United States Department of Agriculture | Forest Service | Boston Mountain Ranger District | 1803 N. 18th Street Ozark, AR 72949
Phone 479-667-2191
TTY 479-667-1931 | FAX 479-667-5807

**File Code:** 1950-1
**Date:** July 17, 2013

Dear Reader:

The Boston Mountain Ranger District is proposing timber harvesting, silvicultural, recreation, road, and wildlife habitat management treatments on National Forest land southwest of Cass, northeast of Shores Lake in Franklin County, Arkansas (see vicinity map). This letter serves as notification of the project to local landowners and others who have an interest in these types of activities. If you do not have an interest in this project, you do not need to respond.

This project is located in multiple sections in Townships 11N 28W, 11N 27W, 12N 28W and T12N 27W. The project area includes multiple compartments and covers approximately 19,991 acres of federal property, and is the ***Spirits Project***.

The actions proposed were developed from field reviews that determined management needs for this area based on the goals established by the Revised Ozark-St. Francis National Forests Land and Resource Management Plan (hereafter referred to as the Forest Plan), and conditions encountered on the land. The interdisciplinary team proposing these actions consists of a forester, wildlife biologist, recreation manager, engineering technician, fire management officer, and forestry technicians.

Healthy forests and watersheds, diversity of plant and animal species, safe and suitable access to the forest, a balance of traditional and emerging recreational opportunities, and continued local economic support are the desired future conditions for the project area as well as the Ozark National Forest as a whole. The Spirits Project has been proposed in order to improve forest and ecosystem health as well as to enhance watershed conditions. Improving wildlife habitat, reducing competition between trees, and improved visual quality and access for forest users are important in this area. Restoration of native ecological systems and improvement of wildlife habitat are the highest priorities in managing our natural resource base in order to have a lasting effect on future conditions of the forest. Habitat diversity for animals and plants, including threatened, endangered, and/or sensitive species would be maintained or improved by the management activities proposed.

*Need to Improve Roosting and Foraging Habitat for the Endangered Indiana Bat*

The Indiana bat, considered by the Fish and Wildlife Service as a federally listed endangered species, is known to occur within the analysis area. The life history habits are similar to other North American bats in that they hibernate in caves in the winter and forage and roost in the spring and summer. There are large areas of sandstone karst habitat including caves within the analysis area which serve as potential or known habitat for the Indiana Bat as well as other threatened and endangered species. Large trees in the open or on edges, open canopies and open understory conditions are believed to be preferred. Roost tree availability is excellent within the project area due to plentiful dead and dying hardwood and shortleaf pine trees. Foraging habitat is fair in the general forest area of the proposed project. However, openings such as roads, power-line rights-of ways, pastures, some stream/riparian corridors, and wildlife-openings (particularly those near water sources) provide excellent foraging habitat. Therefore it is important to ensure that the openings and ponds in the project area are functioning at an optimal level.

The Forest Service has identified areas within five miles of where Indiana Bats are likely to hibernate during the winter as 'secondary zones' in the Forest Plan. Areas within a quarter mile of hibernation areas are called 'primary zones'. Secondary zones are used most frequently as roosting and foraging habitat. Approximately 94 percent of the proposed project area is within a secondary zone and less than one percent of the project area is within a primary zone.

Within the secondary zone for the Indiana bat, Forest Plan standards FW48 and FW49 provide direction to develop foraging habitat through regulation and maintenance of optimal overstory density (50 to 70 percent canopy closure) using timber harvest, non-commercial thinning and prescribed fire. Currently, there is less than 1% of the tree overstory in the optimal range within the project area. The actions proposed in this project would work toward achieving the optimal over-story density to benefit both hibernation and foraging habitat for this endangered species. To allow for sustainability of the native forest types, up to 10% of the forested acres are allowed to be regenerated during a ten year entry cycle.

Standards for management practices in the Indiana Bat Zone areas discussed above supersede Forest Plan Management Areas and were used as the primary guide for vegetation management in this proposal. For areas out of bat zones Forest Plan direction for nine distinct management areas would be followed. Management areas inside the Spirits project include 3.E High Quality Forest Products, 3.C Mixed Forest, 1.C. Designated Wild and Scenic Rivers, 1.H. - Scenic Byway Corridors, 2.A. - Ozark Highlands Trail, 3.B. - Oak Woodland, 3.I. - Riparian Corridors, 3.J. - Pastures and Large Wildlife Openings and 2.C. - Developed Recreation Areas.

## PROPOSED ACTIONS

See maps at the end of this document for locations of proposed actions.

*VEGETATION MANAGEMENT*

*Thinning Methods*

Thinning removes less vigorous trees to reduce competition between remaining trees. This would increase growth and vigor of the remaining trees and increase their resistance to disease and insects. Vigorous growth also aids in carbon sequestration which occurs at a higher rate if trees are allowed to grow unhindered by competition. Thinning these stands would also increase the amount of sunlight reaching the forest floor and improve conditions for ground level plants such as bluestem grasses and various forbs.

**Pine Thin (PT) (3,995 acres).** Many stands in this category are considered to be overstocked at 90 to 200 square feet of basal area. Mechanically thinning these stands would remove the lower quality trees which would improve the quality of the residual stands by releasing the dominant and co-dominant trees on 2-3 sides. Poorly formed and suppressed trees would be targeted for removal while maintaining residual basal areas prescribed in plan standards inside Indiana Bat Zones and 70 square feet of well-formed trees with healthy crowns outside of bat zones.

**Hardwood Thin (HT) (2,067 acres).** Many stands in this category are considered to be overstocked at 100 to 120 square feet of basal area. Mechanically thinning these stands would remove the lower quality trees which would improve the quality of the residual stands by releasing the dominant and co-dominant trees on 2-3 sides. Poorly formed and suppressed trees would be targeted for removal while maintaining residual basal areas prescribed in plan standards inside Indiana Bat Zones and 70 square feet of well-formed mast producing tree species with healthy crowns outside of bat zones.

**Pine/Hardwood Thin (PHT) (120 acres).** Many stands in this category are considered to be overstocked at 100 to 120 square feet of basal area. Mechanically thinning these stands would remove the lower quality pine and hardwood trees which would improve the quality of the residual stands by releasing the dominant and co-dominant trees on 2-3 sides. Poorly formed and suppressed trees would be targeted for removal while maintaining residual basal areas prescribed in plan standards inside Indiana Bat Zones and 70 square feet of well-formed trees with healthy crowns outside bat zones.

**Pre-Commercial Thin (PCT) (221 acres).** These shortleaf pine sapling stands are overstocked with pine and hardwood seedlings/saplings. These stands would be thinned using hand tools or mechanical means on 12'x12' spacing. Herbicides would be utilized to control stump sprouting and maintain free to grow conditions.

**Non-Commercial Thin (NCT) (718 acres).** These hardwood sapling stands are overstocked with hardwood seedlings/saplings. These stands would be thinned using hand tools or mechanical means on 12'x12' spacing. Herbicides would be utilized to control stump sprouting and maintain free to grow conditions.

*Regeneration Methods*

Regeneration stands would be delineated on the ground to create optimum edge and group opening density that would favor the needs of various wildlife species and would follow Forest Plan standards. Maximum even-aged or two-aged regeneration stand size would be limited to 80 acres for pine stands and 40 acres for hardwood stands unless they are the result of natural catastrophic conditions such as fire, insect or disease attack, or windstorm. Openings created by even-aged and two-aged regeneration treatments would be separated from each other by fully stocked stands of at least 10 acres in size with a minimum of 330 feet in width. Regeneration areas would no longer be considered openings when they have reached five years. Regeneration treatments would be laid out on the ground following these guidelines during sale preparation and would be staggered in alternate years for harvesting.

**Pine Shelterwood (PS) (975 acres).** Method of regenerating an even-aged stand in which a new age class develops beneath the residual trees. The initial harvest prepares the seedbed and creates a new age class where natural regeneration is preferred. In the first phase, 70 percent of the overstory is removed. Site preparation would be accomplished utilizing herbicide and controlled burning methods. Periodic herbicide releases would often be necessary to promote desirable tree species. With adequate regeneration, the second phase removes the remaining overstory.

Silvicultural Treatments:

1. Herbicide site prep
2. Site prep burn
3. If stand adequately stocked after five years remove sheltering trees
4. If stand not adequately stocked, implement artificial regeneration as directed by the Forest Plan
5. Apply two herbicide releases of preferred growing stock
6. Apply herbicide pre-commercial thin

**Hardwood Shelterwood (HS) (440 acres).** Method of regenerating an even-aged stand in which a new age class develops beneath the residual trees. The initial midstory removal and site prep burn prepares the seedbed promoting a new age class where natural regeneration is preferred. In the initial harvest, 70 percent of the overstory is removed. Site preparation would be accomplished utilizing herbicide and

controlled burning methods. Periodic herbicide releases would often be necessary to promote desirable tree species. With adequate regeneration, the second harvest removes the remaining overstory.

Silvicultural Treatments:

1. Midstory Removal/Herbicide stump treatment
2. Site prep burn to remove leaf litter
3. Harvest treatment
4. Herbicide site prep
5. If stand adequately stocked after five years remove sheltering trees
6. If stand not adequately stocked, implement artificial regeneration as directed by the Forest Plan
7. Apply two herbicide releases of preferred growing stock
8. Apply herbicide non-commercial thin

**Site Prep and Plant (53 acres).** These stands have been affected by several catastrophic events such as red oak borer infestation, the ice storm of 2009, two years of extreme drought conditions in 2011 and 2012, and Hypoxylon Cankers. Stands would be treated with herbicide site prep followed by a site prep burn. Stands would then be artificially regenerated with follow up stocking surveys with two potential herbicide releases and one application of herbicide non-commercial thin. A diversity of native mast producing hardwoods are the target species.

**Plant Pine and Hardwood (Plant P/HW) (251 acres).** These stands have been affected by several catastrophic events such as red oak borer infestation, the ice storm of 2009, two years of extreme drought conditions in 2011 and 2012, and Hypoxylon Cankers. Stands would be treated with herbicide site prep followed by a site prep burn. Stands would then be artificially regenerated with follow up stocking surveys with two potential herbicide releases and one application of herbicide non-commercial thin. A diversity of native mast producing hardwoods and shortleaf pine are the target species.

**Removal (R) (157 acres).** These stands are recently acquired forest service land. They were improperly managed from the previous ownerships and are either improperly stocked with shade tolerant species as the overstory or fully stocked with cedar only beneath a previous shortleaf pine seed tree harvest. These stands would have all midstory and overstory trees removed, except the occasional well-formed mast producing hardwood or seed bearing shortleaf pine, and artificial regeneration would be implemented following herbicide site prep with follow up site prep burn. Stocking

surveys would be performed with the potential for two herbicide releases and one pre-commercial thinning treatment.

**Hardwood Sanitation Thin/Salvage (HW Salvage) (486 acres).** These stands have been affected by several catastrophic events such as red oak borer infestation, the ice storm of 2009, two years of extreme drought conditions in 2011 and 2012, and Hypoxylon Cankers. Removal of damaged, diseased, and insect infested trees. Stands would be thinned down to shelterwood conditions where possible preferably leaving 30 square feet of basal area. The residual trees would be kept in place as protection for regeneration. Feasibility of commercial timber harvest may not exist within a logical time frame for implementation. All stands would receive site preparation activities preferably utilizing herbicide site prep followed by a site prep burn, stocking surveys, two herbicide releases and one non-commercial thin.

**Wildlife Stand Improvement (WSI) (17 acres).** Stand would be thinned by removing shade tolerant tree species in the understory and midstory to create gaps in the canopy to allow diffuse and direct light to reach the ground in a patchy mosaic pattern. Residual stand should maintain tree densities prescribed in Indiana Bat Standards and favor tree species such as white oak, post oak, black oak, black cherry, northern red oak, walnut, hickory and shortleaf pine.

WILDLIFE HABITAT MANAGEMENT

**Prescribed Burning on approximately 6107 acres.** Not all of the designated areas would be burned at one time. On a rotational basis, specific units would be identified to burn each year based on forest plan objectives and guidelines as well as fuel and weather conditions. Burn units may be burned more than once to mimic the natural fire regime and meet management objectives. Burn frequency following initial burns would also be based upon monitoring, but would likely be every 3 to 5 years. Control lines would consist primarily of previously established control lines, roads, and/or creeks. In addition to the burn units, site prep burns would be needed in salvage and regeneration areas associated with timber harvesting. Approximately 60 miles of fire line may be needed to burn these areas. This figure may be reduced by the availability of natural fire breaks such as roads and creeks.

**Construction of 11 new wildlife openings (approximately 55 acres) to provide a more even distribution of early successional habitat across the landscape for wildlife cover and forage.** Work would include the initial clearing of openings with a dozer. Other treatments after initial construction could include one or a combination of the following: Brush hogging; disking; seeding with native warm season grasses or Forest approved wildlife forages; planting of hardwoods and soft mast tree/brush species for wildlife forage and cover at edge or in middle of openings; fertilizing; liming; herbicide applications to remove non-native invasive species or woody encroachment; hay cutting; prescribed burning; hydro-axing or mastication of woody encroachment; chain-saw or hand tool removal of encroaching or woody vegetation;

dozer work to enlarge or clear openings. Treatments after initial construction may include follow up maintenance on a one to three year rotational basis. Additional activities may include the construction of approximately two miles of roads to access the openings and gate installation (approximately 11) at end of the roads to protect the habitat. Openings may range in size from 1.5 to 5 acres.

**Restoration or maintenance of 39 existing wildlife openings (approximately 195 acres) to provide wildlife forage, cover and habitat, particularly early successional habitat.** The project area currently contains less than two percent of early successional habitat. Work may include one or a combination of the following: Brush hogging; disking; seeding with native warm season grasses or Forest approved wildlife forages; planting of hardwoods and soft mast tree/brush species for wildlife forage and cover at edge or in middle of openings; fertilizing; liming; herbicide applications to remove non-native invasive species or woody encroachment; hay cutting; prescribed burning; hydro-axing or mastication of woody encroachment; chain-saw, hand tool or mechanical removal of encroaching or woody vegetation; dozer work to enlarge or clear openings. Approximately 40 of the openings would include enlargement from one acre up to five acres in size. Treatments may include initial restoration and follow up maintenance on a one to three year rotational basis. Additional activities may include the brushing, limbing and maintenance of roads leading to the openings and gating of the roads to protect the habitat (approximately 40 gates). Openings may be from one and a half to up to five acres in size.

**Cave Gates.** Install up to six cave gates at the entrance of caves in the project area. Surveys of caves in 2013 (including one known Indiana bat hibernacula cave) revealed vandalism and human disturbance. Gates would be installed in cooperation with the United States Fish and Wildlife Service to protect Threatened, Endangered, or Sensitive (TES) bat habitat. Gates would be welded and be made with aluminum or steel.

**Farm Gates.** Install up to 15 gates at illegal, closed or decommissioned roads to protect large sites of TES plant habitat areas and to improve watershed conditions.

**Glade Restoration on eight glades (approximately 150 acres).** To restore habitat for TES Species. Methods may include one or a combination of the following: removal of cedar trees, other woody encroachment and/or non-native invasive species through mechanical, hand tools, herbicide or prescribed burning methods for initial restoration and follow up maintenance.

**Restoration/maintenance of approximately 52 existing ponds (approximately 160 acres).** This is to provide wildlife feeding and watering areas, amphibian and reptile habitat, and fisheries habitat. A large percentage of the ponds have little to no water. Restoration activities may include one or a combination of treatments: Mechanical reconstruction or enlargement, clearing of woody vegetation from dams, addition of structure (trees/rocks/artificial reef), liming, fertilizing, treatment of non-native invasive species through mechanical or chemical methods, adding bentonite to help hold water, bank/shore planting, stabilization to improve watershed conditions and

to provide wildlife cover/feeding and fish stocking. Activities may include initial restoration/reconstruction and some follow up maintenance if needed. Ponds may be reconstructed in size from 0.5 acre up to three acres.

**Stream Crossing Replacements.** Surveys revealed that crossings at Cripple Branch at FS 1521 and Big Eddy Hollow at FS 1501 are barriers to fish passage. Existing structures would be replaced with bottomless box bridges. Some stream bank stabilization may be included in construction; utilizing natural materials, rock or geotextile. Other activities may include reshaping or widening of the associated road approaches/departures.

**Riparian corridor restoration.** Large sections of riparian areas along Spirits Creek, Mulberry River and Nix Hollow need restoration/stabilization due to natural or human caused stream bank failure, illegal trails, etc. These areas would be restored as budget and time allows to natural vegetative conditions through native cane restoration and/or stream bank stabilization. Methods may include thinning small sections of riparian corridors to a 60-80 basal area to encourage regenerated or planted cane growth, rip-rap, cane, or geotextiles for steam banks. Some fencing may be used in expansive open areas where off highway vehicle use is heavy and cannot be controlled through normal trail/road closures.

**Stream/pool habitat restoration.** Add large woody debris to Spirits, John Turner, Cripple Branch, Nix, Big Eddy Hollow, Rock and Fanes creeks to create pool habitat for aquatic species if surveys reveal a need.

**Non-native Invasive Species (NNIS) Eradication.** Treat a maximum of 2,000 acres per year of non-native invasive species. Treatments will include spot spraying or boom-mounted tractor spraying. Chemicals used would be glyphosate, triclopyr, imazapyr, picloram or a combination of any of the three. It is estimated that over 2000 acres within the project area are infested with NNIS. Field surveys of the area revealed Serecia lespedeza, multi-flora rose, air-potato, Japanese honeysuckle, large areas of tree of heaven, mimosa, fescue, bi-color lespedeza and stiltgrass. Any federally or state listed NNIS species would be treated as budgets and time allows. Site specific analysis would occur before any treatment occurs.

**Installation of educational/interpretive signs.** This would occur at key areas to interpret project activities and restoration efforts as budget and time allows.

**Mobility impaired hunter access (2-10 blinds).** This would take place at selected wildlife openings. Portable blinds would be installed as budgets allow and would be removed after hunting seasons. Hunters would utilize blinds through a check in system at the local District Office.

*ROAD MANAGEMENT*

Currently, this area has more than 6.12 miles of vehicular access (including closed and unauthorized roads) per square mile. An objective for the forest is to "*Strive to reduce roads to a density of three miles/square mile in sixth level watersheds based on watershed assessments, the roads analysis process (RAP), and budget constraints*" (Forest Plan). The proposed road management activities within the project area would help to meet this objective by reducing the road density to less than six miles per square mile.

**Table 1. Roads/Trails Proposed Action Summary**

| Action | Approximate total miles |
|---|---|
| Pre-haul | 58.44 |
| Decommission | 35.80 |
| Reconstruct | 6.66 |
| New Construction | 0.34 |

**Prehaul maintenance on approximately 58.44 miles of forest roads.** This consists of road maintenance work to be accomplished prior to commercial hauling to make a road suitable and safe for commercial use. Prehaul maintenance includes such activities as surface blading, ditch and drainage maintenance, slide and slough removal, brush removal, and road opening. It does not include reconstruction work.

**Decommission approximately 35.80 miles of system roads and approximately 100 miles of unauthorized roads or trails.** Over the past 10-15 years, many miles of unauthorized or user created roads and trails have appeared on the landscape. It is estimated, through aerial photography and field inventory, that there are approximately 100 miles of these unauthorized roads within the project area. These, along with Forest Service designated roads would not need to be left on the landscape because the Forest Service roads are no longer needed to conduct resource management activities and the unauthorized roads are unsafe and also contribute to resource degradation. Activities involved in decommissioning would vary depending on the specific road condition encountered such as the amount of natural recovery that has already taken place. The range of decommissioning activities would include scarifying, water barring, planting roads to native grass seed or forest approved forage mix, blocking, and/or full re-contour to the natural topography using heavy equipment (obliteration). This would protect wildlife from vehicular disturbance, provide additional wildlife food sources and reduce erosion from these roads which would contribute to a healthier watershed. These roads and trails would no longer be available for any type of vehicular use.

**Reconstruction of approximately 6.66 miles of Forest Service Roads.** These roads are seldom used and inadequate for timber resource use and need to be reconstructed to improve access and safety to these areas.

**Creation of new road segment of approximately 0.34 miles.** This would be needed to access timber in an area where there is no other access.

**Approximately nine borrow pits would be needed to accomplish road activities**. These are needed to reduce costs of performing road work activities and to lessen the impact of construction equipment on roads in the landscape.

*RECREATION MANAGEMENT*

There are many opportunities in this area to enhance recreation experiences while at the same time improving public safety. Actions needed to meet these goals include managing the designations of roads to accommodate Off Highway Vehicle (OHV) use in appropriate areas and improving hiking experiences along the Ozark Highlands Trail (OHT) corridor.

**Table 2. Proposed Recreation Management Actions Summary**

| Action | Approximate total miles |
|---|---|
| Designation of existing routes to allow all vehicles | 28.0 |
| Designation of existing routes to exclude OHVs | 16.0 |
| OHT Hiking Trail Spur Loop | 2.6 |

**Designation change on approximately 16 miles of existing OHV routes to exclude OHV traffic.** There are many short, dead-end segments of road currently designated for OHV use in the project area. These segments have deteriorated over time creating unsafe conditions and are contributing towards excess sediment in area streams. Excluding OHV use on these segments would improve public safety, reduce costs of maintenance and help improve watershed conditions.

**Designation change on approximately 28 miles of existing non-OHV routes to allow all OHV use.** This would enhance OHV user experience by creating loop routes and allowing easy access to the Mill Creek OHV Trail system to the north of the project area. It would also allow more opportunities in appropriate areas for OHV enthusiasts while decreasing user conflicts in areas not suited to OHV use.

**Develop a spur loop trail as part of the Ozark Highlands Trail (OHT) around Black Mountain of approximately 2.6 miles.** The Ozark Highlands Trail Corridor crosses the northern portion of the project area. Creating a spur loop on Black mountain would provide excellent scenic views overlooking Gray's Spring Recreation Area while increasing hiking opportunities and experiences.

## HOW TO COMMENT

This project is subject to administrative review under 36 CFR 218 Project-Level Pre-decisional Administrative Review Process, Parts A and B.

Specific written comments as defined by 36 CFR 218.2 should be within the scope of the proposed action, have a direct relationship to the proposed action, and must include supporting reasons for me to consider. It is the responsibility of all individuals and organizations to ensure that their comments are received in a timely manner. Comments received in response to this solicitation, including names and addresses of those who comment, will be considered part of the public record and will be available for public inspection. Comments submitted anonymously will be accepted and considered; however we will not be able to provide the respondent with subsequent environmental documents. A 30 day Notice and Comment period will be provided at a future date (36 CFR 218.24).

An objection period, if required, will follow the regulation found in 36 CFR 218.7. For objection eligibility (36 CFR 218.5), only those who have submitted timely, specific written comments during any designated opportunity for public comment may file an objection. Issues to be raised in objections must be based on previously submitted specific written comments regarding the proposed project and attributed to the objector, unless the issue is based on new information that arose after a designated opportunity to comment (36CFR 218.8(c)).

I invite your comments on the proposed action. The Interdisciplinary Team will use your comments as they identify issues and develop alternatives to the proposal for my consideration. The team will summarize the disclosure of environmental effects in an environmental document which will be available to the general public on our website. The environmental document will be mailed to those who have commented on this proposal and to those who request a copy.

For your convenience you may use the enclosed comment form. Our mailing address is: U.S. Forest Service, 1803 N 18th Street, Ozark, AR 72949. You may also call, or email your comments to: *comments-southern-ozark-stfrancis-bostonmtn@fs.fed.us*. Please state "Spirits Project" in the subject line when providing electronic comments, or on the envelope when replying by mail. If you have questions on this proposal or the analysis decision process, please call Mike Hennigann or me at 479-667-2191.

Sincerely,

WILLIAM DUNK

District Ranger

## *SPIRITS PROJECT*
## *Boston Mountain Ranger District, Ozark National Forest*

Name: _____

Address: _____

_____

Date: _____ Phone:_____

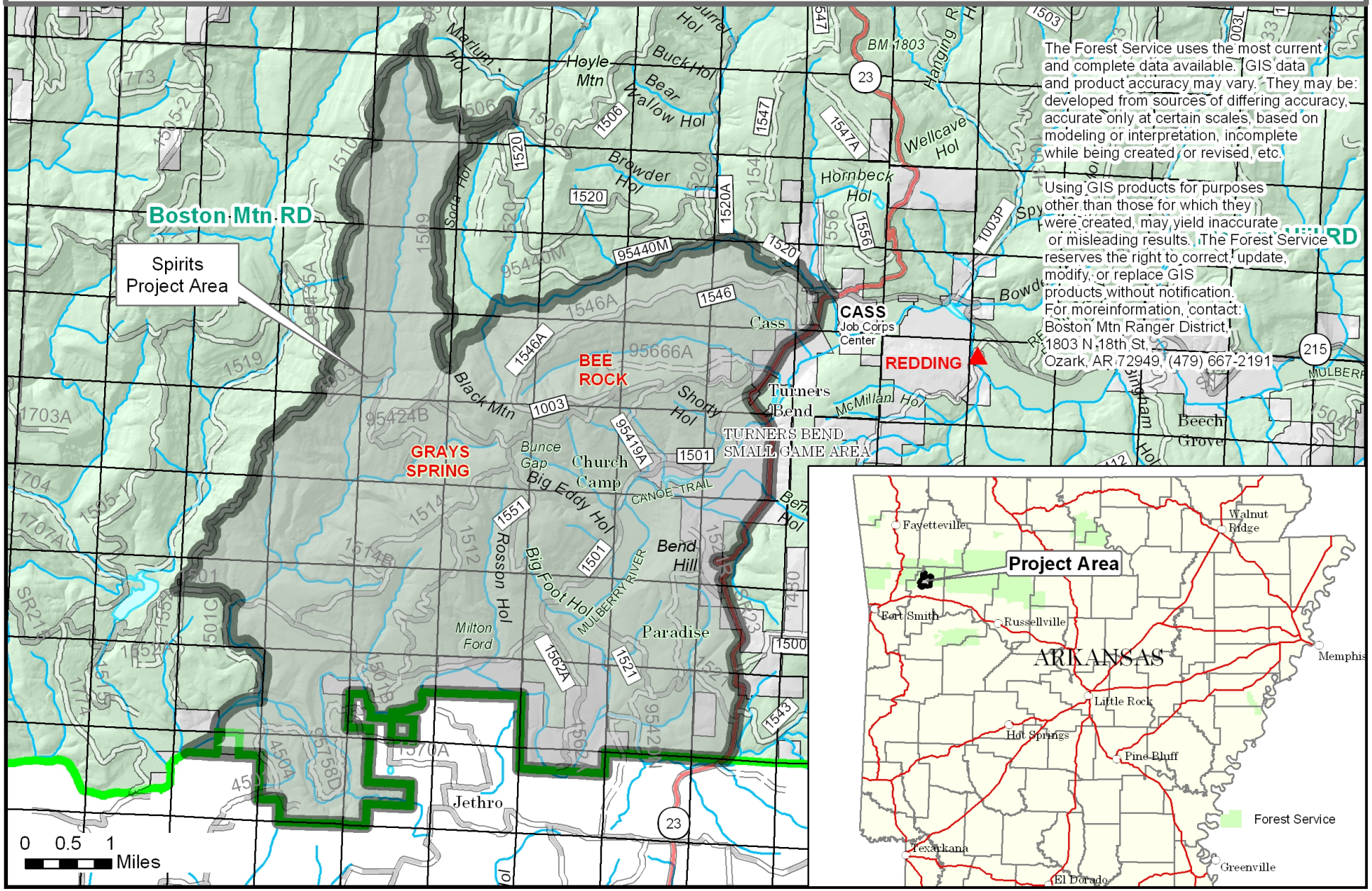
Email: _____
Comments:

Would you like us to contact you about your comments? _____

Please mail your completed comment form to Jobi Brown at 1803 North 18th Street, Ozark, AR 72949. Comments are also accepted verbally at 479-667-2191 or TTY 479-667-1931, or by email at comments-southern-ozark-stfrancis-bostonmtn@fs.fed.us. Your input is important.

# Ozark - St Francis National Forests: Boston Moutain Ranger District

## *Spirits Project: Vicinity Map*




The Forest Service uses the most current and complete data available. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created, or revised, etc.

Using GIS products for purposes other than those for which they were created, may yield inaccurate or misleading results. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification. For more information, contact: Boston Mtn Ranger District, 1803 N 18th St, Ozark, AR 72949, (479) 667-2191

Ozark-St. Francis National Forests

Boston Mountain Ranger District

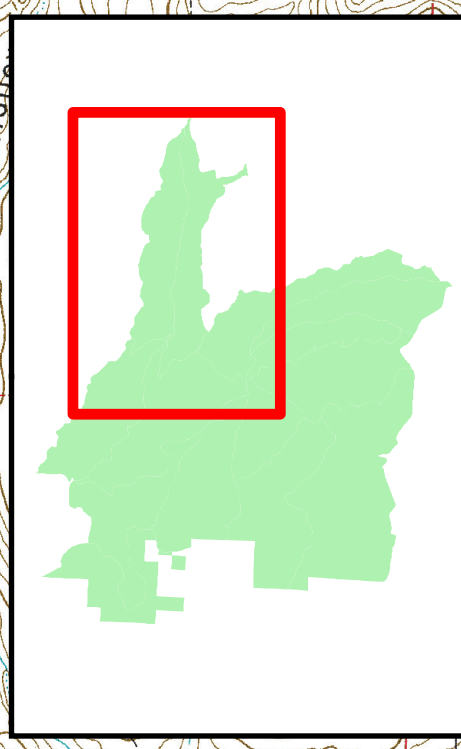
# Spirits Project
# Silviculture and Road Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map A**

- ShalePits
- Road-No Change
- Road-Close
- Road-Decommission
- Road-Maintenance and Close
- Road-Maintenance and Open
- Road-Reconstruction
- Road-Construction
- Hardwood Shelterwood
- Hardwood Thinning
- Hardwood Salvage
- Non-Commercial Thinning
- Pre-Commercial Thinning
- Pine/Hardwood Thinning
- Planting
- Pine Shelterwood
- Pine Thinning
- Removal
- Wildlife Stand Improvement
- Compartment Bndry
- Stand Bndry
- Private Land
- District Bndry
- Project Bndry



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Ozark-St. Francis National Forests

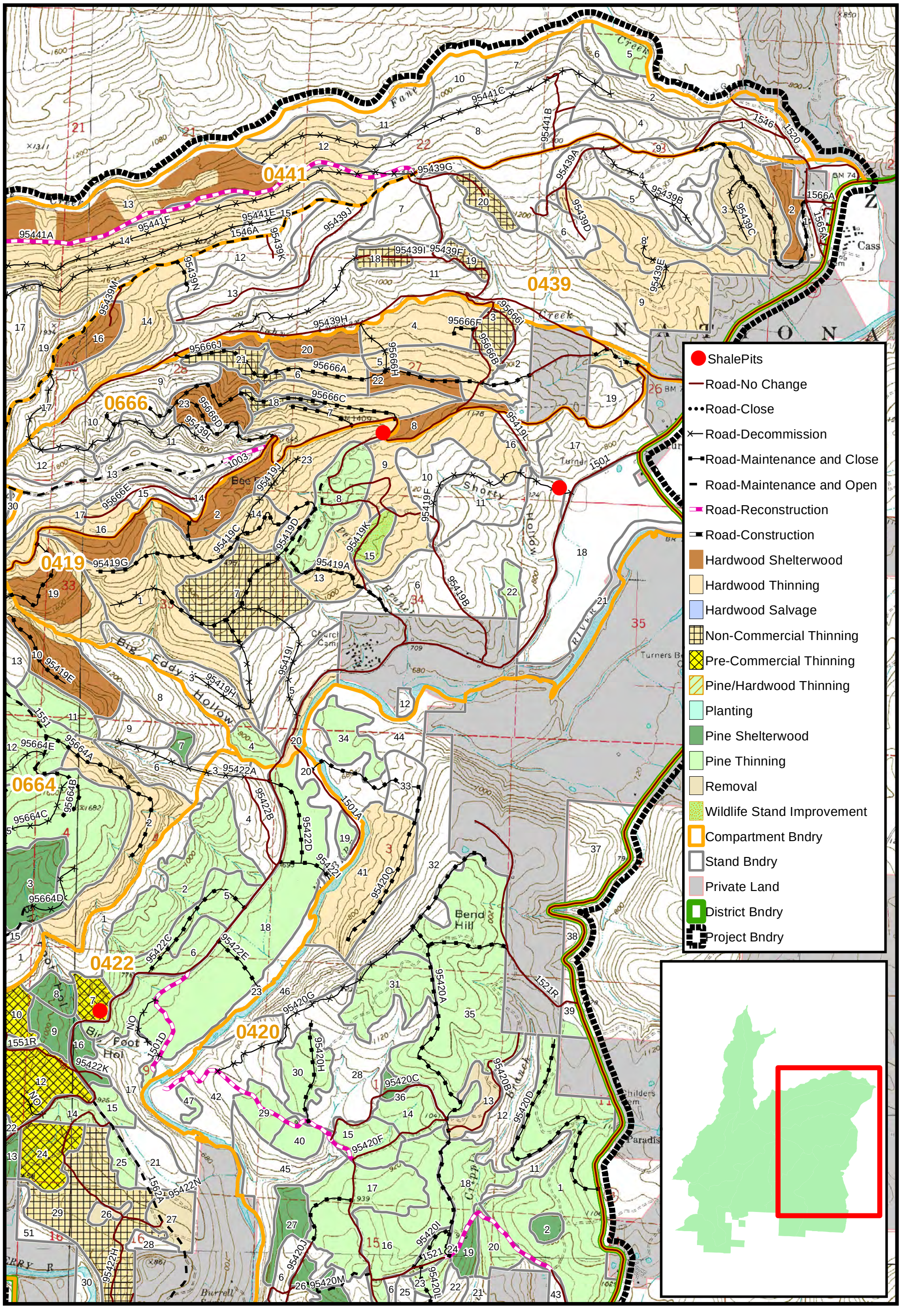
Boston Mountain Ranger District

# Spirits Project
# Silviculture and Road Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map B**



Ozark-St. Francis National Forests

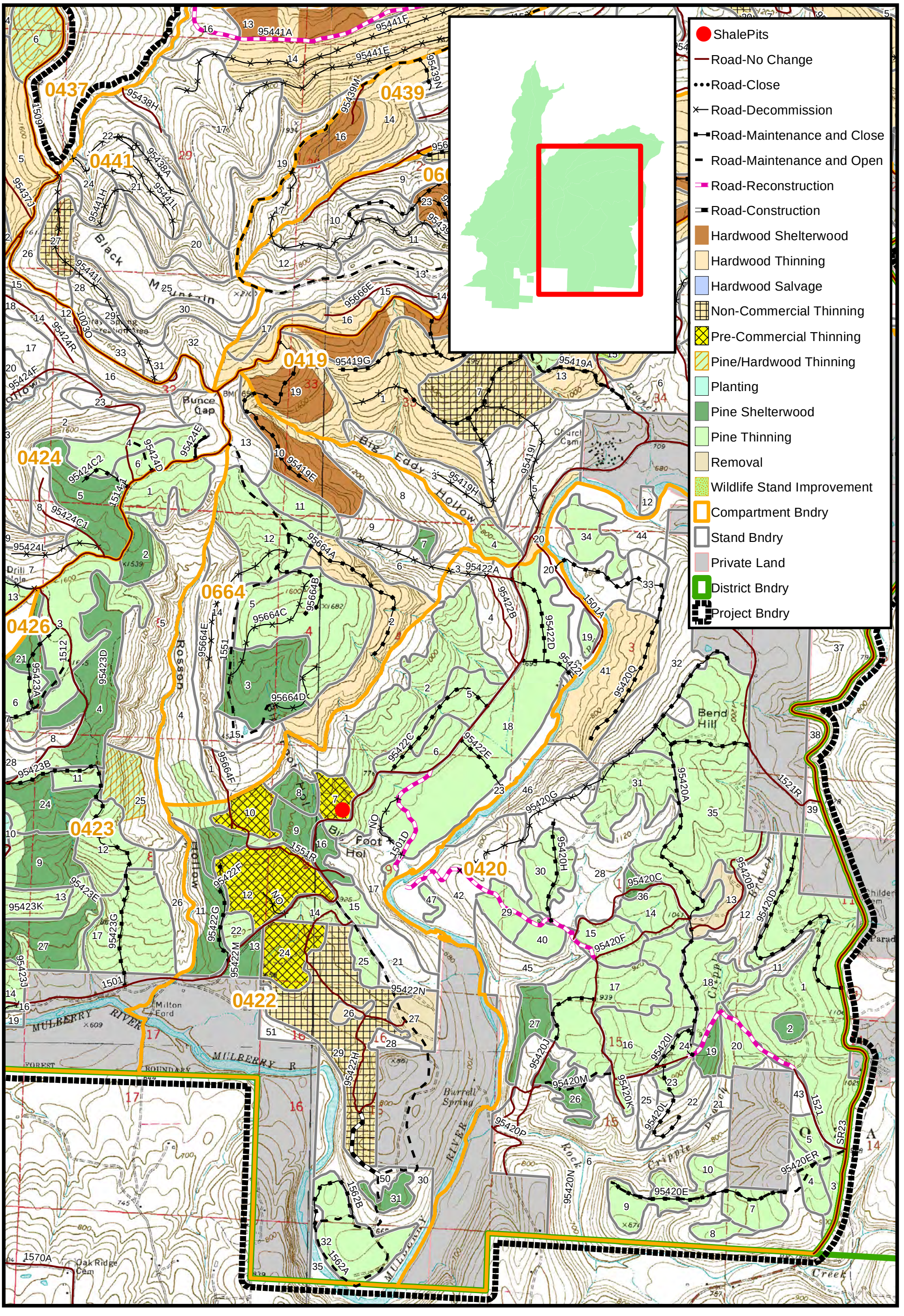
Boston Mountain Ranger District

# Spirits Project
# Silviculture and Road Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map C**



Ozark-St. Francis National Forests

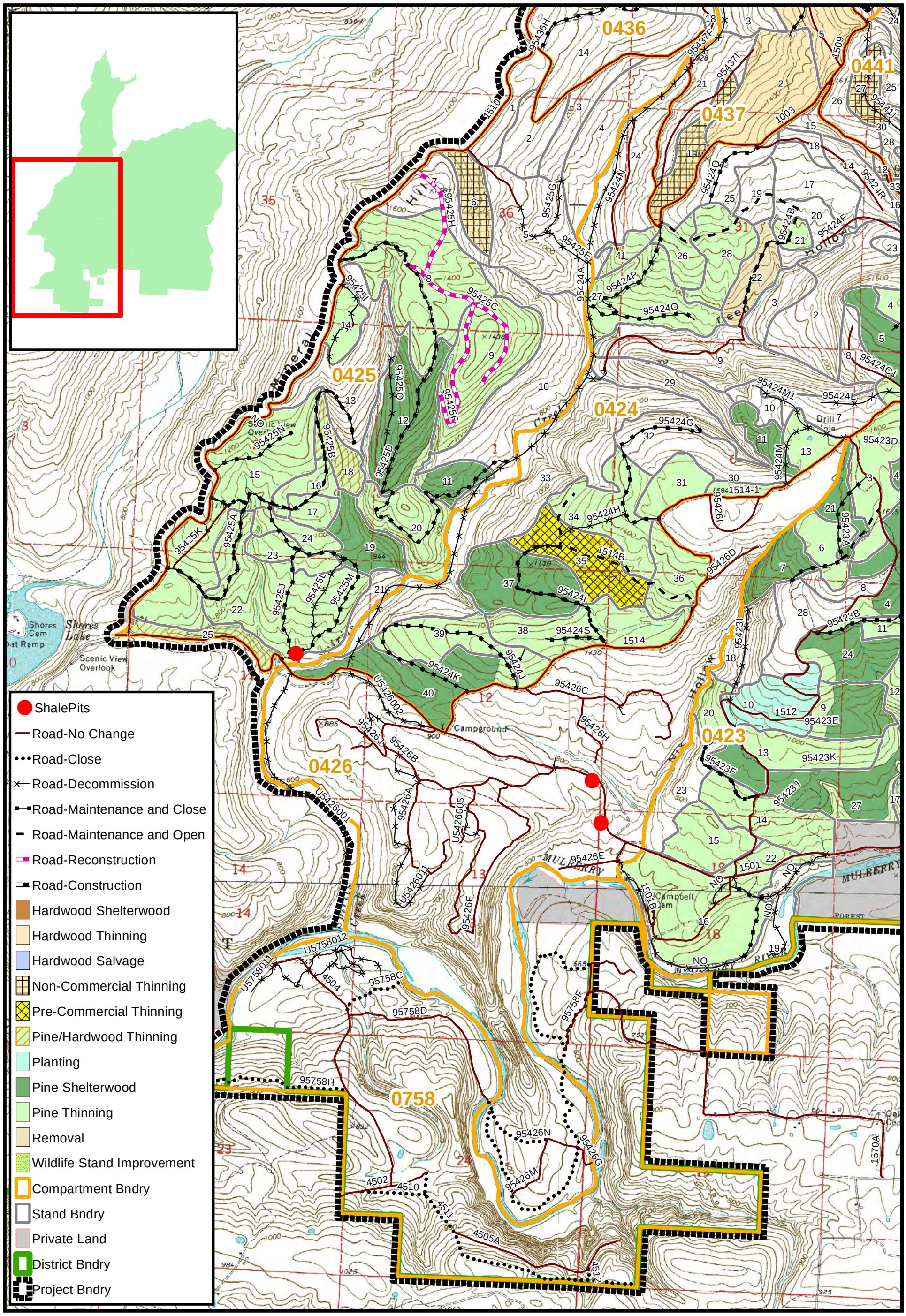
Boston Mountain Ranger District

# Spirits Project
# Silviculture and Road Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map D**



Ozark-St. Francis National Forests

Boston Mountain Ranger District

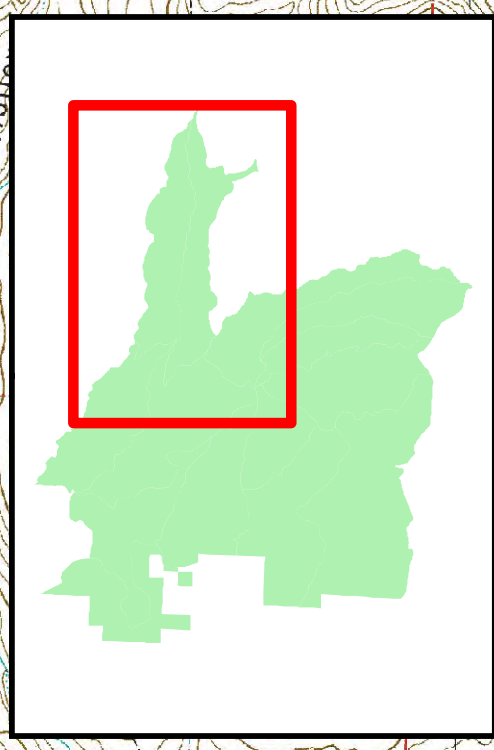
# Spirits Project
# Wildlife and Recreation Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map A**

- Ponds
- Proposed Gates
- Existing Food Plots
- New Food Plots
- Proposed Fish Passage
- Proposed Hiking Trail
- Remove OHV Designation
- Proposed OHV Designation
- Existing OHV Designation
- LWD
- OHTCorridor
- Roads
- Glade Restoration
- District Bndry
- Compartment Bndry
- Stand Bndry
- Private Land
- Rx Burn Areas
- Project Bndry



Ozark-St. Francis National Forests

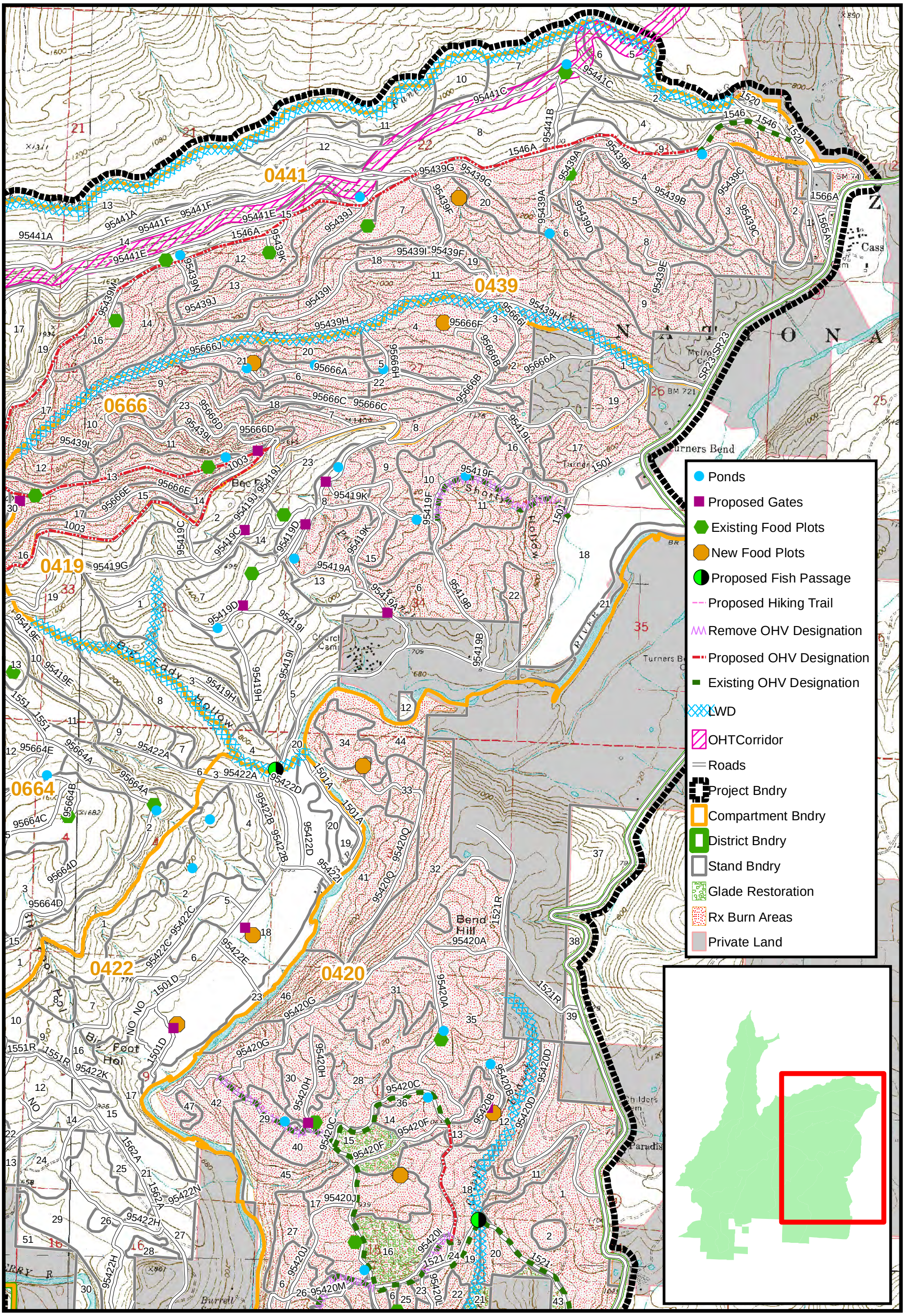
Boston Mountain Ranger District

# Spirits Project
# Wildlife and Recreation Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map B**



Ozark-St. Francis National Forests

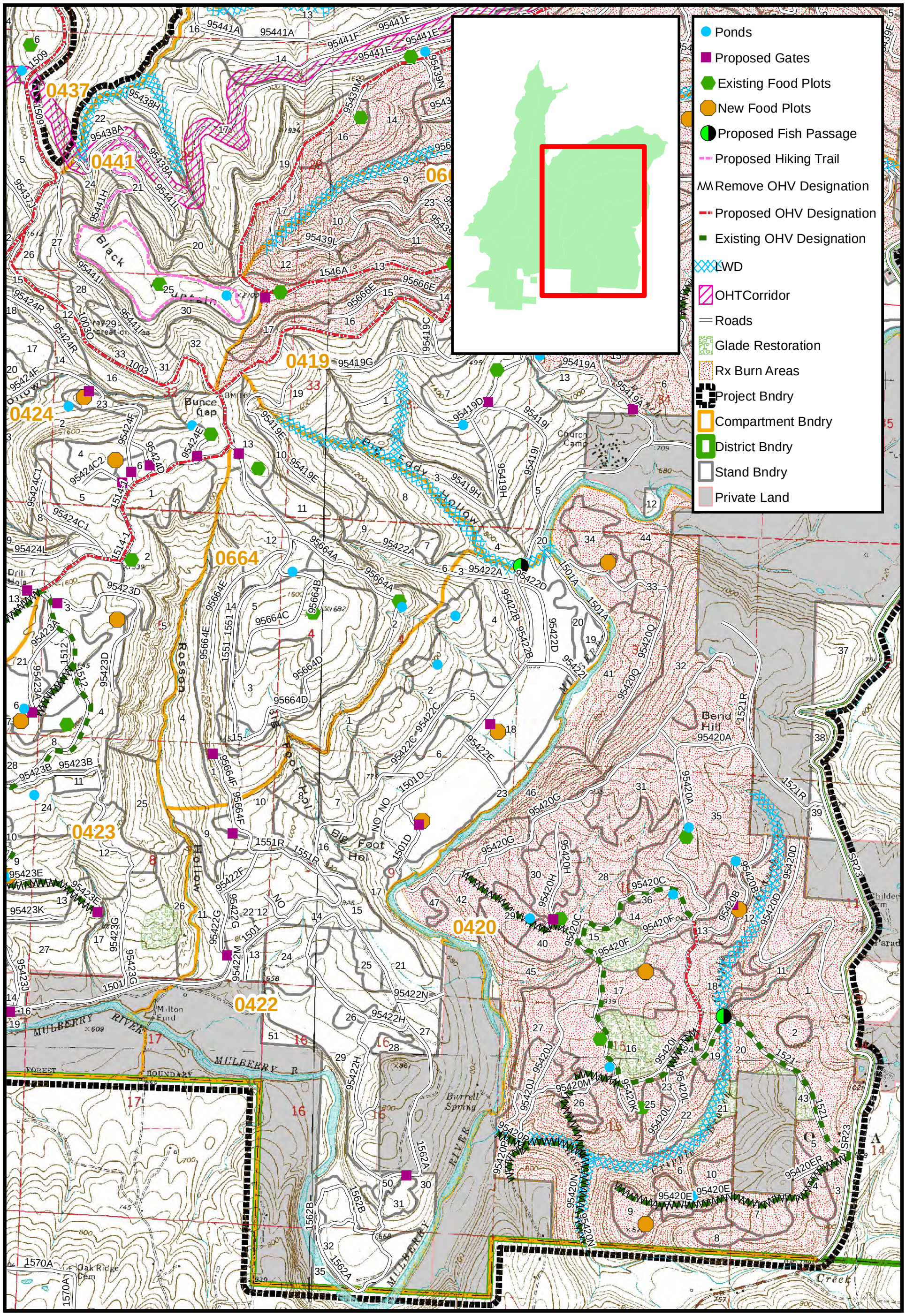
Boston Mountain Ranger District

# Spirits Project
# Wildlife and Recreation Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map C**



Ozark-St. Francis National Forests

Boston Mountain Ranger District

# Spirits Project
# Wildlife and Recreation Treatments

0 0.25 0.5 0.75 1 Miles

0 950 1,900 3,800 5,700 7,600 Feet

**Map D**