, campgrounds, and water access points for Missourians and out-of-state visitors to enjoy.

Promoting shared stewardship by increasing partnerships and volunteerism. As seen throughout this 2017 Forest Reflections, partners and volunteers are a critical component to the forest successfully "Caring for the land and serving people". We immensely appreciate our volunteers, and strongly value relationships with our partners.

Improving the condition of the forests and grasslands. Every year on the forest, projects are proposed, planned, discussed with the public, and implemented to continually improve the health of our hardwood and pine forests, the glades, riparian areas, prairie lands, and other ecosystems for which we are entrusted to care. Whether large projects, like the Forest Health Initiative, or smaller on-the-ground practices like removing non-native invasive plants, this goal is the nexus of all that is done on the forest.

Enhancing recreation opportunities, improving access, and sustaining infrastructure.

With over 700 miles of trails, thousands of miles of roads, and a multitude of buildings and facilities, keeping the forest open keeps us busy; and our recreation, engineering, and roads staff work diligently to provide access for you to enjoy your National Forest land here in Missouri. The forest recreation program also strongly supports the local economy and jobs.

Please enjoy reading through the 2017 Forest Reflections to see the many ways in which the forest met the goals set forth by the USDA Forest Service. Also, please reference the map on pages 6 and 7 to orient yourself with the forest and its locations across southern and central Missouri. Thank you for your patronage of your National Forests! #It'sAllYours!



Highlights

Forestry: In 2017, the forest strengthened internal and external partnerships to restore forest management and provide America with renewable wood products. To share ideas and maximize effective mission delivery, we met with Forest Service Northern Research Station (NRS), State and Private Forestry organization of the USDA Forest Service (S&PF), and Mingo Job Corps. Aside from building



Mingo Job Corps and MTNF at Capitol Christmas Tree – Mingo Job Corps and Forest Service is an example of OneUSDA in action.

capacity, these Forest Service internal partnerships will help us be more nimble in responding to challenges and may help us tackle tough issues in the future—like finding ways to develop small wood markets. The forest grew external forestry partnerships in 2017 as well. The forest participated in lesson learning activities with the State of Missouri's Forestry program, Missouri Department of Conservation (MDC), and the Missouri Forest Products Association. We will continue working with these groups to look for ways to always improve our processes and services.

Science and Education: Through a partnership with Missouri University of Science and Technology, the forest utilized students to assist with botany, soil, and hydrology

fieldwork. This partnership provided experience and training for the students and expanded the forest's capacity for natural resource field work.

Our forest also coordinated with State and Private Forestry, and Nature Explore on the Gateway to Trails and Forests "Parklet" at the American Society of Landscape Architect's Smart



Parklet in St. Louis

Growth Conference in St. Louis. This allowed designers from around the nation to experience how people can connect with the forest to promote creativity and health through outdoor learning experiences. Through our partnership with Purdue University and NRS, the forest is researching the effects of prescribed burning on saw timber. This partnership will develop scientific data sets that can be used to plan effective restoration projects.

Partnering: Over 25 Wyden Agreements were utilized to support the prescribed fire program, improving safety by reducing exposure, and increasing the reach of our restoration efforts on private lands. These agreements allow restoration across boundaries, making it possible to conduct prescribed burning on private land adjacent to the forest.

Natural Resources: We worked closely with organizations such as Backcountry Horseman's Association, Mill Creek Watershed Group, The Nature Conservancy (TNC), Quail Unlimited, the National Wild Turkey Federation (NWTF), and many others to tackle natural resource management issues as a team of diverse partners. With NWTF, we removed non-native invasive plants from 250 acres in the Brushy Creek area in 2017 and plan to continue our stewardship program with this excellent organization in 2018. The forest worked with MDC on many projects, including stocking our lakes and rivers. The forest also conducted fish and mussel surveys with U.S. Fish and Wildlife Service, gathering data that will guide future aquatic habitat restoration projects. The

forest established the Scenic Rivers Cooperative Weed management Area with the help of MDC and TNC. The forest also partnered with NRS to conduct Terrestrial



Working with BCHA to map trails.

Ecological Unit Inventory (TEUI) mapping—these maps will assist in the planning of future projects as they determine soil types and native vegetation associated with areas across the forest's landscape. These are just a few of the many partnerships making your National Forest healthy and productive.

Riparian Protection: The forest collaborated with The Conservation Fund, the U.S. Fish and Wildlife Service, the Missouri Conservation Commission, the Ripley County Commissioners, the American Bird Conservancy, the City of Doniphan Missouri, and local citizens to complete a Current River acquisition project protecting riparian areas along the beautiful Current River. This project was started eight years ago with a Forest Service Boundary Expansion approval by the Chief of the Forest Service. This acquisition has been recognized statewide for its ecological benefits.

It's All Yours! *Strategic Goals in Action

The 1,000 Year Flood of 2017

powerful, slow-moving storm brought torrential rainfall and historic flooding beginning April 28, 2017. Governor Eric Greitens declared a state of emergency for all of southern Missouri, as it experienced a 1,000 year rainfall event. Mark Twain National Forest cooperated with National Park Service, United States Geological Survey (USGS), the State Emergency Management Agency, Missouri Department of Conservation, Missouri State Highway Patrol, Missouri National Guard, Missouri's Task Force 1 Rescue Unit, and local governments to respond to the emergency.

At least a dozen rivers and major creeks hit record crests, resulting in damage, destruction, and hundreds of evacuations. The USGS gauges on the Current River at Doniphan measured floodwaters reaching 33 feet at a flow rate of 175,000 cubic feet per second (cfs)—eight feet higher and 45,000 cfs more than the previous flood record. The average flow at the location during this time of year is around 3,500 cfs. A cubic-foot per second can be imagined as one basketball passing by each second. The river was flowing at 50 times its normal volumetric flow rate—imagine 175,000 basketballs passing by every second.

Swath of Destruction

As these floodwaters poured out of the banks and flowed downstream,

they damaged many of the forest's campgrounds and day-use areas. Buildings and campground structures were dozens of feet underwater getting hammered with trees and other debris that were swept along with the current. Thirty recreation sites on the Mark Twain National Forest were closed as of May 7, 2017; many sites were left inaccessible, as the floods had left large trees and debris piles blocking roads into the sites, and some roads had been washed out.

The Recovery Effort

As reports of damage began to come in, Forest Supervisor Sherri Schwenke realized that the forest, like the communities affected, was going to need help with recovery. The

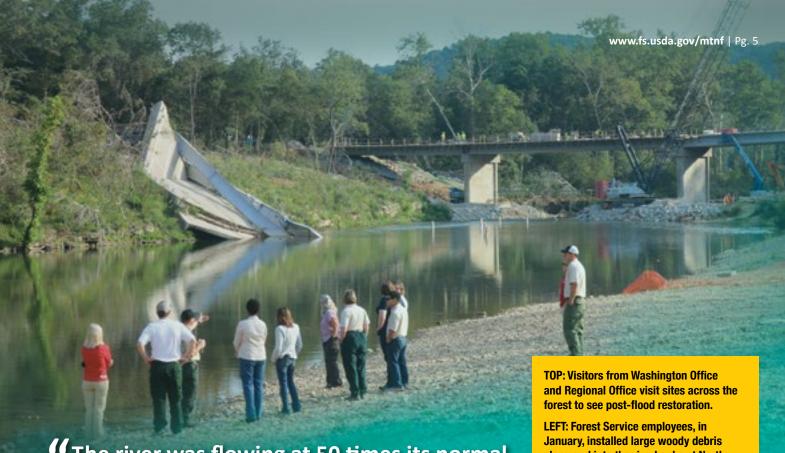
Forest Service Eastern Area Incident Management Team (IMT) was quickly ordered to coordinate recovery effort. Two Interagency Hotshot Crews (20-person professional wildland firefighting crews) were also brought to perform complex chainsaw work needed to regain access to sites before evaluation and repair work could commence. All Mark Twain National Forest employees made flood recovery their primary focus for many weeks following the event.

With the assistance of the IMT and other resources, recovery began in earnest. The team took a zoned approach to access sites, evaluated them for safety, and started recovery work. In the first weeks of May, the possibility of re-opening sites for the summer recreation season looked grim. However, with the hard work of Mark Twain employees assisted by the IMT, hotshots, volunteers, and heavy equipment, the situation began to improve.

Ready for summer

Decisiveness, dedication, and hard work restored recreation access to all but a few sites in time for the summer recreation season. As many communities surrounding the Mark Twain National Forest depend on tourism associated with water activities and camping, USDA Forest Service employees were proud to have re-opened these sites on time. A few sites were severely damaged and





The river was flowing at 50 times its normal volumetric flow rate—imagine 175,000 basketballs going by every second.

were not able to be opened this year; so the forest still has flood-recovery work ahead.

The Mark Twain National Forest's colossal efforts put into rebuilding and recuperating from a 1,000-year flood event were noticed by many outside of Missouri. Toward the end of summer, a delegation from the forest Service's Washington Office (WO) visited Missouri to see the flood damage and recovery efforts firsthand. The Washington Office delegation included: Deputy Chief for the National Forest System; Leslie Weldon, Director of Engineering, Technology and Geospatial Services; Emilee Blount, and Acting Director of Recreation; Michiko Martin to review the flood impacts to unit operations. Lessons learned from these recovery efforts in Missouri will hopefully help other forests affected by natural disasters in the future.

Some of the lessons learned from

the flood that were shared with the WO included:

- 1) Our volunteers and communities are amazing! Volunteers with the Doniphan Stream Team held two cleanup events. At one event, from Deer Leap to the Doniphan Bridge, the volunteers worked with Forest Service personnel to remove seven refrigerators, four washers, four dryers, 40 cubic yards of sheet metal, 20 cubic yards of trash, and many tires. At another site on the forest, local community members worked closely with the Forest Service to reopen a boat launch in time for use this summer. This type of cooperation is invaluable in helping the forest with the long-term recovery after this devastating flood; and we are very appreciative of our amazing neighbors.
- 2) Planning of recreation site locations must take into serious

LEFT: Forest Service employees, in January, installed large woody debris along and into the riverbanks at North Fork to create bank structures that would capture sediment and improve habitat for fish and amphibians (like the hellbender salamander). Here Forest Service employees are seen anchoring the large trees and trunks into the ground with cables and metal rods. The structures were backfilled and buried in soil. They survived the 1000-year flood event that happened just a few months later, while the Highway CC Bridge, just upstream, was washed away.

consideration the potential for flood damage. This was made very apparent at the Red Bluff Campground, which is currently planning to move camping loops to higher ground.

3) Conducting and documenting damage assessments following a natural disaster to make long-term repair work possible is very important.

Natural woody-debris stream channel structures at North Fork Recreation Area held up extremely well during the flood event—students from Missouri State University will be conducting an analysis of the stream morphology at the site.



Keep the forest in your pocket!

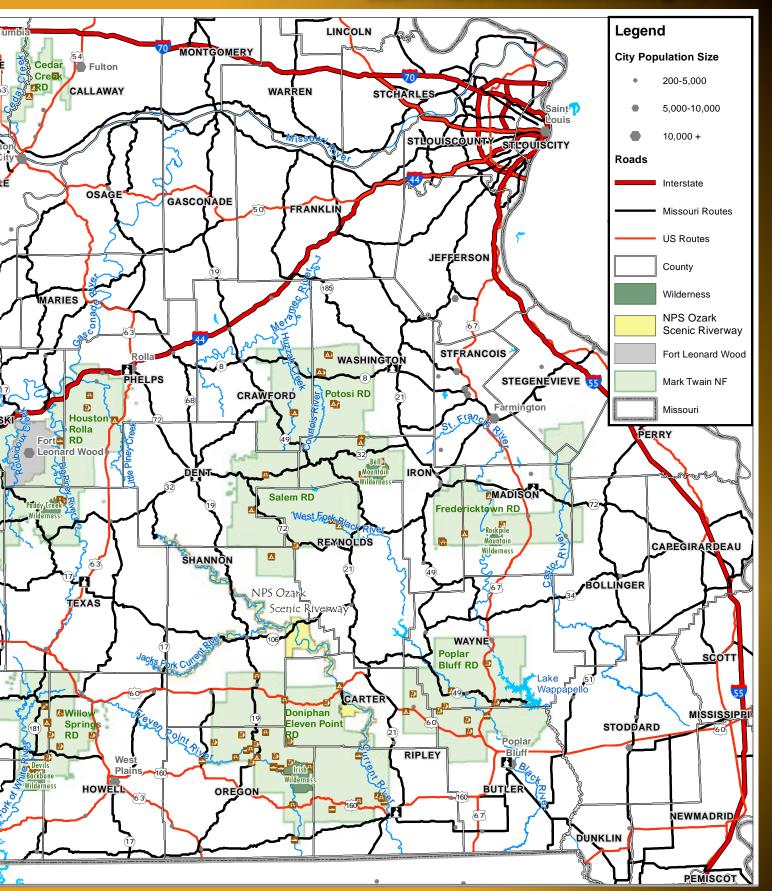
Mark Twain National Forest has partnered with OnCell to launch a free mobile app for our visitors to use. The app will guide visitors to recreation opportunities and other important sites within the forest using their personal mobile devices. The app also serves as a communication tool, allowing forest staff to share updates and for visitors to provide feedback about their forest experience.

A smartphone is a valuable part of a traveler's toolkit, especially with the right app installed. This app serves the enduser as a pocket-guide for quick reference. Visitors can access the apps by searching for "Mark Twain National Forest" in their devices app store.

Mark Twain National Forest



Learn more at www.fs.usda.gov/mtnf





Integrated Resource Management in Action

he USDA Forest Service, including the Mark Twain National Forest, exists to provide a wide variety of benefits to the American people. We strive to balance the conservation needs of ecosystems on these public lands while providing the nation with a sustainable source of wood products, clean water, healthy ecosystems, recreation opportunities, and so much more. This year, the forest once again made excellent progress in all areas of resource management while providing outstanding benefits to the public we serve.

In 2017, we successfully managed the land for the benefit of the forest's widely varying ecosystem-types in tandem with meeting the needs of local wood markets. The forest awarded 33 timber contracts, with 63 million board feet (MMBF) sold in 2017.

Collaborative Forest Restoration:

The forest completed the sixth year of our eight year Missouri Pine-Oak Woodland Collaborative Forest Landscape Restoration (CFLR) Project. In 2017, we completed much of the prescribed burning necessary for this



project.

More than 600 acres received treatment to remove non-native invasive species (NNIS) in the CFLR area. Four, two-year monitoring studies were completed by Missouri State University and field reviews were conducted with Regional and Washington Office personnel for the project.

Joint Chiefs':

The forest also completed its final year of implementation for the Missouri Ozark Highlands Joint Chiefs' Restoration Partnership. Through this project we completed 19,100 acres of prescribed burning to reduce wildfire risk, treated 522 acres for NNIS land, and improved almost 14,000 acres of

habitat. Our partnership with NRCS provided \$400,000 in Environmental Quality Incentives Program (EQIP) funding to local landowners and MDC provided an additional \$151,000 through its cost share program—making landscape restoration possible across state, federal, and private boundaries in the project area.

Forest Health Initiative:

In 2017, Mark Twain National Forest continued the environmental assessments necessary for addressing declining oak throughout the forest. Areas of the forest subjected to drought events in previous years are experiencing various stages of oak decline and mortality. The drought conditions along with other





contributing stress factors (stand age, root disease, insect damage, and site conditions) have resulted in a need to harvest red oak and white oak before they die in areas across the forest. This allows new sprouts to regenerate, which won't happen if the trees are cut after they die.

This project is an example of the many benefits active land management provides, including: enhanced forest health, improved wildlife habitat, reduced susceptibility to insects and disease, improved safety for forest visitors, improved scenic quality, and a lower likelihood of catastrophic wildfire through a long-term reduction of heavy fuel loads.

By the Numbers

3,322 acres of Reforestation:

At the same time some areas of the forest providing wood products, others are being planted to maintain sustainable, healthy forests. In some areas, this is done to re-plant areas that were previously harvested; some areas are planted after hotburning fires move through; and sometimes this is done to start new stands of trees where weather events like tornadoes destroyed the area.

4,477 acres of Forestland Vegetation Improved: Reaching balanced ecosystems across a variety of landscapes requires upkeep and maintenance. Improvement projects are beneficial in reaching desired conditions. For example, thinning overstocked plantations reduces the stress on remaining trees, allowing them to better compete for minerals and water and grow at a healthier and more quickly.

51,155 acres of fuel treatments: To reduce the risk of catastrophic

wildfire, multiple tools are employed by the Forest Service. Prescribed burning effectively removes hazardous fuels (dead woody debris, thick dry brush, etc.) and helps us reach the majority of this acreage. However, site preparation and timber harvesting also helps to reduce the risk of wildfires in stands. In some areas, mastication contracts are the best tool to reach desired conditions, resistant to extreme fire behavior, for an area.

12,262 acres of grazing allotments were managed to standard to allow

for cattle to be grazed on National Forest System land under permit. We also conducted 3.905 acres of rangeland improvement, where we re-introduced native grasses.

58,974 acres Habitat Improvement:

Acreage of habitat restored or enhanced: We continue to expedite the way in which we can implement habitat improvement projects through improved Heritage program agreements.



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Law Enforcement:

aw Enforcement Officers (LEO) on the Mark
Twain National Forest are hard at work patrolling,
investigating illegal activities, and assisting citizens
throughout the year. Here are some highlights in 2017
of the forest's law enforcement and investigation
program.

Officers conducted several wildfire investigations and assisted with fire prevention efforts. Out of 103 fires, 13 were declared and investigated as arson. Officers also assisted on a multi-day marijuana eradication operation with county deputies and detectives. Although thievery is not a major problem on the forest, it can happen. In 2017, our officers recovered a stolen ATV and returned to the registered owner in Phelps County. They also assisted Salem Police Department and Texas County Sheriffs in a case that led to the recovery of several chainsaws stolen from a store in Salem, MO.

Our Law Enforcement Officers focus on teamwork and partnerships to accomplish their mission, working with other departments, and with other Forest Service law enforcement officers across the nation.



Law Enforcement Officer Toby Barton on the Poplar Bluff Ranger District is seen here in a Forest Service boat used for multiple operational purposes.

Photo courtesy of Joseph M. Weadon III

Some great examples of these partnerships include:

- Taking part in a week-long search and rescue in Shannon County on the Salem Ranger District where they led teams during multiple days of tracking a lost individual.
- Assisting with the Current River trash clean up with volunteers, helping haul trash off the river.
- Helping the National Transportation Safety Board (NTSB) with a search for airplane parts on national forest property.
- Conducting a multi-day manhunt for a murder suspect in The Paddy Creek Wilderness.

Feral Hog Eradication

Summary:

Feral hogs are a non-native, exotic species living and breeding within all seven of Missouri's designated Wildernesses managed by the Mark Twain National Forest (the forest) and on every Ranger District of the forest. The feral hog (Sus scrofa) is not considered wildlife by the Missouri Department of Conservation (MDC). State and federal agencies are working together with non-profit groups and landowners to implement

In 2017, trappers removed 1,912 feral hogs from the forest..."

a state-wide feral hog trapping strategy. The forest is engaged with this diverse group, called the Feral Hog Partnership, to eliminate feral hogs in Missouri.

Last year's results:

The Feral Hog Partnership has put a focus on trapping to eliminate feral hogs in Missouri. The numbers of hogs trapped in Missouri have increased every year as trapping techniques and partnerships become more successful. Working across agency boundaries and with private landowners has led to excellent results. In 2017, trappers removed 1,912 feral hogs from the Mark Twain National Forest; and statewide there were 6,874 feral hogs removed.

Current Efforts:

There are an estimated 20,000 – 30,000 feral hogs in the State of Missouri; 50 percent are thought to occur on our forest. The forest has committed to the feral hog eradication effort in Missouri by:

- Developing a plan to intensify trapping in our Wildernesses
- Training several Forest Service employees as trappers to assist with U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) trappers.
- Hosting USDA APHIS personnel at the Supervisor's Office in Rolla, MO.





Clearing out the underbrush and tall grasses is part of the natural cycle needed for healthy ecosystems on these landscapes.

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Prescribed burning on the Cassville Unit of the Ava/Cassville Ranger District.

Wildland Firefighting

Highlights

- The Mark Twain National Forest Fire program safely accomplished more than 33,000 acres of Prescribed Fire in 2017 and responded to 104 wildfires totaling 2,800 acres.
- Through our interagency dispatch center, the forest supported national wildfire efforts by dispatching six Type-2 Initial Attack Crews (20 person firefighting crews), two Camp Crews, 229 individual positions, and 25 Type-6 Engine orders.
- MTNF also began implementing National Engine Configuration standards and increased our capacity for wildfire support by fully staffing six Engine Modules across the forest.

Fire, Year-in-Review

Winter Drought

In 2017, things warmed up early. By the end of January, temperatures, humidity, and winds were already aligning to start prescribed burning for resource management objectives. Prescribed fires are used primarily to help reduce the threat of wildfires and to improve the health of native plants and wildlife habitat in the forest. Deer, turkey, quail and other species benefit when the plants they depend on for food or cover are rejuvenated by the use of fire.

Spring

The forest accomplished a lot in a couple months; but by April, moisture levels were up, and things looked like they were slowing down....but then came the 1,000 year flood. All fire management personnel were part of the recovery effort. Long hours were spent in May, operating chainsaws and heavy equipment, hiking and evaluating trails, and conducting general repairs at recreation sites.

Summer

Once summer arrived and most sites re-opened, the Western fire season was already starting. The Mark Twain National Forest sent many crews and single resources to support wildland firefighting in states like Montana, Colorado, and California.

Fall

As fall approached, wildland fires in the Western U.S. began to slow a little but did not come to a halt. At home in Missouri, the returned firefighters were looking forward to conducting fall prescribed burning. Following the summer floods, though, the forest had not received much precipitation, and was actually experiencing a drought—ending the fall Rx Fire season much earlier than expected. Into December, the forest was on high alert for wildfires, responding to over 20 wildfires in the last week of November. Fire Management Officer Jim Cornelius, ordered a Fire Prevention Team to add additional patrols and reduce the risk of wildfire starts. The Prevention Team did amazing work, and coupled with air operations led to a significant decrease in wildfire starts that had been experienced in the early fall.

The forest also expanded its capability to respond to wildfires in 2017. Eighteen new firefighters were hired to fully staff six wildland fire engine modules across the forest. Having these additional resources will help the Forest Service in its mission to be a good neighbor, adding additional capability for extinguishing wildland fires quickly, conducting prescribed burns with more personnel, and supporting wildland firefighting needs across the nation.



Forest Service Partnership Adds Finishing Touch to Historic Greer Mill Stabilization

esting nearly 220 meters above Greer Spring in Oregon County, Missouri the Historic Greer Mill has been the focus of a partnership between the Mark Twain National Forest, and the Friends of the Eleven Point River (the Friends) since the forest finalized acquisition of the land in 2013. The Friends hold fundraising events such as the Greer Mill Open House that provide critically needed funding for restoration projects on the Mill and engages local communities between Winona, Alton, and Doniphan, Missouri. These events also draw patrons from much farther locations connected in special ways to this Nationally Registered Historic Property.

The last large scale project was conducted at the mill in 2014 by the Passport in Time (PIT) program stabilizing the foundation, main support

beams, floors, porch, and cupula. This year siding was added to the list of stabilization efforts, giving the mill some much needed protection from the elements and a fresh new look. Siding was purchased from a local saw mill and The Friends contracted the siding delivery, equipment rental and siding installation. Kiln drying was provided free of charge for the pine siding by Roberts Flooring in Mountain View, Missouri. The next Open House will be hosted at the mill on April 28th with a make-up rain day on May 5th. All are welcome to come tour the mill and hear stories from local accounts of the mill.





<u>CONTACT INFORMATION</u> • <u>www.fs.usda.gov/mtnf</u>

Eleven Point Ranger District

FOREST SUPERVISOR'S OFFICE Mark Twain National Forest (573) 364-4621 Ava-Cassville-Willow Springs Ranger District

(417) 683-4428

(573) 996-2153 Houston-Rolla-Cedar Creek Ranger District (417) 967-4194

> Poplar Bluff Ranger District (573) 785-1475

Potosi-Fredericktown Ranger District (573) 438-5427

> Salem Ranger District (573) 729-6656

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