April 6, 2017

TO: Arkansas Department of Environmental Quality
Attn: Katherine McWilliams
Office of Water Quality
5301 Northshore Drive
North Little Rock, AR 72118

FROM: Arkansas Farm Bureau Federation
Mr. Evan A. Teague, P.E.
Vice President, Commodity & Regulatory Affairs
P.O. Box 31
Little Rock, AR 72203

RE: Comments on permit 5264-W

Ms. McWilliams:

The Arkansas Farm Bureau Federation would like to offer the following comments supporting the issuance of C&H Hog Farms Regulation 5 permit. Our organization is a non-profit agricultural advocacy association with more the 190,000 members of whom 50,000 are directly engaged in agriculture production and representing 90% of all farmers and ranchers. We continually work to protect our members right to farm while making sure our states resources, in this case the Buffalo National River, are protected for future generations of farmers and Arkansans.

Farm Bureau's focus is to ensure sound science drives the production practices of our farmers and ranchers, and to ensure that regulatory controls being applied to farmers and ranchers employ the same sound science. With more than three years of data the Big Creek Research & Extension Team (BCRET) has continually shown that C&H has shown no environmental impact to Big Creek or its surrounding streams. These results are a testament to the APC&EC's regulatory requirements, ADEQ's protective permit and the effectiveness of C&H Hog Farm's nutrient management plan and operating procedures.

Although some may have you believe that protection of the Buffalo National River and agricultural practices within the watershed are incompatible, Farm Bureau believes these two can

and must co-exist, and that both should be protected. We know this to be true because there have been swine, cattle, and poultry farms in the Buffalo National River watershed for decades without degradation of water quality.

Despite the fact there is no scientific evidence showing that C&H Hog Farm is causing an environmental impact, opponents continue to point fingers at these three young farm families with 9 generations of farming history, while ignoring other potential sources of pollution. Several examples of these other sources are septic tanks, severe bank erosion, wild hogs, increased recreation use, and the National Park Service (NPS) wastewater treatment plants. In addition, to the comments stated above, Farm Bureau would like to reiterate the following previously submitted comments.

Previous Studies of Hog Farms in the Buffalo River Watershed

In 1995 Director Randall Mathis and the Arkansas Department of Environmental Quality's (the Department) Environmental Preservation Division initiated the Buffalo River Swine Project. The Arkansas Pork Producers Association, the Newton County Conservation District and Cooperative Extension Service were also collaborative partners in the study.

The study included a 5-year evaluation of hog farms in the Buffalo River watershed. Full disclosure, at the onset of the study there were issues found, not with the locations of the farms, but with how some farmers were managing their manure. However, after working with and educating these farmers on proper manure management practices in-stream water quality samples collected from an adjacent stream showed initial nutrient load reductions of 90%. The study also included groundwater monitoring around the lagoons and in the application fields. The groundwater study showed that those lagoons "exhibited little to no leakage" and that groundwater showed "minimal impacts from onsite waste ponds."

The participants of this study were awarded EPA's Environmental Excellence Award of 1998. (see Appendix A) Director Mathis applauded these efforts and noted the ceremony in his Director's report during the January 1999 commission meeting. (see Appendix B) The EPA again recognized these efforts by publishing the Buffalo River Swine Study as one of their 2002 EPA 319 Success Stories. (see Appendix C) The study concluded, "Swine farmers in the Buffalo River watershed have successfully changed their waste management practices and are using the fertilizer benefit of the manure generated at their facilities while minimizing their impact on the environment." (Emphasis added)

Why is this important? Those farms were built in the 1970s. Engineering design standards for lagoons as well as the nutrient management plans that farmers are required to comply with today are much more stringent/restrictive than they were 20 years ago when those studies were

performed. If those farms were able to minimize their impact on the environment, then what would be the justification for denying this permit to a farm that must meet much more stringent engineering design standards and must follow more restrictive NMP requirements? Denying this permit would be contrary to the very conclusions reached by the Department, then and now, and that EPA has recognized.

EPA and ADEQ Inspections of C&H Hog Farms

On April 15-17, 2014, EPA Region VI's Compliance Assurance and Enforcement Division conducted an unannounced inspection of C&H Hog Farms. (see Appendix D) The report stated, "No areas of concern were noted at this facility." The inspection was extremely thorough and included record keeping, lagoons, collection of soil samples from the land application fields, collection of water samples up-gradient and down-gradient from the farm, etc. As is typical with most all EPA inspections, an exit interview is conducted with the permittee. While not part of the official written record, the inspector told Mr. Henson that their farm was one of the best they have ever inspected and that he "nitpicked" them trying to find something wrong and couldn't.

The inspector's report even noted that, "The farm has planted approximately 1,000 loblolly pine trees around the perimeter of the facility. While these trees are only 12"-14" tall they may, in the future, provide a measure of odor control." This shows a good faith effort on behalf of the owners of C&H Hog Farms to address concerns related to odors even though there are not specific permit parameters associated with odors and even though odors from this farm have been minimal, contrary to the fabrications made by C&H's opposition.

The EPA also collected soil samples from the land application fields. The average soil phosphorus level was 13% LESS than the original sample results used to draft C&H Hog Farms NMP. That means their NMP has an additional built-in safety factor. This is just an average and not a weighted average.

ADEQ enforcement has also performed numerous inspections of this facility, the vast majority of which have been based on frivolous complaints. On more than one occasion the inspector was already onsite at the time a complaint was received and it was obvious that the complaint was baseless and fabricated.

National Park Service (NPS) Agriculture Special Use Permits

The Buffalo River NPS has Agriculture Special Use Permits (AgSUPs) through which it leases fields to local farmers to cut hay.(see Appendix E) These permits require the lessees to fertilize these fields at minimum rates predetermined by the NPS. This has been a common practice since the Buffalo River National Park was created. Opponents have repeatedly stated that the high,

excellent, even pristine, water quality of the Buffalo River must be "protected", so there has obviously been minimal impact to water quality as a result of these activities. Therefore, the following comments in no way should be construed to suggest that these activities are detrimental or should cease. With that said . . . these fields represent 1,260 acres and the NPS requires that more than 93,000 lbs of N and 45,000 lbs of P be applied. This is more than C&H Hog Farms generates on an annual basis AND many of these fields are directly adjacent to, some less than 100 feet to the Buffalo River. Many of these fields receive commercial fertilizer which is more soluble if not managed properly than animal manure and can result in more nutrients entering the Buffalo River. On the other hand, the fields that C&H Hog Farms apply to are more than 5 miles from the Buffalo River. So, if it is okay for the NPS to apply nutrients to fields right next to the Buffalo River ***that are underlain by Karst***, why is it not okay for C&H Hog Farms to do the same?

Furthermore, the Buffalo River Watershed is not considered a Nutrient Surplus Area as designated by Ark. Code Ann. § 15-20-1104; therefore, the NPS and local landowners are not required to follow Nutrient Management Plans (NMPs) based on the Arkansas Phosphorus Index (AR P-Index). However, because C&H Hog Farms generates liquid animal waste it is required to apply ALL of its nutrients according to the AR P-Index. The landowners that C&H Hog Farms has lease agreements with have fertilized these fields just as the NPS has fertilized theirs. However, now that these landowners have agreed to accept manure from C&H Hog Farms these fields are now subject to the requirements of the AR P-Index. As a result, nutrient application rates will be significantly reduced as compared to historical application rates. So . . . an activity that has been done according to BMPs, but essentially unregulated, is now subject to NMP requirements based on the AR P-Index. The following conclusion will be completely unfathomable by C&H's opponents, but that doesn't change the fact that it is logical and reasonable. The very fact that C&H Hog Farms has located near Mt Judea and landowners are now applying hog manure (organic liquid fertilizer) instead of commercial fertilizer or poultry litter may actually improve the already high, excellent, even pristine, water quality in Big Creek and the Buffalo River. Furthermore, assuming other similar farms locate in the Buffalo River watershed and landowners switch from commercial fertilizer to hog manure, it isn't an unreasonable assumption that water quality in the areas surrounding those farms may also improve. This reasonable and logical conclusion itself should serve as justification and give the Department and the Commission confidence to approve the permit.

Protecting the Buffalo River

If opponents are sincere about protecting the Buffalo River, then all "potential threats" need to be considered. Recreation and tourism should not be given a free pass to pollute. Tourism proponents dismiss the impacts of recreation and floating. In previous comments submitted to

the Department the NPS touted the collaborative effort between itself and the Department as it related to monitoring at nine sites on the Buffalo River and its tributaries. The NPS in 2013 announced that it was increasing its monitoring at the confluence of Big Creek and the Buffalo River. Hog farm owners in the 1990s subjected their farms to intense monitoring and scrutiny. Now, the owners of C&H Hog Farms have put their farm and livelihood on the line by opening it to even more intense monitoring. Yet, there has been no similar study to evaluate the impacts of recreation and floating on the Buffalo River, even as the number of visitors has grown to nearly 1.5 million with more than 6,000 per day floating the Buffalo River.

Public Perception

The opponents claim that the Buffalo River is under "threat" from a "potential" massive expansion of swine production. Yet, the they have presented no evidence to support those claims. Over the past decade swine production in Arkansas has declined by more than 85%. The overall number of animals in the Buffalo River Watershed itself has decreased over the last 15-20 years from more than 3,600 to 2,500. Since 2006 there have been only four new farms permitted in Arkansas that house 1500 sows or more. These numbers do not constitute a massive expansion of swine production in Arkansas. To the contrary, even with the addition of these new farms, hog numbers are still significantly less than ten years ago. The probability of the Buffalo River being populated with hog farms is very low essentially non-existant, especially when considering the amount of controversy, the opponents have successfully generated.

Waste Storage Lagoons.

Opponents continually raise the "potential" of the "threat" of a catastrophic lagoon failure. They cite the failure of a lagoon on a North Carolina hog farm that released 22 million gallons of treated waste into the Neuse River. What they fail to mention is this lagoon failure came after what was determined to be a 500-year storm event and was largely due to an unauthorized dam alteration and improperly maintained land application equipment. In Arkansas' long history of hog production there has never been a catastrophic lagoon failure. Furthermore, in December 2015 Arkansas and the Mt. Judea area experienced a 500-year storm event. The area received over 15 inches of rain over a two-day period. Because of the extra lagoon capacity and the diligence of the farm family, they were more than prepared to weather these storms and the farm's performance exceeded expectations.

In addition, a study was conducted by the U.S. Geological Survey in cooperation with the Natural Resources Conservation Service, the University of Arkansas, and the Arkansas Department of Environmental Quality to examine ***swine waste storage lagoons in a mantled karst terrane*** (Appendix F). The study evaluated potential leakage from existing holding ponds and a settling

basin as well as a newly constructed Anaerobic lagoon at the University of Arkansas' Savoy Experimental Watershed. The Savoy Swine Facility is a demonstration farm that provides a long term model for environmental management. The study points out that the "Savoy Swine Facility is located within the Springfield Plateau, which is underline by nearly flat lying Mississippian-age cherty limestones and limestones" and has "[k]arst features such as springs, sinkholes, losing streams, caves, and conduits…in the study area."

Water quality samples were collected from several sampling locations which included wells, springs, seeps, and an interceptor trench. The study concluded that "very little leakage from the waste holding ponds and settling basin occurs" and goes on to say the reason for minimal leakage is due to the high solids content in the animal waste which provided a seal significantly reducing seepage. The study concludes with "[b]ased on these results, the swine waste lagoon…is minimally affecting the ground-water quality of the area.

If past operations and a study performed by the university of Arkansas are not enough, the ADEQ conducted a single boring and sample collection at the C&H Hog Farms facility. The drill study was conducted due to interpreted results of an electrical resistivity imaging (ERI) which was perceived to show vertical leakage from the waste storage ponds and a possible fracture. Concerns from citizen groups opposed to the hog farm recommended a subsurface investigation, despite the fact that BCRET direct measurements showed otherwise, to verify if the ponds were leaking at the "fracture". A third party was hired by ADEQ to prepare and execute a site investigation work plan as well as prepare a final study report. Key ADEQ staff which included a Professional Engineer and Professional Geologist reviewed the final study report and ADEQ unanimously concluded "[t]here was no evidence of a release from the storage ponds."

Karst Geology.

Much has been made of the location of C&H Hog Farms and the land application of liquid fertilizer on fields next to Big Creek. The National Park Service applies more nutrients through its Agriculture Special Use Permitting program than C&H Hog Farms generates annually. The NPS fields are adjacent to the Buffalo River and are underlain by Karst. If land application to fields underlain by karst is so detrimental then why is it okay for the National Park Service to fertilize fields that are adjacent to the Buffalo River but it isn't okay for C&H Hog Farms to do the same under an actual permit on fields more than 5 miles from the Buffalo River?

Lastly opponents claim that as the public learns of the existence of C&H Hog Farms, it is damaging the public's perception of the Buffalo River and is hurting tourism. These claims are rather ironic since the opponents are **solely** responsible for generating all the negative press and publicity surrounding this issue. They have only themselves to blame. There have been hog farms

in the Buffalo River watershed for decades and tourism has thrived as evidenced by the nearly 1.5 million visitors to the Buffalo River National Park each year.

Waste Generated

Opponents of the hog farm like to compare the amount of waste generated with other cities. One example that is continually repeated, without proper justification, is the hog farm generates more waste than the City of Harrison. Unless opponents preface this statement with numerous caveats, which have never been provided, it is completely false. The City of Harrison is currently permitted to treat 2.6 million gallons per day. Meaning the city treats more waste in one day than the hog farm will generate in one year.

According to Mott 2016 the calculated amount of nutrients generated by the hog farm would compare to 7,000 humans for nitrogen and 23,000 humans for phosphorus without taking into consideration the fields being applied to have received fertilizers in the past. Mott goes on to say that C&H Hog Farms has a significant nutrient load to be managed. However, it should be reiterated that C&H Hog Farms is required to apply all nutrients on permitted fields according to the P-Index. These same fields that in the past have been unregulated and are now subject to NMP requirements based on the P-Index. Therefore, Mott's calculated amounts of nutrients generated by the hog farm may be accurate but they do not truly represent what is going on in the watershed and that nutrient application rates are significantly reduced compared to historical application rates.

Nitrates

Opponents of the Hog Farm are concerned with nitrates increasing in Big Creek downstream from the farm and data collected by BCRET in fact does show nitrates increase as Big Creek passes the farm. However, opponents look at the data without providing proper context. Opponents fail to mention is that nitrate concentrations collected at a monitoring station on Big Creek at Carver, which is 4 miles downstream of the BCRET monitoring stations, have remained unchanged over the last 10 years.

The principle sources of nitrate contamination in surface water and groundwater are fertilizers, population density, woodland to cropland ratio and presence of sand or gravel aquifers. In other words, as land use increases so do in-stream nitrate concentrations. All of the acreage proposed to be permitted and currently being used by C&H Hog Farm is not newly created pastureland. As a matter of fact, **all** of the permitted pasture land was in existence prior to C&H ever being built with most fields, if not all, receiving dry litter or commercial fertilizer for years prior to commencement of operations at the hog farm.

To put the instream nitrate concentrations into perspective, all of the downstream nitrate data collected by BCRET shows a mean concentration of 0.25 mg/L. According to a report prepared for the National Park Service that measured Surface-Water Quality in the Buffalo National River from 1985-2011, there are seven tributaries (Mill Creek, Davis Creek, Brush Creek, Tomahawk Creek, Calf Creek, Mill Creek-Middle, and Bear Creek) of the Buffalo River **that have higher concretions of nitrates** than reported downstream of C&H Hog Farm in the BCRET reports. With some tributaries having concentrations two times higher. But you don't hear the opposition in an uproar over those other tributaries.

When taking into consideration that the proposed permitted fields were already being fertilized prior to C&H Hog Farm going into operation and the Carver downstream monitoring data shows nitrate concentrations have remained unchanged for the last decade. It is then logical to conclude that even if the hog farm is removed and BCRET was allowed to continue monitoring at the same locations, concentrations would still show an increase. Meaning the hog farm is having no environmental impact. However, this information doesn't agree with the opposition's agenda which is to shut down the hog farm. Maybe that is why they intentionally avoid discussing in their comments.

DO

Opponents of the hog farm are concerned about Dissolved Oxygen (DO) in Big Creek and point to the hog farm as the cause. Big Creek is located in the Boston Mountains ecoregion and based on APC&EC Regulation 2 has a year round minimum DO standard of 6 mg/L. In an email from Faron Usrey of the National Park Service (NPS) to Sarah Clem of ADEQ dated August 6, 2013, Mr. Faron expresses his concern with low DO levels (5.8 mg/L) in Big Creek (Appendix G). He goes on to say that "dissolved oxygen is being driven down to critical levels in the Buffalo River below the confluence, a reach containing potential T&E species of native mussels." Mr. Faron also included in the email weekly DO monitoring from June through August of 2013 and 48-hour dissolved Oxygen data from July 22nd through the 24th which showed periods where DO dropped below the water quality standard of 6.0 mg/L. Opponents would have everyone believe this is proof that C&H is having an impact on water quality, however, what they do not say is at that point C&H had never land applied any waste and would not perform their first application of swine waste until December of that year. That is over 6 months after Mr. Faron collected DO data on Big Creek and four months after sending the email. If at any time Big Creek is listed on the 303(d) list for DO, opponents will undoubtedly point the finger at C&H but the reality is that any DO issues found in Big Creek were occurring prior to operations commencing at C&H Hog Farm.

Conclusion

C&H has bent over backwards to accommodate opponents of the hog farm in an attempt to show a good faith effort to protect the Buffalo River and its tributaries. Many of which have already been discussed. What shouldn't be lost is that C&H Hog Farm followed every federal and state law to obtain a permit. They passed an EPA inspection and numerous ADEQ inspections with flying colors. C&H has subjected itself to the most intensive monitoring program of any farm in state history. With each modification the owners of C&H requested public hearings to demonstrate their willingness for transparency. After all of that, irrational opponents continued to take shots at the farm in the name of science only to be rebutted at every turn. These groups claimed the ponds were leaking based on house well data collected by BCRET, which were proven false. Once again they tried to claim the ponds were leaking due to a facture, despite the fact that the BCRET had direct measurements that showed otherwise. These claims of leaking were proven to be false when ADEQ and Harbor Environmental released the results of the drill study.

At the request of environmental groups, C&H submitted an application to modify their permit requesting to install synthetic liners in both ponds to reduce concerns only to receive opposition from the very same environmental groups that requested liners in the first place. In addition, C&H worked with EC Farms to secure additional acreage to reduce application rates and potential runoff risk only to be **jeered** by the opposition. When will it be enough? But wait, there is more.

At the March 30th Buffalo River Watershed Management Plan meeting conducted in Jasper by FTN & Associates and ANRC, Kent Thornton with FTN proposed to the public a recommended starting point (Appendix H). In his presentation Mr. Thornton stated that streams reflect their watersheds and suggested looking at the tributaries of the Buffalo river using screening criteria. The screening criteria would systematically and scientifically look at stream biology, water quality, land use, and karst geology using all data available to identify which tributaries need immediate attention. For example, in the water quality screening criteria one of parameters they evaluated was fecal coliform. Using all of the fecal coliform data that was available each tributary was assessed and the streams listed in the upper 25th percentile were identified as potential candidates for further evaluation. After looking at several more parameters (concentration and load), trends of over time, and biology each criteria was scored and tallied to develop an initial list of eight streams to focus on. Big Creek was not listed as one of the eight streams, as a matter of fact, Big Creek was never listed in any of the sub criteria evaluations. This systematic and scientific evaluation affirms what we have said all along and that is Big Creek is, and continues to be, one of the most pristine streams in the Buffalo River watershed. However, opponents of the hog farm expressed dismay, even outrage at the fact that Big Creek was not on the list even though the science didn't support it and demanded Big Creek be added to the list anyway.

Opponents have shown through their statements at the last watershed management plan meeting, that protecting and preserving the Buffalo is not their highest priority, instead they chose to ignore empirical data and continue with false accusations and illusions of threats in an attempt to facilitate group hysteria just to shut the Hog Farm down. Not because the farm is a threat but because they have an irrational fear of this farm based **solely** on its size. This irrationality is based on what has been no doubt, hours, days, weeks, months and even years of perusing websites that have an anti- "big agriculture", anti- "modern-agri" bent. The opposition went so far as to distribute anti-CAFO propaganda at a APC&EC meeting. They believe if they call this farm a corporate farm, or factory farm enough times that it makes it so. But this is three young farm families with 9 generations of farming history that demonstrates an exceptional record of stewardship of their farm, their community, and the Buffalo River. Please do not be fooled by this. Issue the Regulation 5 permit.

Attachment:

Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F
Appendix G
Appendix H

Appendix H

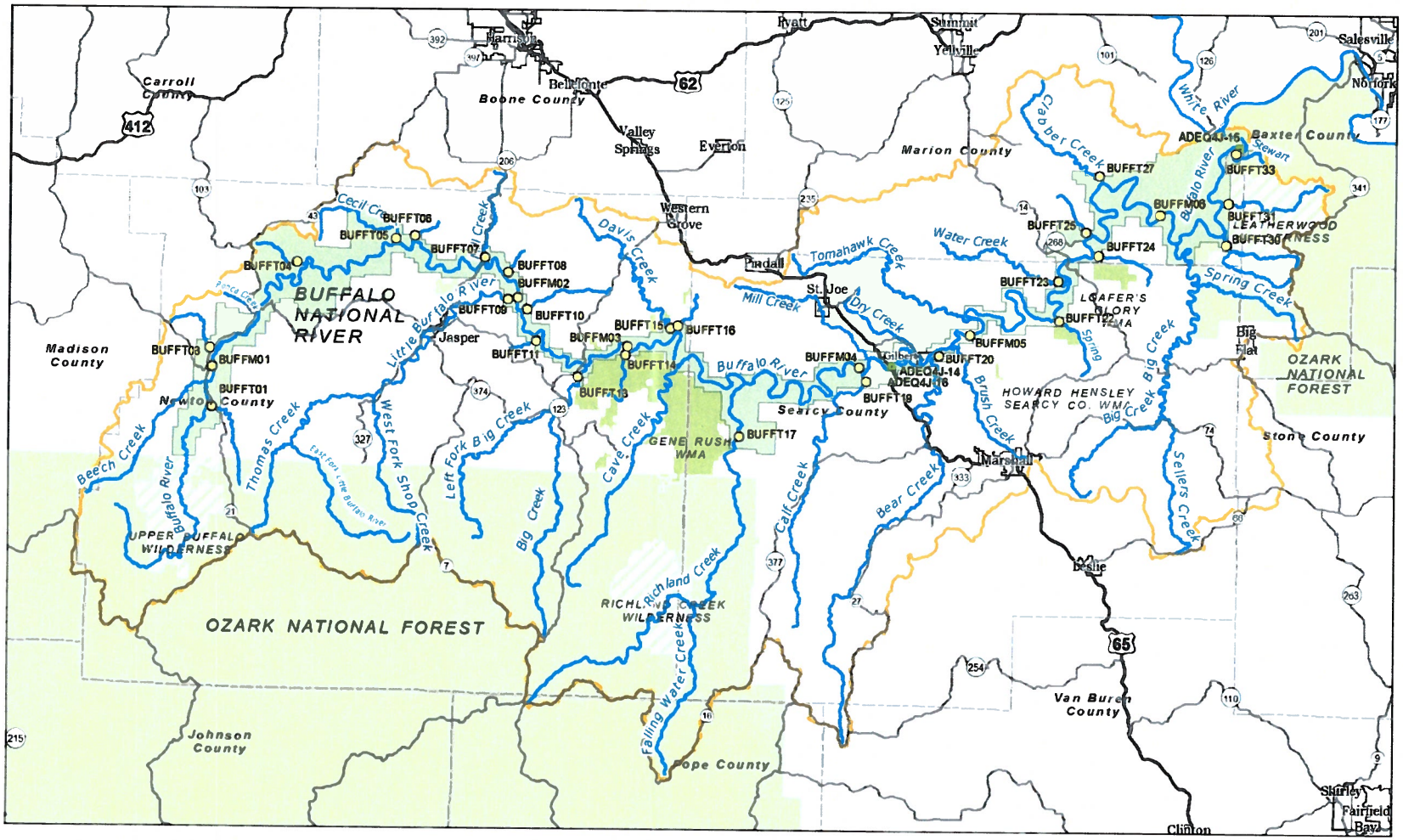
Where To Start?

- 1st Principles:
  - If everything's a priority; nothing's a priority
  - Water runs down hill
  - Streams reflect their watersheds
- 37 HUC12 subwatersheds => Smaller number
  - Screening process and criteria

Where To Start?

- Screening Criteria – In Progression
  - Stream biology – Integrators
  - Water quality – Affects biology
  - Land use – Affects water quality
  - Karst geology – Affects water quality
- Intersection of multiple criteria – Both/And

Biological Monitoring Sites



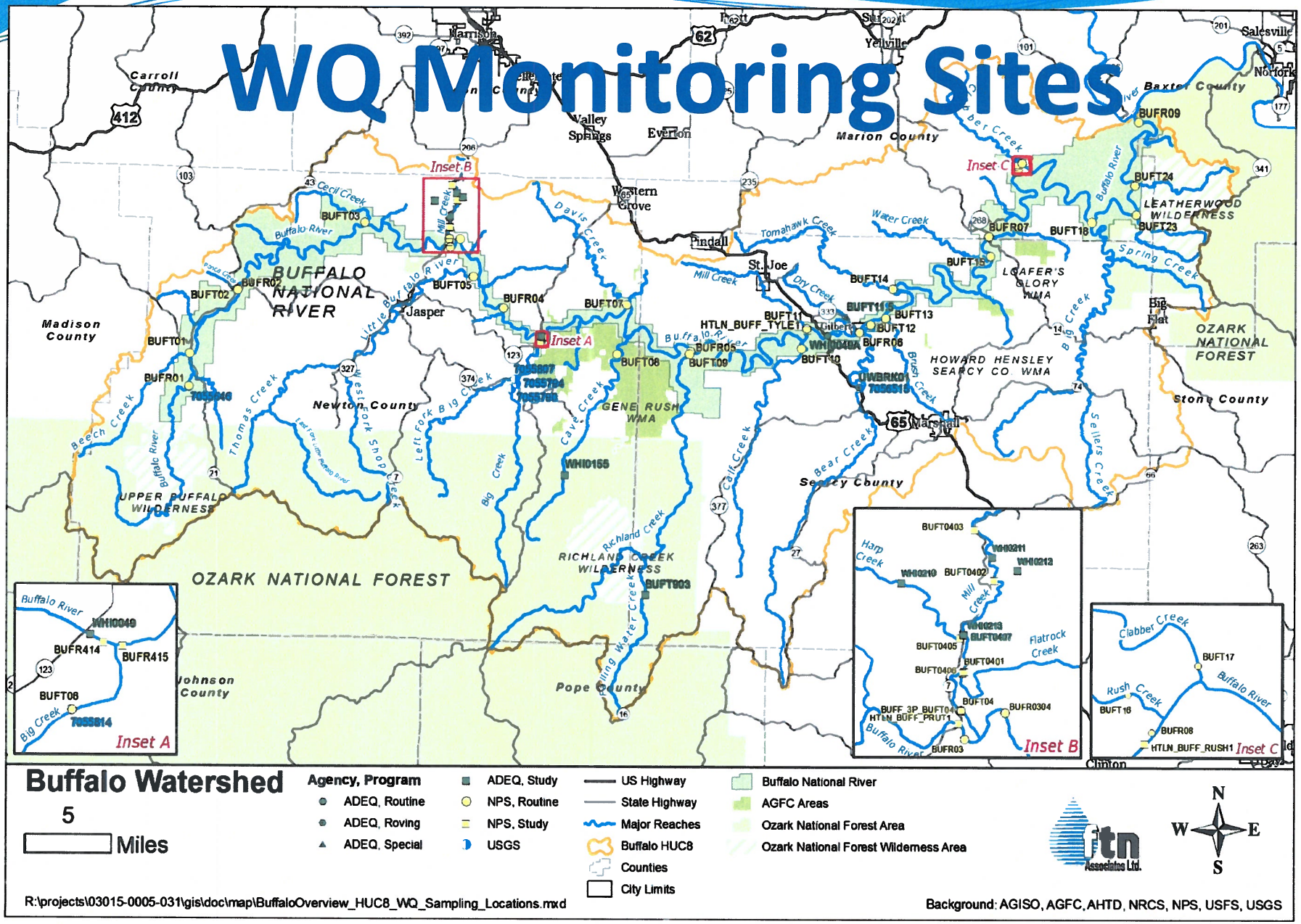
Fish and Bugs

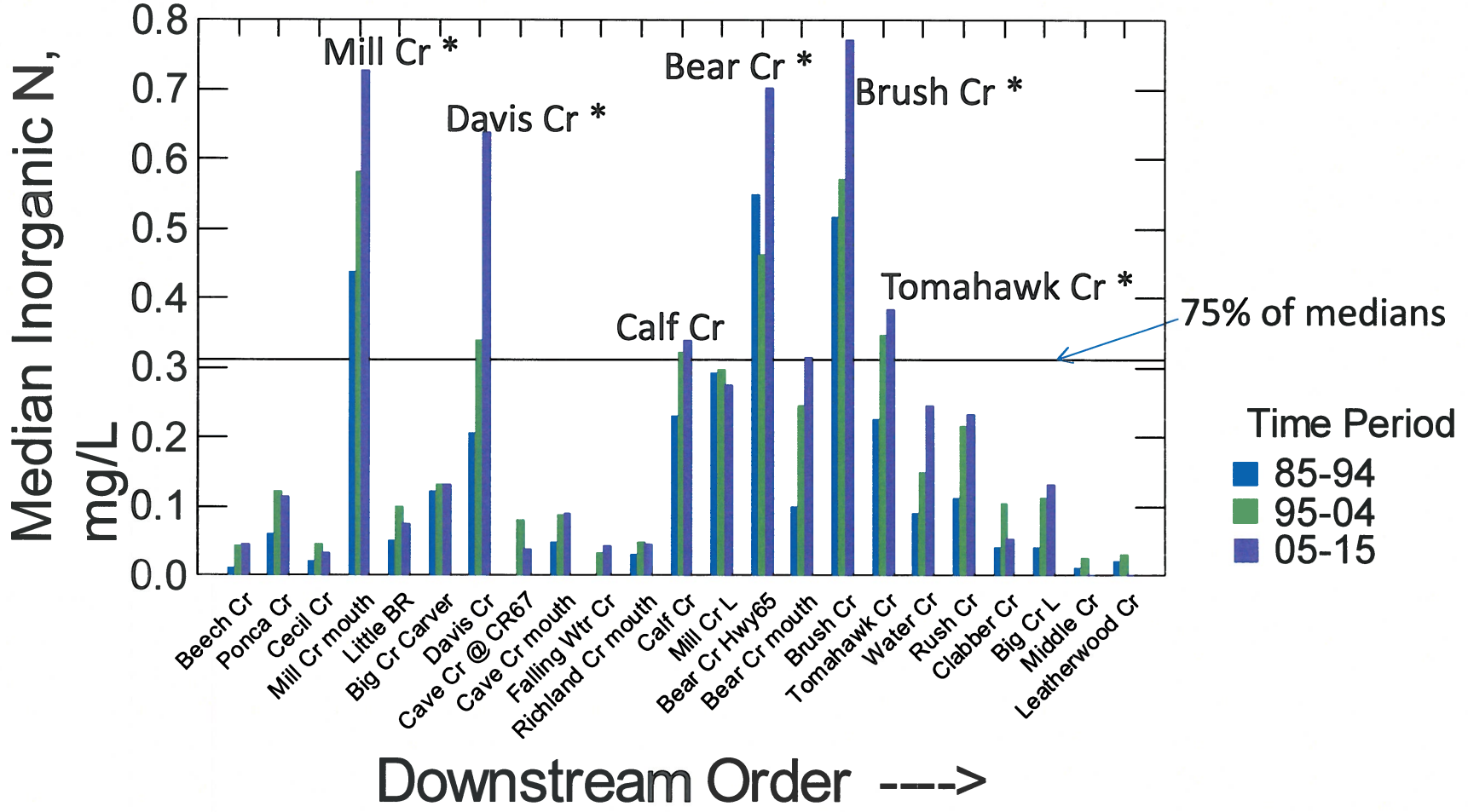
- **SCI < 16 (Benthic Bugs)**
  - **Mainstem – None (2013)**
  - **Hoskin (Glade) Cr**
  - **Richland Cr**
  - **Davis Cr**
  - **Calf Cr**
  - **Water Cr**
  - **Hickory Cr**
  - **Clabber Cr**
  - **Middle Cr**
  - **Leatherwood Cr**
- **IBI < 70 (Fish)**
  - **Mainstem – Ponca**
  - **Whiteley (Ponca) Cr**
  - **Brush Cr**
  - **Hickory Cr**
  - **Middle Cr**
  - **Leatherwood Cr**

Water Quality

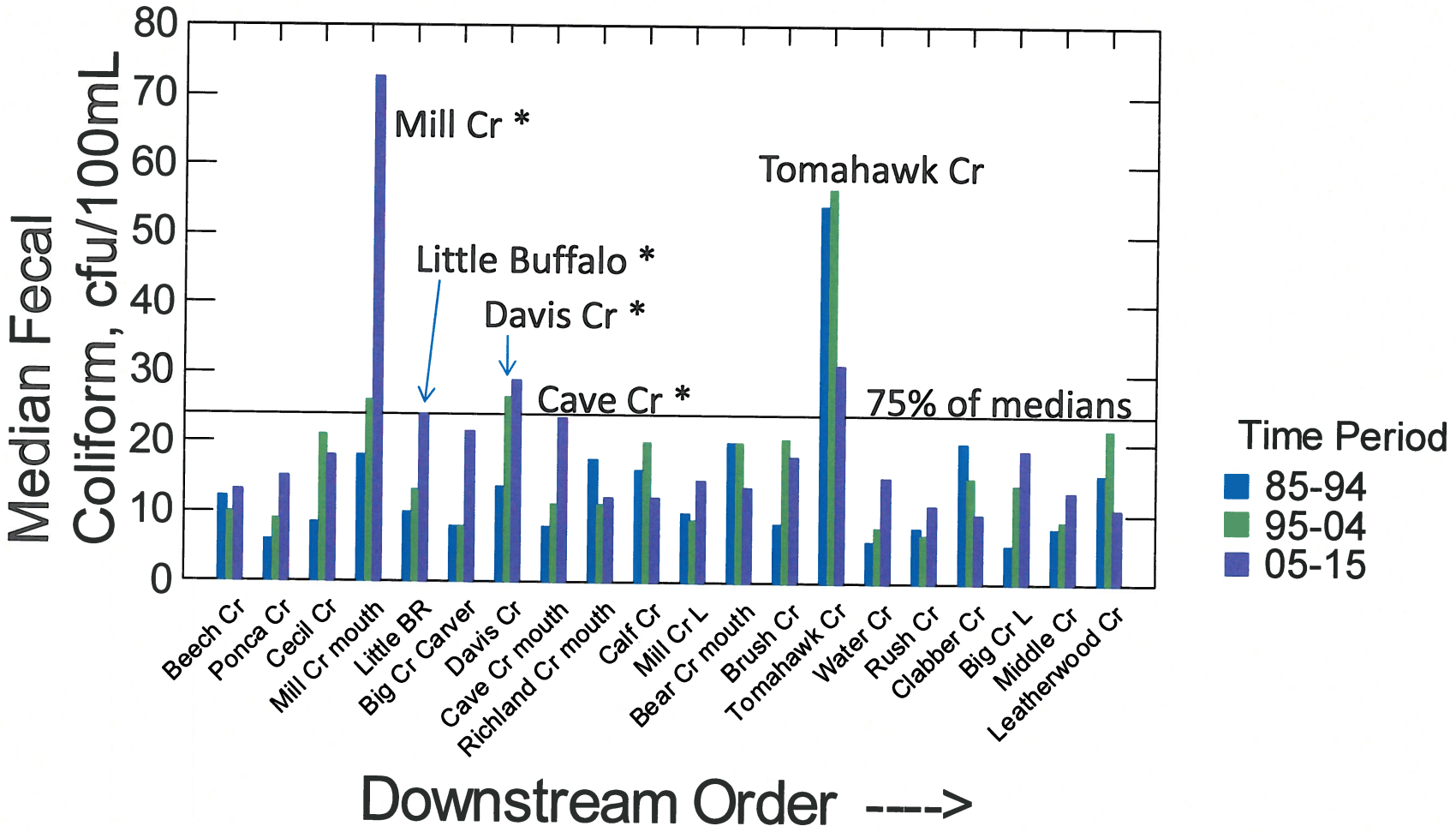
- Four Constituents
  - Turbidity (sediment)
  - Nutrients (Nitrate, σ-P)
  - Bacteria (Fecal coliforms)
- Concentration (upper 25%)
- Load (upper 25%)
- Trends – 3-10 Year Periods

WQ Monitoring Sites

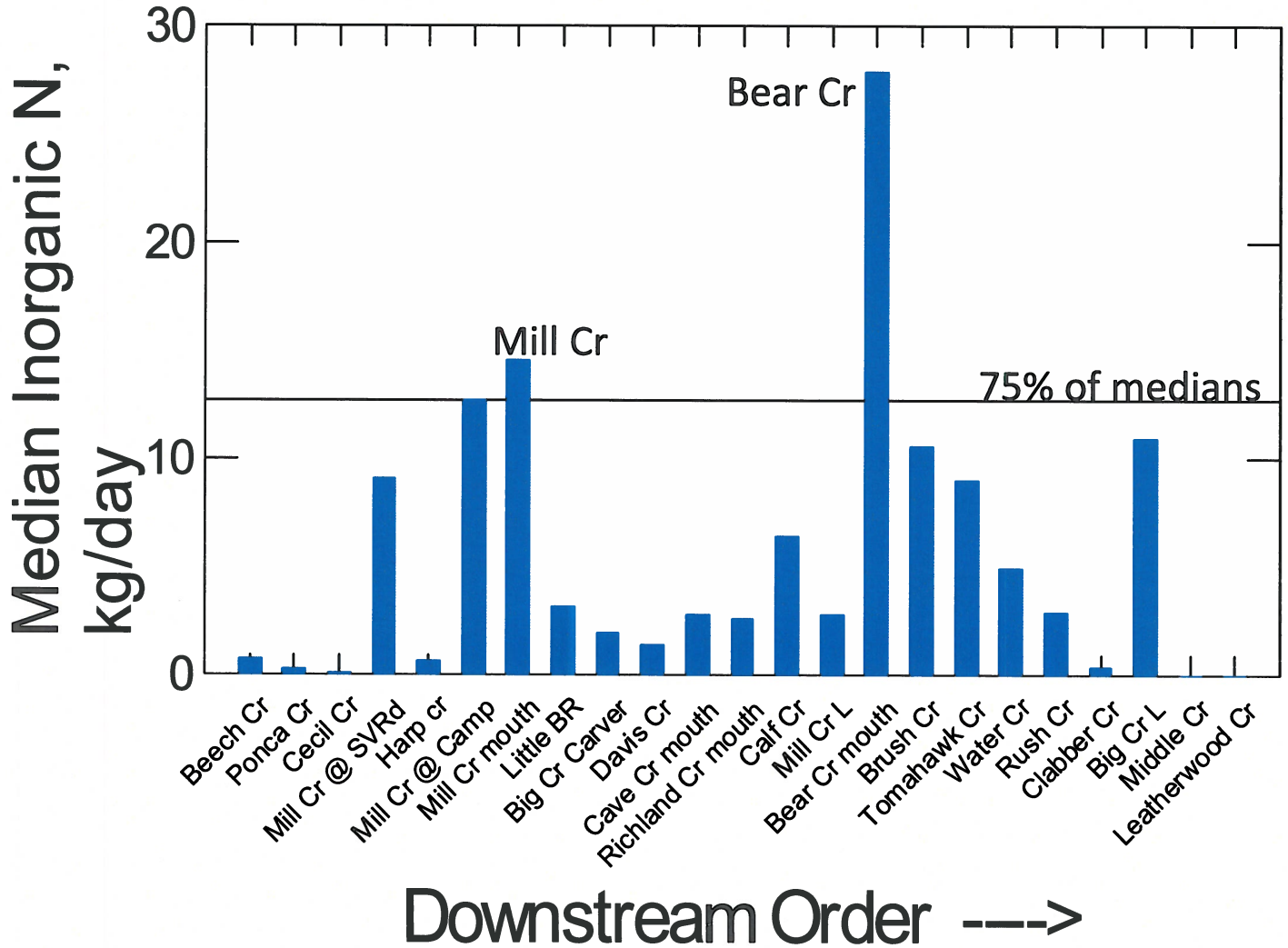




* Statistically significant increase over time


Median Fecal Coliform, cfu/100mL
80
70
60
50
40
30
20
10
0
Mill Cr *
Tomahawk Cr
Little Buffalo *
Davis Cr *
Cave Cr *
75% of medians
Beech Cr
Ponca Cr
Cecil Cr
Mill Cr mouth
Little BR
Big Cr Carver
Davis Cr
Cave Cr mouth
Richland Cr mouth
Calf Cr
Mill Cr L
Bear Cr mouth
Brush Cr
Tomahawk Cr
Water Cr
Rush Cr
Clabber Cr
Big Cr L
Middle Cr
Leatherwood Cr
Time Period
85-94
95-04
05-15
Downstream Order ---->
* Statistically significant increase over time

Load – 2005-2015



Sum WQ Scores

- WQ (Upper 25%) + Load (Upper 25%)
  - Mill Creek
  - Cave Creek
  - Davis Creek
  - Calf Creek
  - Bear Creek
  - Dry Creek

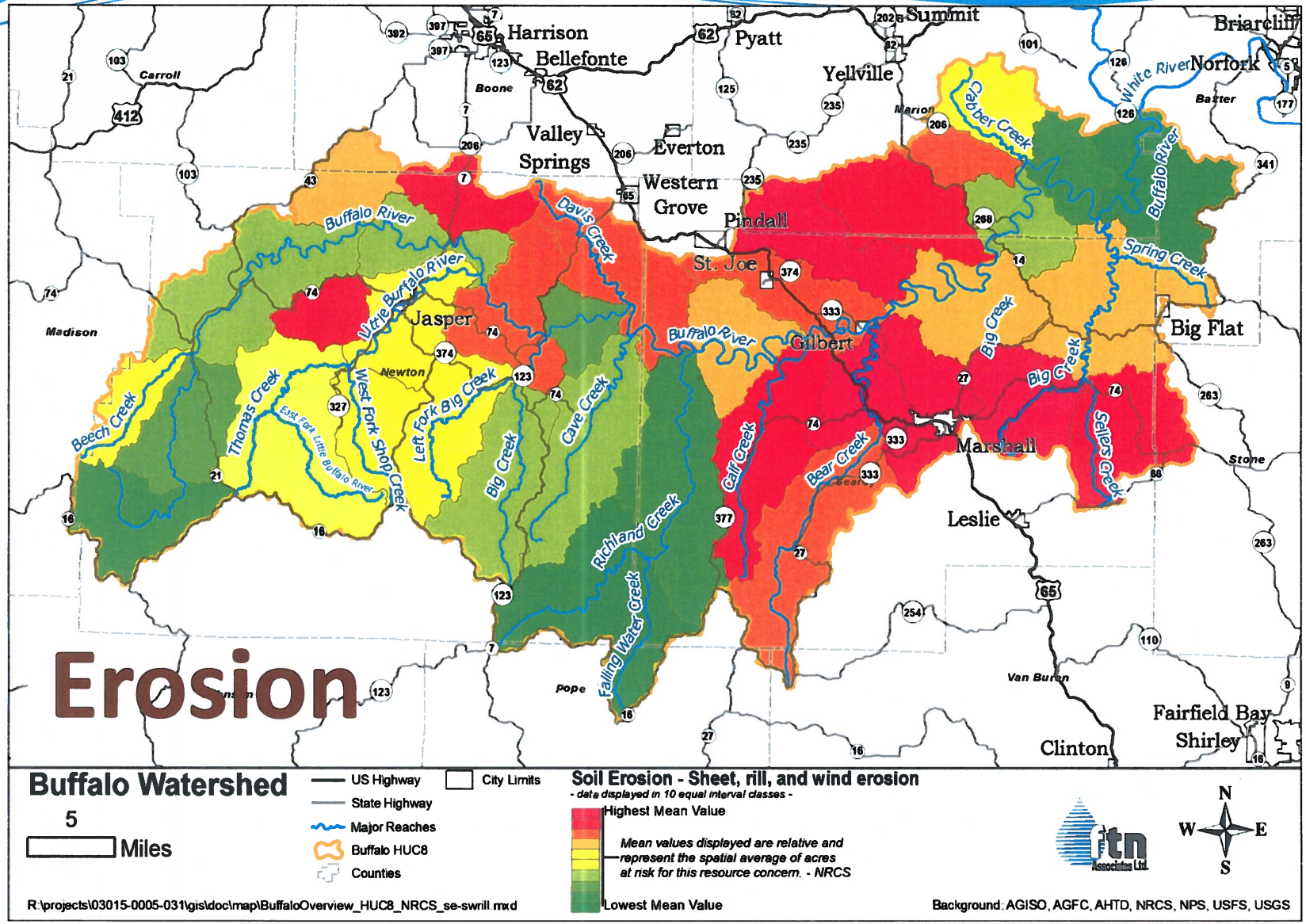
Increasing Trends

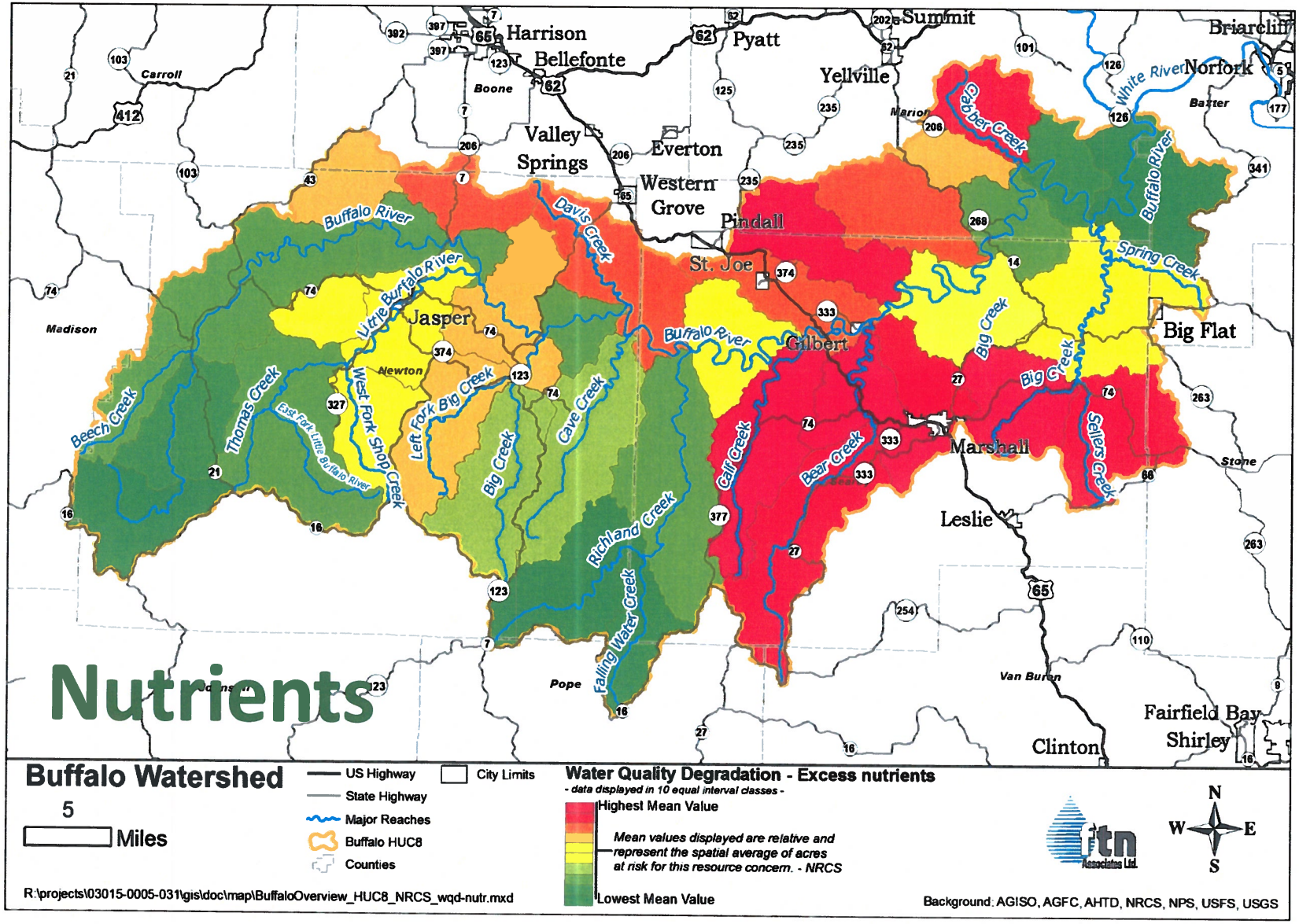
- Little Buffalo River
- Smith Creek
- Whiteley Creek
- Mill Creek
- Cave Creek
- Davis Creek*
- Bear Creek
- Brush Creek
- Tomahawk Creek
- Water Creek

* 3 Constituents

NRCS Resource Concerns Assessment

- Sheet and Rill Erosion
- Gully Formation
- Bank Erosion
- Sedimentation
- Nutrients
- Pathogens
- Pesticides
- Heavy Metals


Erosion
Harrison
Bellefonte
Pyatt
Summit
Yellville
Briarcliff
Norfork
Batter
White River
Cyber Creek
Buffalo River
Spring Creek
Valley Springs
Everton
Western Grove
Pindall
St. Joe
Davis Creek
Buffalo River
Little Buffalo River
Jasper
Newton
Gilbert
Big Flat
Big Creek
Madison
Carroll
Boone
Marion
Beech Creek
Thomas Creek
East Fork Little Buffalo River
West Fork Shop Creek
Left Fork Big Creek
Big Creek
Cave Creek
Richland Creek
Falling Water Creek
Calf Creek
Bear Creek
Sellers Creek
Marshall
Leslie
Stone
Pope
Van Buren
Fairfield Bay
Shirley
Clinton
Buffalo Watershed
5
Miles
US Highway
State Highway
Major Reaches
Buffalo HUC8
Counties
City Limits
Soil Erosion - Sheet, rill, and wind erosion
- data displayed in 10 equal interval classes -
Highest Mean Value
Mean values displayed are relative and represent the spatial average of acres at risk for this resource concern. - NRCS
Lowest Mean Value
ftn Associates Ltd.
N
W
E
S
R:\projects\03015-0005-031\gis\doc\map\BuffaloOverview_HUC8_NRCS_se-swrill.mxd
Background: AGISO, AGFC, AHTD, NRCS, NPS, USFS, USGS


Nutrients
Buffalo Watershed
5
Miles
US Highway
State Highway
Major Reaches
Buffalo HUC8
Counties
City Limits
Water Quality Degradation - Excess nutrients
- data displayed in 10 equal interval classes -
Highest Mean Value
Mean values displayed are relative and represent the spatial average of acres at risk for this resource concern. - NRCS
Lowest Mean Value
R:\projects\03015-0005-031\gis\doc\map\BuffaloOverview_HUC8_NRCS_wqd-nutr.mxd
Background: AGISO, AGFC, AHTD, NRCS, NPS, USFS, USGS
Harrison
Bellefonte
Pyatt
Summit
Yellville
Briarcliff
Norfork
Batter
Valley Springs
Everton
Western Grove
Pindall
St. Joe
Jasper
Gilbert
Big Flat
Marshall
Leslie
Fairfield Bay
Shirley
Clinton
Carroll
Boone
Marion
Madison
Newton
Stone
Pope
Van Buren
Buffalo River
Little Buffalo River
Davis Creek
Spring Creek
Big Creek
Beech Creek
Thomas Creek
East Fork Little Buffalo River
West Fork Shop Creek
Left Fork Big Creek
Cave Creek
Richland Creek
Falling Water Creek
Calf Creek
Bear Creek
Sellers Creek
White River
Crooked Creek
N
W
E
S

Sum Resource Concerns

Upper 25% for ≥ 5 concerns

- Mill Creek
- Calf Creek
- Bear Creek
- Brush Creek
- Tomahawk Creek
- Water Creek
- Clabber Creek
- Long Creek
- Big Creek (Lower)

Carbonate Bedrock - USGS

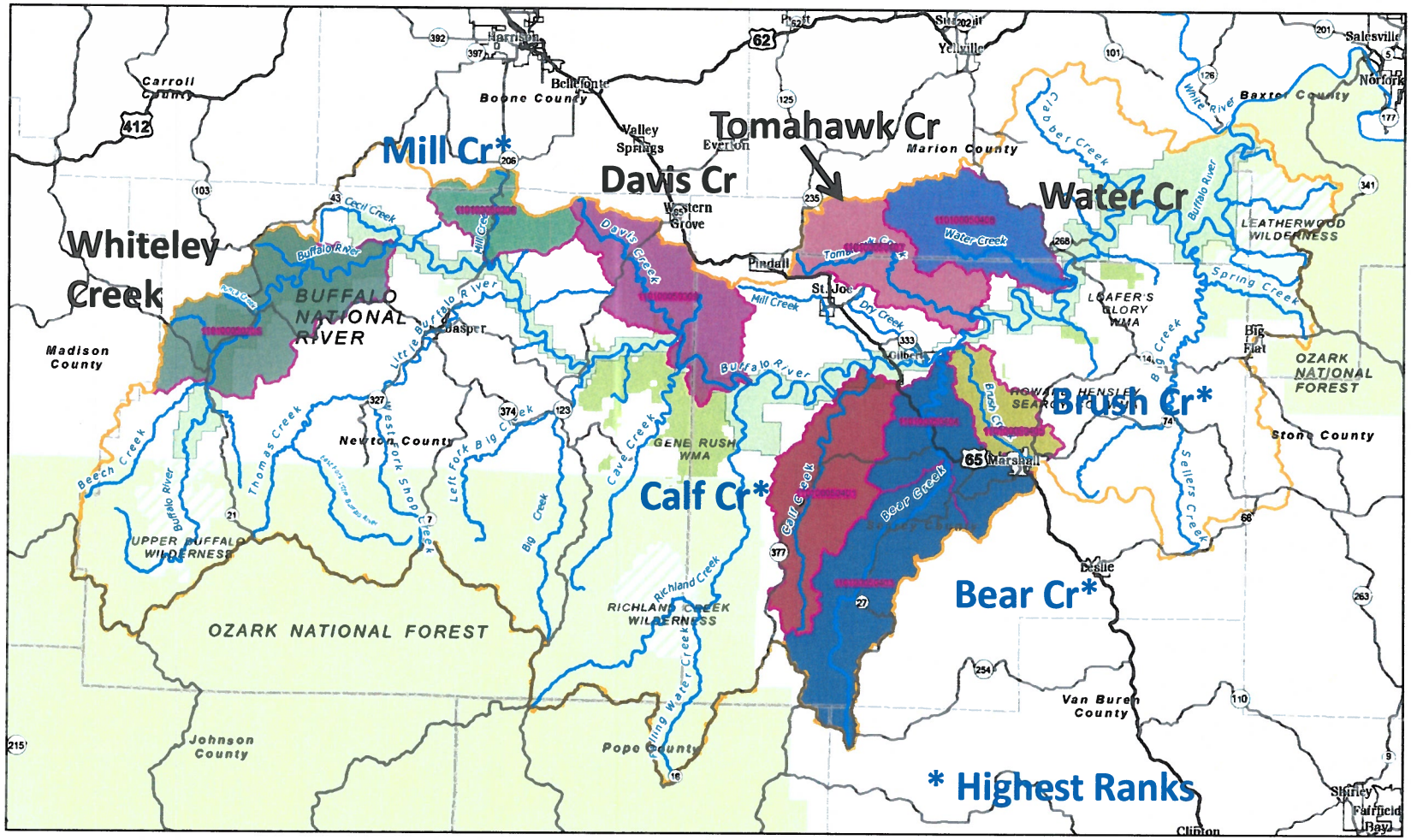
- Greater Than 60% of Subbasin
  - Mill Creek
  - Davis Creek
  - Brush Creek
  - Tomahawk Creek
  - Water Creek
  - Rush Creek

Total Cumulative Scores – Initial Start

- **Subwatersheds – HUC12 Pour Point**
  - Ponca & Whiteley Creek
  - Mill Creek*
  - Davis Creek
  - Calf Creek*
  - Bear Creek*
  - Brush Creek*
  - Tomahawk Creek
  - Water Creek

*Highest ranks

Potential Starting Locations, Based on Screening



Screening Process Caveats

- **Not Exclusionary**
  - Place to start ONLY.
  - Additional management practices positive, and encouraged, in any subwatershed
- **Continue to Evaluate**
  - Add new information as becomes available (e.g. SCI in April)
  - Sites could change with additional information

Questions on the Screening Process?

Appendix G

----- Message from "Clem, Sarah" <CLEM@adeq.state.ar.us> on Tue, 27 Aug 2013 09:20:33 -0500

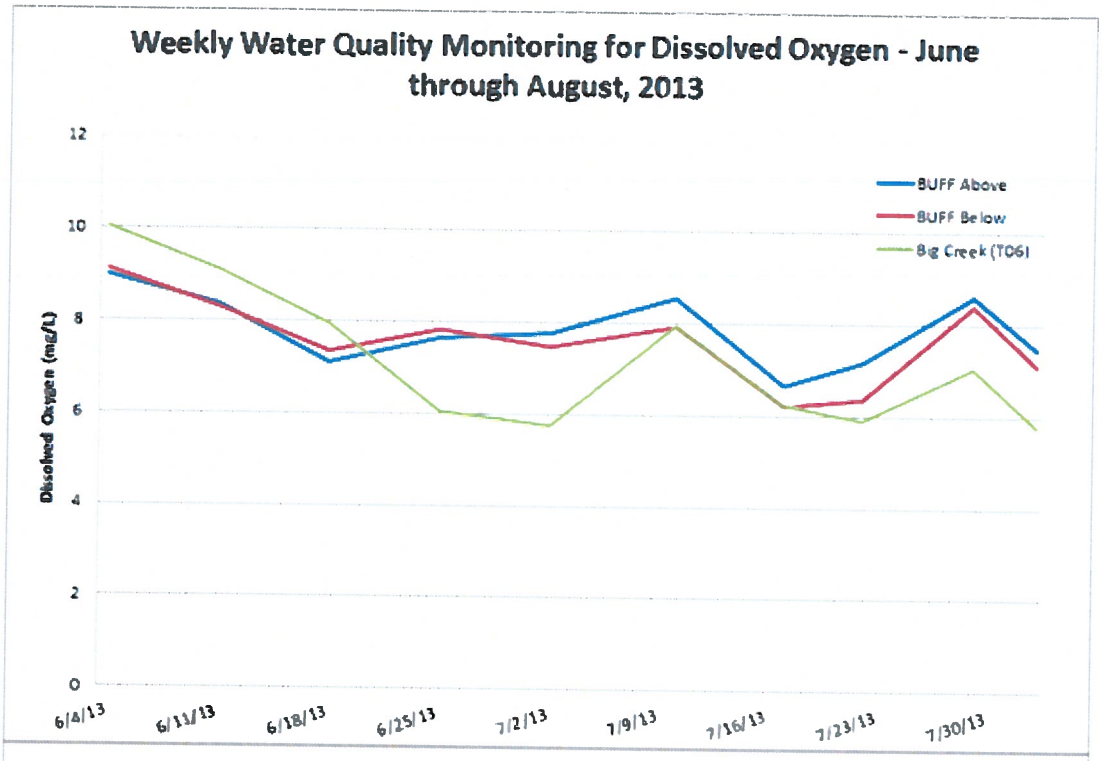
To: "Wentz, Tate" <WENTZ@adeq.state.ar.us>

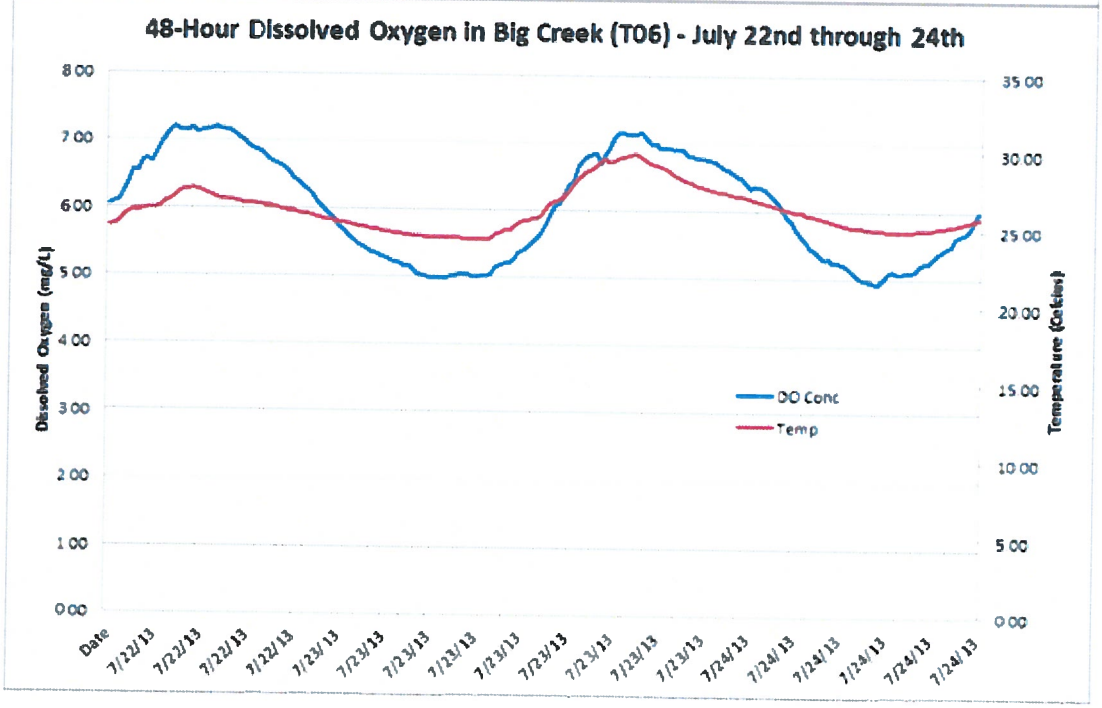
Subject FW: Dissolved Oxygen in Big Creek, Newton
: County

From: Usrey, Faron [mailto:faron_usrey@nps.gov]
Sent: Tuesday, August 06, 2013 4:19 PM
To: Clem, Sarah
Cc: BUFF Superintendent; Caven Clark; Charles Bitting; Kirkpatrick, Bruce; Morris, Tony; Bolenbau
Jason
Subject: Dissolved Oxygen in Big Creek, Newton County

Sarah,

Dissolved oxygen in Big Creek continues to be low despite the rain and cooler temperature
Last weeks water quality sampling in several of our tributaries found that Big Creek was a
the lowest, and todays sampling found that it was 5.8 mg/L at 0940. We are concerned tha
to the continuous low dissolved oxygen that there may be a biological impairment in Big C
And, dissolved oxygen is being driven down to critical levels in the Buffalo River below t
confluence, a reach containing potential T&E species of native mussels. Several weeks ag
requested ADEQ's assistance to determine the source of the dissolved oxygen depletion, h
there been any headway in that request? I have no authority to proceed on to lands outside
park, but ADEQ has that investigative authority. In the weeks to come, we will continue t
monitor dissolved oxygen in our water quality tributaries and in Big Creek (T06). I look f
to hearing from ADEQ in this issue and will assist you in any capacity that I can. Thank y





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Faron Usrey
Aquatic Ecologist
Buffalo National River
870-365-2764 Office
870-688-0922 Cell
faron_usrey@nps.gov

Appendix F

Ground-Water Quality Near a Swine Waste Lagoon in a Mantled Karst Terrane in Northwestern Arkansas

Christopher M. Hobza[1], David C. Moffit[2], Danny P. Goodwin[3], Timothy Kresse[4], John Fazio[4], John V. Brahana[5], and Phillip D. Hays[1]
[1]U.S. Geological Survey Arkansas Water Science Center, Fayetteville, AR
[2]Natural Resources Conservation Service National Water Management Center, Ft. Worth, TX
[3]Natural Resources Conservation Service National Water Management Center, Little Rock, AR
[4]Arkansas Department of Environmental Quality, Little Rock, AR
[5]University of Arkansas Department of Geosciences, Fayetteville, AR

ABSTRACT

Livestock production is generally the predominant agricultural practice in mantled karst terranes because the thin, rocky soils associated with carbonate bedrock are not conducive to crop production. Unfortunately, livestock production in karst areas can create environmental problems because of rapid, focused flow through soil and regolith. A study was conducted by the U.S. Geological Survey in cooperation with the Natural Resources Conservation Service National Water Management Center, the University of Arkansas, and the Arkansas Department of Environmental Quality to examine a swine waste storage lagoon in a mantled karst terrane at the University of Arkansas' Savoy Experimental Watershed to evaluate the effects of a swine waste lagoon on ground-water quality. The Savoy Experimental Watershed is a long-term, multidisciplinary research site, which is approximately 1,250 hectares and encompasses parts of six drainage basins. An anaerobic swine waste lagoon was constructed at the Savoy Swine Facility in compliance with U.S. Department of Agriculture Natural Resources Conservation Service Conservation Waste Storage Practice Standard no. 313 in one of the drainage basins. An inventory of springs, seeps, sinkholes, and losing streams was conducted in the basin where the waste lagoon was constructed. Based on the inventory, nine shallow monitoring wells were augered to refusal in the regolith. Shallow ground-water from wells, springs, and an interceptor trench was sampled and analyzed for nutrients, major cations, and major anions during high-flow and low-flow conditions. Results from ground-water sampling indicate concentrations of chloride and nitrate were higher than concentrations from non-agricultural land-use areas in the Ozarks, but were comparable to concentrations near the site prior to the construction of the swine facility. A sample collected from an interceptor trench indicated that nutrients are able to pass through the clay liner. The results of an electromagnetic geophysical survey indicated that there were no preferred flow paths from the swine waste storage lagoon. Based on these results, it appears that the swine waste lagoon built using the Natural Resources Conservation Service Conservation Practice no. 313 is minimally affecting the ground-water quality of the area.

INTRODUCTION

Animal production in northwestern Arkansas is the predominant agricultural practice because the thin, rocky soils are unsuitable for sustainable crop production. Nationally, Arkansas ranks 2nd in broiler production, 16th in cattle, and 17th in swine production (U.S. Department of Agriculture, 2003). Animal waste generated from these agricultural operations typically is applied to local pastures, often in excess of nutrient requirements. These excess nutrients have little opportunity for natural attenuation in a mantled karst setting because of thin soils and underlying karst geology that allow rapid, focused flow resulting in contaminated ground and surface waters. Adamski (1987) compared nutrient concentrations in springs in an intensely farmed area with a minimally affected forested area and reported that the areas of intense livestock production had elevated concentrations of nitrate and chloride.

One potential source of ground-water contamination is from animal waste stored in anaerobic lagoons generated from confined animal feeding operations. These lagoon structures are designed to store animal waste for a specified time period until the waste is ready to be applied as liquid fertilizer to adjacent pastures or cropland. If not properly located, designed, constructed, and maintained, animal waste lagoons can adversely affect water quality through the introduction of excess nutrients and bacteria (Ham and DeSutter, 2000).

The Natural Resources Conservation Service (NRCS) has developed several Best Management Practices (BMPs) to reduce this risk of ground-water contamination. Waste Storage Practice no. 313 was created to allow producers to safely and effectively store animal waste while protecting ground-water resources in environmentally sensitive areas across a variety of hydrogeological environments (Natural Resources Conservation Service, 2003). Ideally, these structures are located in areas with thick soils, over deep or confined aquifers, and away from domestic water supplies. When this is not possible, the NRCS provides options that allow an additional measure of safety such as an impermeable geosynthetic membrane liner or a compacted liner constructed from native soil with a specific permeability.

This BMP has been successful in protecting ground-water resources in other hydrogeologic settings, (David Moffit, Natural Resources Conservation Service, oral commun., 2004) but its effectiveness has not been evaluated in areas with thin soils such as a mantled karst setting. To address this need, the U.S. Geological Survey in cooperation with the Natural Resources Conservation Service National Water Management Center, the University of Arkansas, and the Arkansas Department of Environmental Quality designed a study to determine the effectiveness of Waste Storage Practice no. 313 for storing swine waste in a mantled karst setting. The purpose of this report is to describe ground-water quality near the swine waste lagoon.

STUDY AREA

The Savoy Swine Facility is located within the Savoy Experimental Watershed (SEW) in northern Washington County in northwestern Arkansas (fig. 1). The SEW serves as a long-term, multi-disciplinary research site to examine water-quality problems associated with livestock production in a mantled karst setting. The SEW offers a unique opportunity to test and evaluate the environmental effects of different animal agricultural practices. In 2002 the University of Arkansas constructed the Savoy Swine Facility to improve planned large-scale swine production. The Savoy Swine Facility is managed as a demonstration farm to provide a long-term model for environmentally friendly management of animal nutrition, animal waste and odors (Maxwell and others, 2003).

The Savoy Swine Facility is located within the Springfield Plateau (Fenneman, 1938), which is underlain by nearly flat lying Mississippian-age cherty limestones and limestones. These sedimentary sequences have been incised by streams to form dendritic drainages and rolling hills. Karst features such as springs, sinkholes, losing streams, caves, and conduits are present in the study area (Little, 1999).

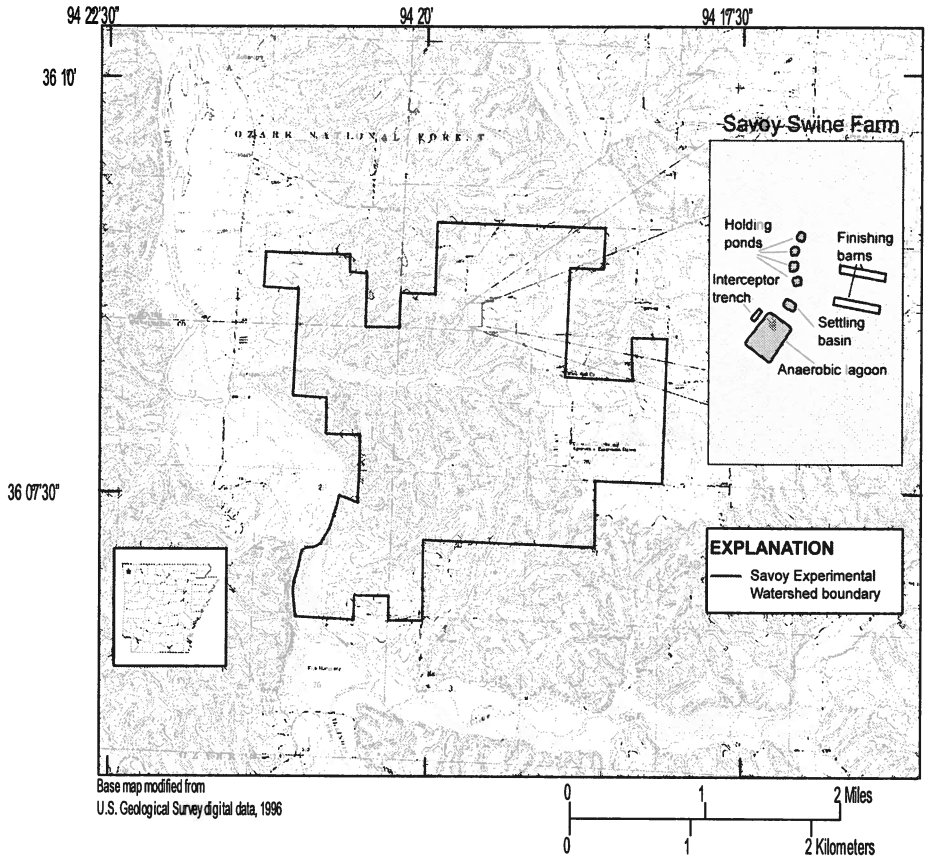

Figure 1. Location of the Savoy Swine Farm and diagram of waste storage infrastructure within the Savoy Experimental Watershed.

The major geologic units present in the study area are the Chattanooga Shale, the St. Joe Limestone Member of the Boone Formation, and the Boone Formation. The Chattanooga Shale is a black, Devonian-age shale that is approximately 45 feet thick within the SEW (Little, 1999) that unconformably underlies the St. Joe Limestone Member. The Chattanooga Shale acts as a regional confining unit where it is present in the Ozarks separating groundwater flow between the Mississippian-age limestones which compose the Springfield Plateau aquifer and the underlying Ordovician-age dolomites and sandstones which compose the Ozark aquifer (Imes and Emmett, 1994). The St. Joe Limestone Member, which is part of the Boone Formation is a relatively pure limestone, is conformably overlain by cherty limestone. The Boone Formation consists of Mississippian-age cherty limestones and is thickest beneath the uplands throughout the study area. The bedrock in the study area is overlain by regolith that is the weathering product of the cherty limestone of the Boone Formation that creates the mantled karst topography. The soils formed from the regolith are composed of silt loams and the associated subsoils are silty clay loam or cherty silt loam (Harper and others, 1969).

The waste storage infrastructure at the Savoy Swine Facility was constructed in compliance with Waste Storage Practice no. 313 (Natural Resources Conservation Service, 2003). Because the swine facility was constructed over an unconfined limestone aquifer, more stringent design options were considered for the waste lagoon. The most economical solution was to construct a compacted clay liner from sieved native soil with a target coefficient of permeability of 1.0×10^{-7} centimeters per second (Stan Rose, Natural Resources Conservation Service, oral commun., 2004). Because of budget constraints during the construction, the Savoy Swine Facility is only able to house half the animals it was initially designed for. As a result the waste storage

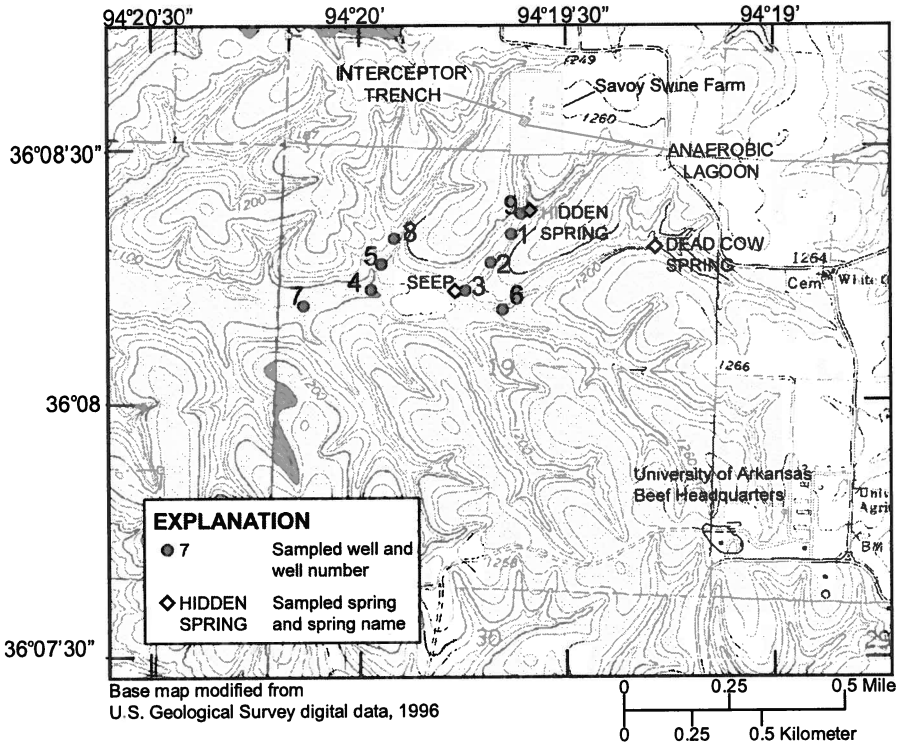

Figure 2. Location of water-quality sampling points within study area.

infrastructure is substantially oversized with respect to the number of animals served (Karl VanDevender, University of Arkansas, oral commun., 2004). The Savoy Swine Farm has a unique project-specific design constructed with four holding ponds each designed to store animal waste for a set of animals with a specific diet (fig. 1).

METHODS

A karst inventory was conducted in the area of the swine farm to gain a better understanding of the ground-water system prior to sampling point selection and well drilling. An inventory of springs, seeps, sinkholes, and losing and gaining reaches of streams was compiled. Nine shallow monitoring wells were augered to the depth of drilling refusal in the regolith. All wells were constructed with 2-inch polyvinyl chloride (PVC) casing and slotted PVC screen sections. A sand filter pack was installed surrounding the screened section with 2 feet of bentonite overlying the filter pack to prevent surface contamination. An interceptor trench was installed west of the anaerobic lagoon on the swine farm and was excavated with a backhoe to the bedrock surface to allow collection of lagoon leachate moving downgradient from the anaerobic lagoon after a storm event (fig. 1).

Sampling points consisted of monitoring wells, springs, seeps, and the interceptor trench. Water-quality samples were collected (fig. 2) during high-flow conditions in April 2004 and low-flow conditions in October 2004. The interceptor trench was sampled after one storm event on July 27, 2004. All samples were analyzed for nutrients including nitrate plus nitrite, ammonium, total Kjeldahl nitrogen, total phosphorus, and orthophosphate, major cations and major anions by the Arkansas Department of Environmental Quality (ADEQ) Water Quality Laboratory in Little Rock, Arkansas. Nitrate plus nitrite concentrations are reported as nitrate for this report because nitrate is the dominant form of nitrogen for this analyte. Fewer monitoring wells

were sampled during low-flow conditions because some of the wells were dry or did not yield water for sampling.

An electromagnetic geophysical survey was conducted near the waste storage infrastructure to determine any areas of preferential seepage from the lagoon and to assess the selection and placement of the sampling points. An EM-31 is a frequency domain electromagnetic instrument that is capable of determining subsurface conductivity (Geonics, 1984). Electromagnetic surveys have been successful in the past locating areas of preferred seepage from animal waste lagoons. Areas of lagoon seepage result in anomalously high subsurface conductivities compared to unaffected areas (Brune and Doolittle, 1990). Conductivity data were collected with a horizontal dipole instrument orientation providing an average depth of investigation of 6 meters. Global Positioning System (GPS) data and subsurface conductivity data were collected simultaneously. These data were plotted and contoured using the computer program Surfer (2002) for visual interpretation of results.

GROUND-WATER QUALITY

Concentrations of nitrate and chloride for both high-flow and low-flow sampling events were above background concentrations, but were low compared to other areas in the Ozarks affected by livestock production (table 1). Background concentrations for nitrate plus nitrite in forested, relatively pristine areas of the Ozarks are typically less than 0.5 milligrams per liter (mg/L) as nitrogen (N) and 5.0 mg/L for chloride (Steele, 1983). Data collected in this study indicate that local livestock production probably is affecting the ground-water quality of the area. Concentrations of nitrate ranged from 0.27 to 2.39 mg/L as N during high-flow conditions and 0.84 to 3.41 mg/L as N during low-flow conditions. Chloride concentrations ranged from 3.95 to 14.8 mg/L during high-flow conditions and 14.1 to 30.2 mg/L during low-flow conditions. Concentrations of both nitrate and chloride were higher during the low-flow sampling event probably because of mixing and dilution that occurs during high-flow conditions.

Table 1. Concentrations of nitrate and chloride for low-flow and high-flow sampling events

[Background concentrations of nitrate and chloride are from relatively pristine, forested areas of the Ozarks. Source sample collected from anaerobic lagoon]

Sampling point	High-flow sampling (concentrations in mg/L)			Low-flow sampling (concentrations in mg/L)			
	Date	Nitrate as N	Chloride	Date	Nitrate as N	Chloride	Ammonium as N
Well 1	4-12-04	1.08	14.8	-	-	-	-
Well 2	4-12-04	2.10	6.96	10-5-04	1.37	18.4	-
Well 3	4-12-04	1.23	9.97	10-5-04	1.07	18.9	-
Well 4	4-12-04	0.32	5.87	10-5-04	0.98	14.4	-
Well 5	4-12-04	0.46	3.95	-	-	-	-
Well 6	4-12-04	0.75	5.87	10-6-04	0.84	15.2	-
Well 7	4-12-04	0.27	3.95	10-6-04	0.99	14.1	-
Well 8	4-12-04	0.62	14.3	10-5-04	2.22	29.1	-
Well 9	4-12-04	1.99	12.9	-	-	-	-
Hidden Spring	4-12-04	2.39	11.5	10-5-04	3.41	30.2	-
Dead Cow Spring	-	-	-	10-5-04	2.59	19.8	-
Seep	4-12-04	1.32	8.90	10-5-04	1.15	16.0	-
Interceptor Trench	7-27-04	23.5	10.5	-	-	-	1.19
Anaerobic lagoon	6-13-05	-	-	6-13-05	0.44	462	40.0
Background [1]	-	0.5	5.0	-	-	-	-

[1] From Steele (1983)

These results were comparable to a previous study conducted prior to the construction of the Savoy Swine Facility. Little (1999) collected water-quality samples from springs, seeps, and wells proximal to the study area under high-flow and low-flow sampling conditions. Nitrate concentrations ranged from 0.06 to 4.64 mg/L as N and chloride concentrations ranged from 2.89 to 27.0 mg/L as N. The elevated concentrations suggest that the basin probably was affected by local livestock production prior to the construction of the Savoy Swine Facility. The highest concentrations of nitrate and chloride were detected near the University of Arkansas Beef Headquarters towards the eastern portion of the study area (fig. 2).

The results from the interceptor trench sample indicate that nitrogen is seeping through the anaerobic lagoon liner as ammonium with nitrification converting the ammonium into nitrate. The interceptor trench sample had concentrations of nitrate at 23.5 mg/L as N and ammonium concentrations at 1.19 mg/L as N. A water-quality sample was collected from the anaerobic lagoon on June 13, 2005. The form of nitrogen within the anaerobic lagoon is predominantly ammonium, with concentrations at 40.0 mg/L as N. Nitrate concentrations were 0.44 mg/L as N and chloride concentrations were 462 mg/L in the lagoon sample (table 1). The lagoon leachate is probably mixing with other waters resulting in lower concentrations of nitrate and chloride in downgradient sampled wells and springs. Based on these ground-water quality data, the swine waste lagoon built using the Natural Resources Conservation Practice no. 313 is minimally affecting the ground-water quality of the area.

ELECTROMAGNETIC GEOPHYSICAL SURVEY

The results of the EM-31 survey did not identify any areas of preferential seepage from the holding ponds, settling basin, or anaerobic lagoon. Subsurface conductivities ranged from 0.6 to 21.0 millimhos per meter. It appears that most of the leakage is from the anaerobic lagoon and the leachate is migrating from the source in a fairly uniform pattern (fig. 3). There is very little leakage from the waste holding ponds and settling basin. This is probably because the animal waste stored in both the holding ponds and settling basin contains a much higher proportion of solid animal waste compared to the anaerobic lagoon. The solid waste is able to create a seal that decreases liner permeability (Natural Resources Conservation Service, 2003). Based on the results of the EM-31 survey it appears that the oversizing of the waste storage infrastructure is having a negative impact on the effectiveness of the anaerobic lagoon.

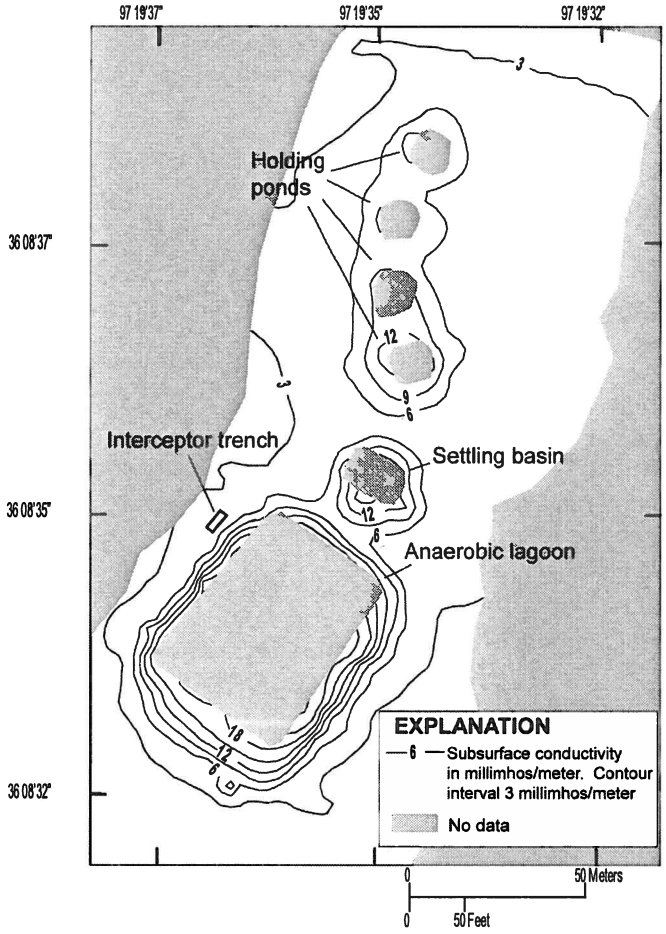

Figure 3. Results of EM-31 electromagnetic survey.

SUMMARY

A study was conducted to evaluate the effects of a swine waste lagoon on ground-water quality in a mantled karst terrane at the University of Arkansas' Savoy Experimental Watershed. An anaerobic swine waste lagoon was constructed at the Savoy Swine Facility in compliance with U.S. Department of Agriculture NRCS Conservation Waste Storage Practice Standard no. 313. An inventory of springs, seeps, and losing streams was conducted in the basin where the waste lagoon was constructed. Based on the inventory, sampling sites were selected and nine shallow monitoring wells were augered to the depth of drilling refusal in the regolith. Shallow ground-water from wells, springs and an interceptor trench was sampled for nutrients, major cations, and major anions during high-flow and low-flow conditions.

Data collected in this study indicate that the ground-water quality of the area is probably being affected by local livestock production. The concentrations of nitrate and chloride for both high-flow and low-flow sampling events were above background concentrations, but were low compared to other agriculturally affected areas in the Ozarks. Concentrations of nitrate plus nitrite ranged from 0.27 to 2.39 mg/L as N during high-flow conditions and 0.84 to 3.41 mg/L as N during low-flow conditions. Chloride concentrations ranged from 3.95 to 14.8 mg/L during high-flow conditions and 14.1 to 30.2 mg/L during low-flow conditions. Concentrations of both nitrate and chloride were higher during the low-flow sampling event probably because of mixing and dilution that occurs during high-flow conditions.

These results were comparable to a previous study conducted prior to the construction of the Savoy Swine Facility. Water-quality samples were collected from springs, seeps, and wells within near the study area under high-flow and low-flow sampling conditions. Nitrate concentrations ranged from 0.06 to 4.64 mg/L as N and chloride concentrations ranged from 2.89 to 27.0 mg/L. The elevated concentrations suggest that ground water in the basin has been affected by local livestock production prior to the construction of the Savoy Swine Facility.

A water-quality sample collected from an interceptor trench after a storm event on July 27, 2004 had concentrations of nitrate at 23.5 mg/L as N and dissolved ammonium concentrations at 1.19 mg/L as N. The results from the interceptor trench sample indicate that nitrogen is seeping through the anaerobic lagoon liner as ammonium with nitrification converting the ammonium into nitrate. The lagoon leachate probably is mixing with other waters resulting in lower concentrations of nitrate and chloride in downgradient sampled wells and springs.

The results of an electromagnetic geophysical survey identified no areas of preferred seepage from the holding ponds, settling basin, and anaerobic lagoon. Most of the leakage appears to be from the anaerobic lagoon and the leachate is migrating from the source in a fairly uniform pattern. Very little leakage from the waste holding ponds and settling basin occurs. This is probably because the animal waste stored in both the holding ponds and settling basin contains a much higher proportion of solid animal waste compared to the anaerobic lagoon. Based on these results, the swine waste lagoon built using the Natural Resources Conservation Service Conservation Practice no. 313 is minimally affecting the ground-water quality of the area.

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Appendix E

National Park Service
U.S. Department of the Interior

Buffalo National River
Harrison, Arkansas

Solicitation:
An Opportunity for Agricultural Hay Field Special Use Permits
MWR-BUFF-1000-XXX

SOLICITATION

AGRICULTURAL SPECIAL USE PERMITS (SUP)

Buffalo National River
National Park Service
Midwest Region

Solicitation # BUFF-MWR-1000-XXX

SOLICITATION ISSUED: November 5, 2013

BIDS DUE: November 25, 2013

Bids must be received by the National Park Service no later than 2:00 pm of the due date listed above and should be addressed to:

Rachel Green Norton
Agricultural Special Use Permit Coordinator
National Park Service
Buffalo National River
402 N. Walnut St., Suite 136
Harrison, AR, 72601
870-365-2776

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:

L3015 (BUFF)

November 4, 2013

RE: Agricultural Special Use Permits #MWR-BUFF-1000-XXX

Dear Bidder:

This year as we advertise Agricultural SUP's within the Buffalo National River, you may notice an increase in the price of the permit. The new minimum bids are derived from an in-house study that looked at all aspects of each parcel of land, including acres, miles of dirt road, road conditions, soil classes and percent of forage stand available. As a result of this study, the minimum bid for some parcels will increase, some will decrease and some will remain unchanged. It has been more than twenty years since there was a price adjustment to the value of some of the fields.

We understand that the new minimum bids may be significantly more expensive than in the past, but we are required to bring prices up to date with current fair market values. We appreciate your patience and cooperation as we continue to make improvements to our Agricultural permit program.

Your participation plays a very important role in managing the landscape of Buffalo National River. Without farming, these fields would quickly turn into a mix of invasive species and overgrown thickets. Farmed fields are part of the cultural landscape at the Buffalo National River and your services help maintain a wide variety of habitat for a large number of species.

If you have any questions, please contact the Resource Management office at 870-365-2776.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

Solicitation Opportunity
for
Agricultural Special Use Permits
Buffalo National River

Solicitation # BUFF-MWR-1000-XXX

The National Park Service (NPS) intends to award thirty-four (34) Special Use Permits for parcels within portions of Buffalo National River in Newton and Searcy Counties. In each parcel being offered, agricultural use is limited to hay cutting. The Bid Sheet, parcel description, and maps regarding each parcel are attached to this Solicitation. Permits will not be issued solely based upon the highest bid for each parcel. The ability to perform the work, knowledge of the SUP agricultural program, and past performance will be included in the selection process.

The NPS is conducting this Solicitation for Agricultural Special Use Permits in accordance with 16 United States Code 1-4 and 36 Code of Federal Regulation Parts 1 – 7 (36 CFR 1-7).

In the event of any inconsistency between the terms of this Solicitation and 36 CFR 1-7, 36 CFR 1-7 will prevail. In the event of any inconsistency between the description of the terms contained in this Solicitation and the Special Permit itself, the terms of the Special Use Permit will prevail.

Bidders are responsible for undertaking appropriate due diligence with respect to this Agricultural SUP opportunity. All of the statements made in this Solicitation regarding the nature of the opportunity and its likely future are only opinions of the NPS. Offerors may not rely on any representations of the NPS in this regard.

Term and Effective Date
Each permit will be for a term of five (5) years beginning on its effective date, which is estimated to be January 1, 2014. The expiration date of each permit will be December 31, 2019.

Minimum Bids
Minimum acceptable bids are listed on the parcel information sheet (Attachment 1) and the application page (Attachment 3). Bids may vary depending on field quality and location.

Wildlife Habitat Enhancement Plans

Wildlife Habitat Enhancement Plans are designed to enhance the habitat value of agricultural fields for wildlife. Projects included in these plans are intended to increase the diversity of habitat types present for the benefit of both game and non-game species. Wildlife Habitat Enhancement Plans for selected parcels (see Attachment 3) have been developed by the NPS and the Arkansas Game and Fish Commission (AGFC). Not all fields have Wildlife Habitat Enhancement Plans. Permittees having fields with Wildlife Habitat Enhancement Plans will be required to participate in various tasks, including bush-hogging, disking, applying lime, fertilizer and seeds. Specialized equipment may be rented from district conservation offices in Boone, Marion, Newton and Searcy counties. The value of work accomplished for the Wildlife Habitat Enhancement Plan **will not** be deducted from the permit fee for the following year, therefore, cost should be accounted for in your bid. A site-specific Wildlife Habitat Enhancement Plan has been developed for each parcel in cooperation with the AGFC. The plan will be reviewed before each permit is renewed. Each permittee will be expected to cooperate fully with the NPS and AGFC to complete the project work.

Permit Conditions

See Special Use Permit and conditions (Attachment 4). The bidder is responsible for reviewing the Special Use Permit and specifically the terms and conditions of the permit, including any exhibits, to determine the full scope of the permittee holder's responsibilities under this permit. Soil tests are taken annually by NPS and the permit holder is responsible for applying the minimum recommended amounts of fertilizer and lime. No reimbursement will be provided to the permittee for the expense of fertilizer and lime, your estimated cost should be accounted for in your bid.

Access and Road Conditions

The condition of fields and access roads varies from location to location (See Attachment 1). Bidders are responsible for determining the condition of fields and access roads before submitting a bid and accept those conditions "as is." Some fields contain public roads and all fields are open to limited public use. Vehicle access is restricted in some fields and permit holders will be required to maintain a lock on the access gates to the restricted fields. NPS will maintain a lock on the opposite end of the gate. Agricultural permits are for the specific agricultural use only and do not authorize any other form of use by the permit holder. Road work is not to be completed by permittee without prior approval from the Superintendent or his representative.

Maps

Maps indicating the locations of available fields are attached (See Attachment 2). Fields are identified by name and tract number which is found on the bid list and on each map.

Field Viewing

It is strongly suggested that bidders view fields prior to submitting a bid. There will not be park staff available for opening gates for viewing opportunities. All parcels located behind locked access gates will have to be accessed on foot.

How to Submit a Bid

1. Complete Attachment 3, Solicitation Application.

2. Send the signed and dated Solicitation Application in a sealed envelope with the following marked on the outside of the envelope:

> "AG SUP SOLICITATION PROPOSAL, MAILROOM DO NOT OPEN"
> Rachel Green Norton
> Agricultural Special Use Permit Coordinator
> National Park Service
> Buffalo National River
> 402 N. Walnut, Suite 136
> Harrison, AR 72601

3. Show your name and address in the upper left-hand corner of the envelope.

4. The NPS must receive your bid by the time and date and at the address shown above. NPS is not responsible for mail delivery by the United States Postal Service.

Your bid will not be accepted if:

1. Your Bid Form was not received by the NPS by the deadline as described in this Solicitation.
2. Your Bid Form was not signed and dated.

Notification of Successful Bid

The National Park Service will notify the successful bidders, via certified mail, within seven (7) working days after the bid opening.

1. The successful bidder must submit a completed Special Use Permit (SUP) Application form (See Attachment 5) to the National Park Service at the address shown on the cover of this Solicitation within seven (7) working days from receipt of a Notice of Successful Bidder. A one-time $50 cost recovery application fee, in the form of a check, money order or cashier's check made to the National Park Service, must be enclosed with the completed SUP form.

2. If the successful bidder fails to submit a completed Special Use Permit (SUP) form and pay the $50 cost recovery application fee within the time frame specified in this Solicitation, the National Park Service may select another successfully responsive bidder for award of the SUP, or will cancel the selection.

Special Use Permit Issuance

1. Upon receipt of the completed SUP Application form and $50 cost recovery application payment, the Service will issue the SUP for the successful bidder's signature. The bidder must sign and return the SUP to the Service within five (5) working days to the address listed below:

Rachel Green Norton
Agricultural Special Use Permit Coordinator
National Park Service
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

2. If the successful bidder fails to submit the signed SUP within the time frame specified, then the National Park Service may select another successfully responsive bidder for award of the SUP, or will cancel the selection.

Additional Information

For information regarding field locations, access, or Special Use Permit terms or conditions, please contact:

Rachel Green Norton
Buffalo National River
Agricultural Special Use Permit Coordinator
(870) 365-2776

Attachments:

Attachment 1: Hayfield Information and Directions
Attachment 2: Parcel Maps
Attachment 3: Application and Bid Form
Attachment 4: Sample Special Use Permit with Conditions
Attachment 5: Sample Special Use Permit Application (NPS form 10-930s)

Hay Field Parcel Information and Directions

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
1.	Adams Field	94-102	H	Searcy	70.4	Unknown	$15.30 per acre $1077.12 total	South on Hwy 65. Turn left on Hwy 333 towards Gilbert. Turn left at first stop sign. Continue on Tomahawk Slab Rd. Turn right on Mercy Lane. Mercy Lane veers left.
2.	Angle Fields	11-100A,B	H	Newton	27.6	80-50-200	$13.95 per acre $385.02 total	Hwy 7 S, turn right directly across from the Pruitt landing road on Newton County 2890. At the first 'T' turn left. Continue. Fields are accessible thru wooden gate on the left.
3.	Arnold Bend	03-103	H	Searcy	81.9	80-0-200	$19.20 per acre $1,572.48 total	Take Hwy 65 South. Turn into Tyler Bend Area. Take 4th left. Cross Calf Creek. Turn right at Arnold Bend Road, just past the Old Arnold Bend Cemetary. Access thru cable gate.
4.	Baker Ford	02-100	H	Searcy	26.3	80-70-200	$16.80 per acre $441.84 total	Take Hwy 65 South, turn right on Hwy 374 in St. Joe. At 1st fork stay left on Baker Ford Road. Fields are on the back side of the campground, thru cable gate.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
5.	Bear Creek	92-104	H	Searcy	17.7	80-50-200	$17.10 per acre $302.67 total	Hwy 65 S to Marshall. Turn left on Factory Rd (by Pizza Hut). Continue to Zach Ridge Road Intersection. Turn left. Continue straight on Zach Ridge Road. The road ends in the field.
6.	Bolin		H	Newton	2.5	60-0-80 (2009)	$15.30 per acre $38.25 total	Hwy 65 S to Western Grove. Turn right on Hwy 123. Cross Carver bridge. Turn left on Newton County 4300. NC 4300 dead ends at residence
7.	Brewer Brown	10-107	H	Searcy	82.1	80-70-200	$18.00 per acre $1477.80 total	Hwy 65 S to St. Joe. Turn right on Hwy 374. Continue right at the fork on S Woolum Road. At the next fork, take a left onto Brewer Rd. There's a cattle guard across the road. The road leads right into field.
8.	Calf Creek	05-101	H	Searcy	18	80-0-150	$19.80 per acre $475.20 total	Take Hwy 65 South to Tyler Bend. Turn right into Tyler Bend Entrance. Take the 4th road on the left. The fields will be at the bottom of the hill. Road runs through the field system.
9.	Carver Complex	86-102	H	Searcy	72.4	80-0-150	$19.35 per acre $1400.94 total	Hwy 65 S to Western Grove. Turn right on Hwy 123. Fields are located surrounding bridge area on both sides of the highway.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
10.	Cash Bend Rye Bottom	01-127	H	Searcy	79.3	80-70-200 80-50-200	$15.30 per acre $1213.29 total	Hwy 65 S. Turn right into Tyler Bend area. Take 4th left on the entrance road, Peter Cave Road. Continue past the Arnold Bend turnoffs, up the hill. At the fork, veer right. Road leads to cable gate and down to fields.
11.	Crane Bottom	92-102	H	Searcy	12.9	80-50-150	$16.20 per acre $208-98 total	Hwy 65 S to Marshall. Turn left on Factory Rd (by Pizza Hut). Continue to Zach Ridge Road Intersection. Turn left. Continue straight on Zach Ridge Road. Once past Johnson Grass Road on the right, it is the next left. One gate at the road, then one into the field.
12.	Dave Manes Bluff	10-105	H	Searcy	11.2	80-0-150	$15.30 per acre $171.36 total	Take Hwy 65 South. Turn right on Hwy 74 towards Snowball. At Snowball intersection turn right. Continue on River Rd to 'T'. Take a left on River Rd. At the second 'T', take a left to stay on River Rd. At the 3rd intersection, stay right. Then take the 3rd road on the right, Dave Manes Bluff Road. Field on the right.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
13.	Dillard's Ferry	34-105	H	Marion	25.3	80-0-200	$17.10 per acre $432.63 total	Hwy 65 S. Turn left on Hwy 62 towards Yellville. In Yellville, turn right on Hwy 14. Cross the river on Hwy 14 and turn left immediately after crossing. The fields are near the parking area.
14.	Erbie Complex**							
14A	Hutchinson	48-100	H	Newton	9.7	80-0-200	$13.60 per acre $983.28 total	Take Hwy 7 South. Turn right on Erbie Road, follow road across low water slab at river. Continue to Erbie Church Turn right at T intersection; Field will be on the left near gated road that turns to the left.
14B	Claggett	47-103	H	Newton	17.8	80-0-200		Take Hwy 7 South. Turn right on Erbie Road, follow road to low water slab across river; cross slab across river and then cross slab at Cove Creek; go straight until Clagget house, turn left into gate.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
14C	Tinsley	50-100	H	Newton	17.2	80-0-200	$13.60 per acre $983.28 total	Take Hwy 7 South. Turn right on Erbie Road, follow Erbie Road to low water slab; Cross slab and continue across low water slab at Cove Creek; Continue straight past Claggett house and past Erbie Church turn right at T intersection. Entrance to fields will be next gate on the right; Tinsley field is the lower field.
14D	Mueller	50-106	H	Newton	12.7	80-50-200		Take Hwy 7 South. Turn right on Erbie road, follow road to low water slab across river; and cross low water slab on Cove Creek; turn right at intersection; cross low water slab and continue; field is on right at next gate.
14E	Parker-Hickman	50-112	H	Newton	14.9	80-50-150		Take Hwy 7 South. Turn right on Erbie Road, follow road to Parker-Hickman homestead on south side of river; turn left; go through gate at Parker-Hickman homestead; continue on to Y intersection; Turn right to gate which leads to field.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
14F	Lindsey	50-119	H	Newton	7.6	80-0-150	$13.60 per acre $983.28 total	Take Hwy 7 South. Turn right on Erbie Road, follow road and cross low water slab across river; then cross low water slab on Cove Creek; turn right at intersection; cross low water slab and continue on to Y; Turn right to gate, follow road to field.
14G	Fuller	50-100B	H	Newton	12.1	80-70-200		Take Hwy 7 South. Turn right on Erbie Road, follow road to low water slab; cross slab and continue across low water slab at Cove Creek; Continue straight past Claggett house and past Erbie Church; turn right at T intersection. Entrance to fields will be next gate on the right Follow road; Fuller is the upper field.
15.	Gilbert	09-107	H	Searcy	4	80-50-200	$19.80 per acre $79.20 total	Take Hwy 65 South, turn left on Hwy 333. Take a left on Dry Creek Rd. The road leads to a residence, but the field is on the left behind a gate thru the tree line.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
16.	Goggins	01-118C	H	Searcy	50.1	80-70-200	$15.30 per acre $766.53 total	Hwy 65 S to St. Joe. Turn right on Hwy 374. Continue right at the fork on S Woolum Road. At the next fork, take a left onto Brewer Rd. Take another left onto Goggins Rd or at the blue baler. Drive thru private property to cattle guard. Fields are at the bottom of the hill.
17.	Hickman	01-117	H	Searcy	50.8	80-50-200	$17.10 per acre $868.68 total	Hwy 65 S. Turn right into Tyler Bend area. Take 4th left on the entrance road, Peter Cave Road. Continue past the Arnold Bend turnoffs, up the hill. At the fork, veer left. At the next fork, stay right. At the 4 way intersection, take Getaway Rd to the left. Follow Getaway to the River Rd on the right. Veer right on the first intersection. At the second intersection, stay right. The field is the second in the area.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
18.	Lane Bend							
18A	Lane Bend D		H	Searcy	16.6	80-0-200	$16.65 per acre $276.39 total	Hwy 65 S. Turn left onto Blue Ribbon Drive. Take a left on Longbottom Drive. Will end at red gate. Follow field road thru to 1st intersection and veer left. Field will be at the bottom of the hill thru old fence line.
18B	Lane Bend B		H	Searcy	13.6	80-0-200	$16.65 per acre $226.44 total	Hwy 65 S. Turn left onto Blue Ribbon Drive. Take a left on Longbottom Drive. Will end at red gate. Follow field road thru to 1st intersection and veer right. Field will be at the bottom of the hill thru old fence line on the left.
19.	Love Hensley	01-124	H	Searcy	94.7	80-70-200	$16.20 per acre $1534.14 total	Hwy 65 S. Turn right into Tyler Bend area. Take 4th left on the entrance road, Peter Cave Road. Continue past the Arnold Bend turnoffs, up the hill. At the fork, veer left. At the next fork, stay right. At the 4 way intersection, take Love Hensley Rd to the right. Road will end in field.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
20.	Margaret White	01-115	H	Searcy	31.6	80-50-200	$16.20 per acre $511.92 total	Take Hwy 65 South. Turn right into Tyler Bend area. Take 4th left, Peter Cave Road. Continue past the Arnold Bend turnoffs, up the hill. At the fork, veer left. At the next fork, stay right. At the 4 way intersection, take Getaway Rd to the left. Follow Getaway to River Rd on the right. Veer right at the first intersection. At the second intersection, stay right. The 3 fields are at the end of the road.
21.	Mt. Hersey	91-107	H	Searcy	13.6	80-0-150	$15.30 per acre $208.08 total	From South on Hwy 65, turn right onto CR 21, there's a brown sign there on 65. It looks like you will need to make a right on CR 72 to get to Mt. Hersey. The fields should be visible through a gate or a small grove of trees

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
22.	North Maumee	97-102	H	Searcy	20.3	0-60-210 (2009)	$15.75 per acre $319.73 total	From Harrison, take Hwy 65 south. Turn left on Hwy 62. Follow Hwy 62 into Yellville. Turn right on Hwy 14. Follow Hwy 14 to town of Caney. Turn right on CR 5032, there should be a sign visible. Follow CR 5032 thru Jaded Drive to Maumee. In Maumee, take a left on N. Maumee Rd. Fields will be on both sides of road.
23.	Passmore Place	95-104A	H	Searcy	7.5	60-0-80 (2009)	$16.20 per acre $121.50 total	Hwy 65 S to Marshall. Turn left on Factory Rd, by Pizza Hut. Drive to the 'T' and take a left on Zach Rd. Take the 1st right on Zach Rd. Turn right on Red Bluff Rd. Field will be on the right, on the upper side of the road
24.	Reddell	60-101	H	Searcy	11.6	80-70-110	$14.40 per acre $167.04 total	Hwy 65 S, turn right on Mt Hersey Road. At the fork take a left toward Cane Branch Cabin. Follow road down steep, curvy hill. At fork take right. Road ends in field.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
25.	Ricketts	85-110C	H	Newton	8	60-0-0 (2010)	$16.20 per acre $129.60 total	Hwy 65 S to Western Grove. Turn right on Hwy 123. Continue to Piercetown and turn right on Hwy 74. Turn right on Newton County 3981. At the fork, veer left. Road will end at residence. Field is only accessible thru private property.
26.	Rock Creek	85-105	H	Newton	11.3	80-50-150	$17.55 per acre $198.32 total	South on Hwy 65. Turn right on Hwy 123 in Western Grove. After passing thru Hasty, turn right on Hasty Cutoff Rd or Hwy 3850. Cross the new bridge and turn left immediately. Fields are past the cable gate.
27.	Sawmill	63-112	H	Newton	12.3	80-0-0	$16.20 per acre $199.26 total	Hwy 43 S to Boxley. Take Hwy 21 S. Turn right on Newton Coutny 9540. Take the 1st left on NC 9541, then take a right on NC 9542. Field will be on the left.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
28.	Slay Branch	01-127	H	Searcy	52.8	80-50-200	$16.20 per acre $855.36 total	Hwy 65 S. Turn right into Tyler Bend area. Take 4th left on the entrance road, Peter Cave Road. Continue past the Arnold Bend turnoffs, up the hill. At the fork, veer left. At the next fork, stay right. At the 4 way intersection, take Getaway Rd to the left. Follow Getaway to the River Rd on the right. Veer right on the first intersection. At the second intersection, stay right. The field is the first in the area.
29.	South Maumee	97-102A	H	Marion	31.1	80-0-200	$18.45 per acre $573.79 total	Hwy 65 S to Marshall. Turn left onto Hwy 27. Continue to the Park Service sign towards South Maumee. Take a left on S. Maumee Road. The fields will be at the end of S. Maumee Rd by the river.
30.	Steel Creek	21-102	H	Newton	18.7	80-50-200	$18.90 per acre $353.43 total	South on Hwy 43 thru Ponca. Turn left on Hwy 74. Turn left at the top of the hill towards Steel Creek. Field is at the bottom of the hill

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
31	Tyler Bend Complex							
31A	Grinder's Ferry	06-103	H	Searcy	8.5	80-50-200	$20.48 per acre $1753.09 total	Hwy 65 S. Cross river and turn left into Grinder's Ferry access. Field gate is near vault toilet.
31B	Shineye	07-104	H	Searcy	17.9	80-0-200		South on Hwy 65, turn left on Shineye Road before the bridge. Fields are near the river on both sides of the road.
31C	Tyler Bend	05-101	H	Searcy	41.6	80-70-200		South on Hwy 65, across BNR. Turn right at Tyler Bend Entrance. At bottom of hill, 2 fields are on the left, south of the pavilion. One additonal field past drive in camping.
31D	US 65 Fields		H	Searcy	17.6	80-0-200		South on Hwy 65, across BNR. Turn left on Shineye Road, just before the bridge. Take the first right after the parking area.
32	Wallace	15-102	H	Newton	23	80-0-200	$16.00 per acre $368.00 total	Take Hwy 7 South, turn left towards the Pruitt landing, then immediately turn left again on Newton County 3890. Road will come to a 4-way. Take a right. Take the second right to the field.

* Acres M/L - more or less acreage
**All directions are from Harrison

Parcel I.D	Field Name	Tract Number	Grazing or Hay	County	Acres M/L*	2013 Fertilizer Recommendations N-P-K	Minimum Bid	Directions; Physical Location**
33	Wilson	86-102	H	Newton	32	80-0-150	$18.00 per acre $576.00 total	Take Hwy 65 South to Western Grove. Turn right on Hwy 123. Cross the Carver bridge and take the 3rd drive on the right. Small drive going downhill.
34	Woolum	57-104	H	Searcy	50.5	80-70-200	$19.80 per acre $999.90 total	Take Hwy 65 South to St. Joe. Turn right on Hwy 374. At the fork, take a right on to S. Woolum Road. Veer right at the next fork on S. Woolum Rd. The fields are on near the campground.

* Acres M/L - more or less acreage
**All directions are from Harrison

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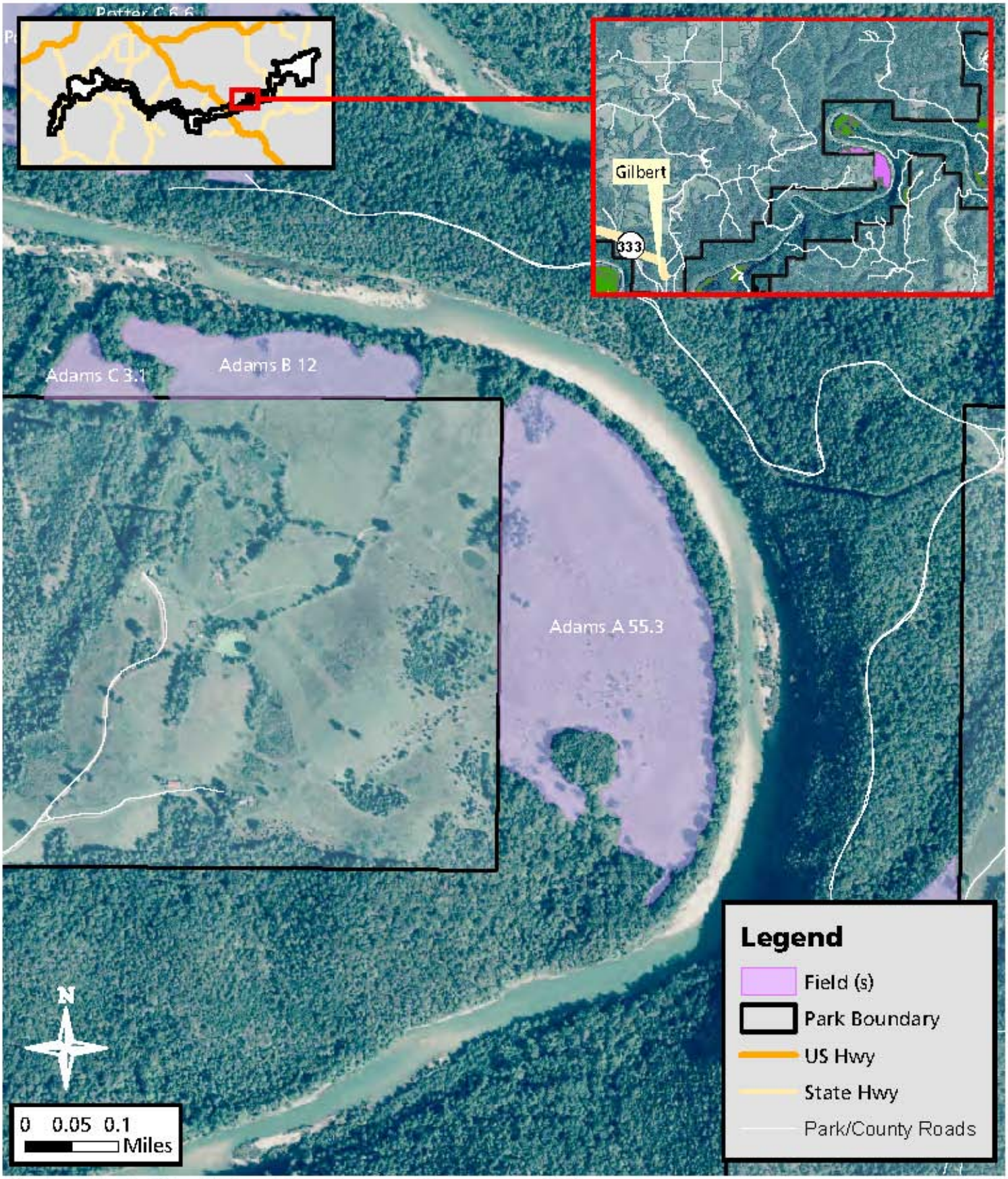
Harrison, AR

National Park Service
U.S. Department of the Interior

Attachment #2, Adams, Parcel #1



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February 2011

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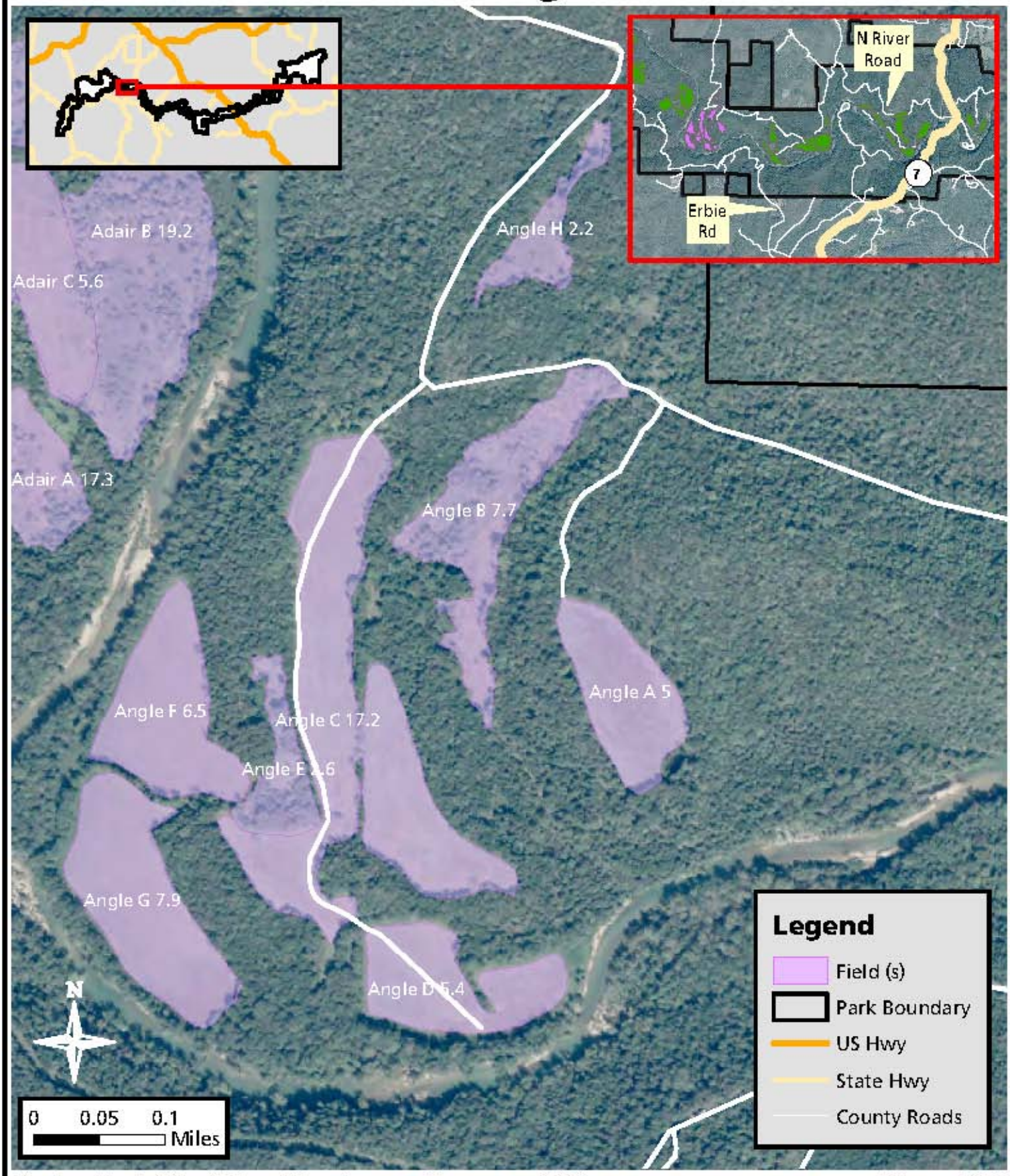
Attachment #2, Angle, Parcel #2



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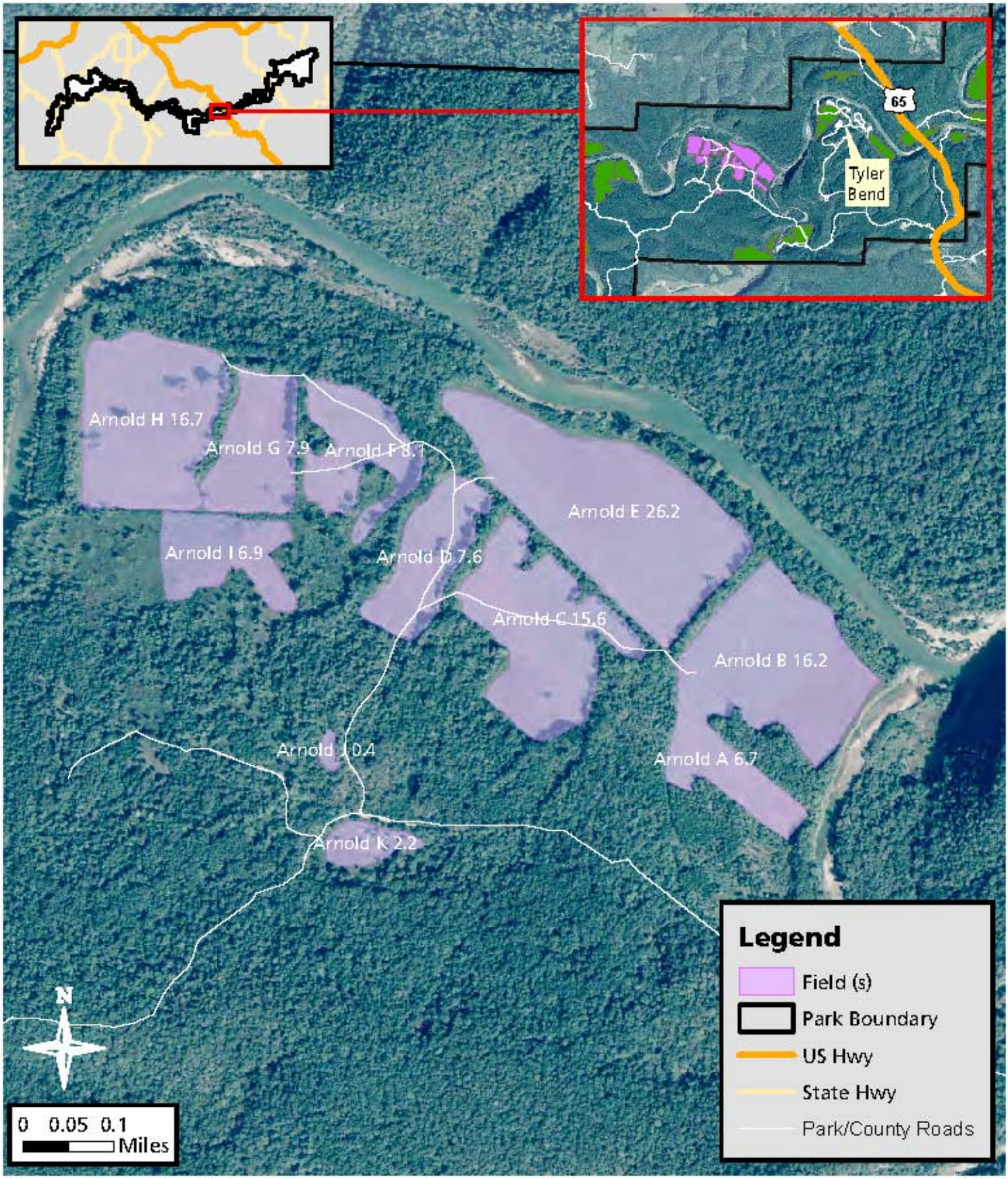
Attachment #2, Arnold Bend, Parcel #3



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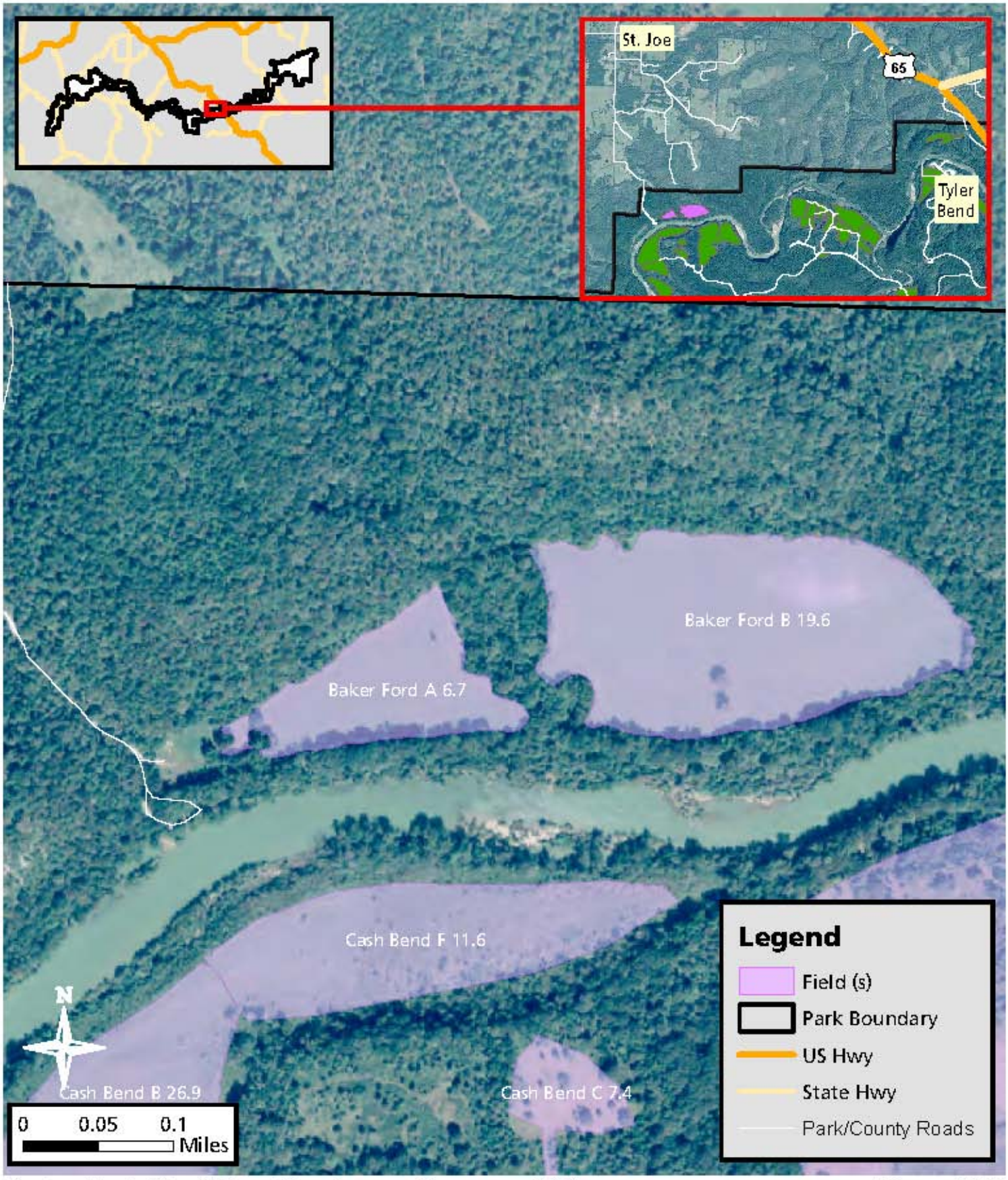
Attachment #2, Baker Ford, Parcel #4



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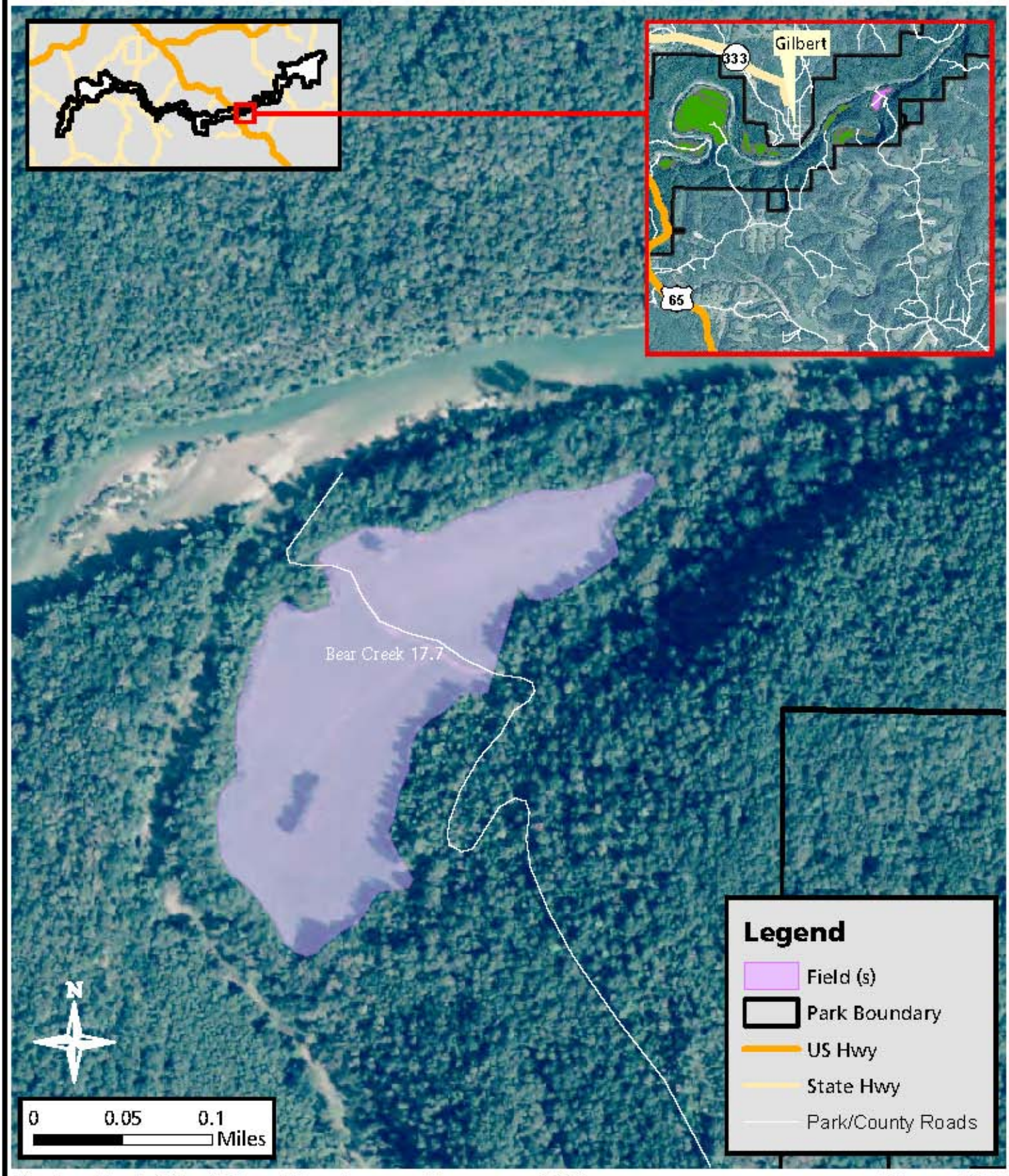
Attachment #2, Bear Creek, Parcel #5



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Attachment #2, Bolin, Parcel #6

Produced by OFFICE

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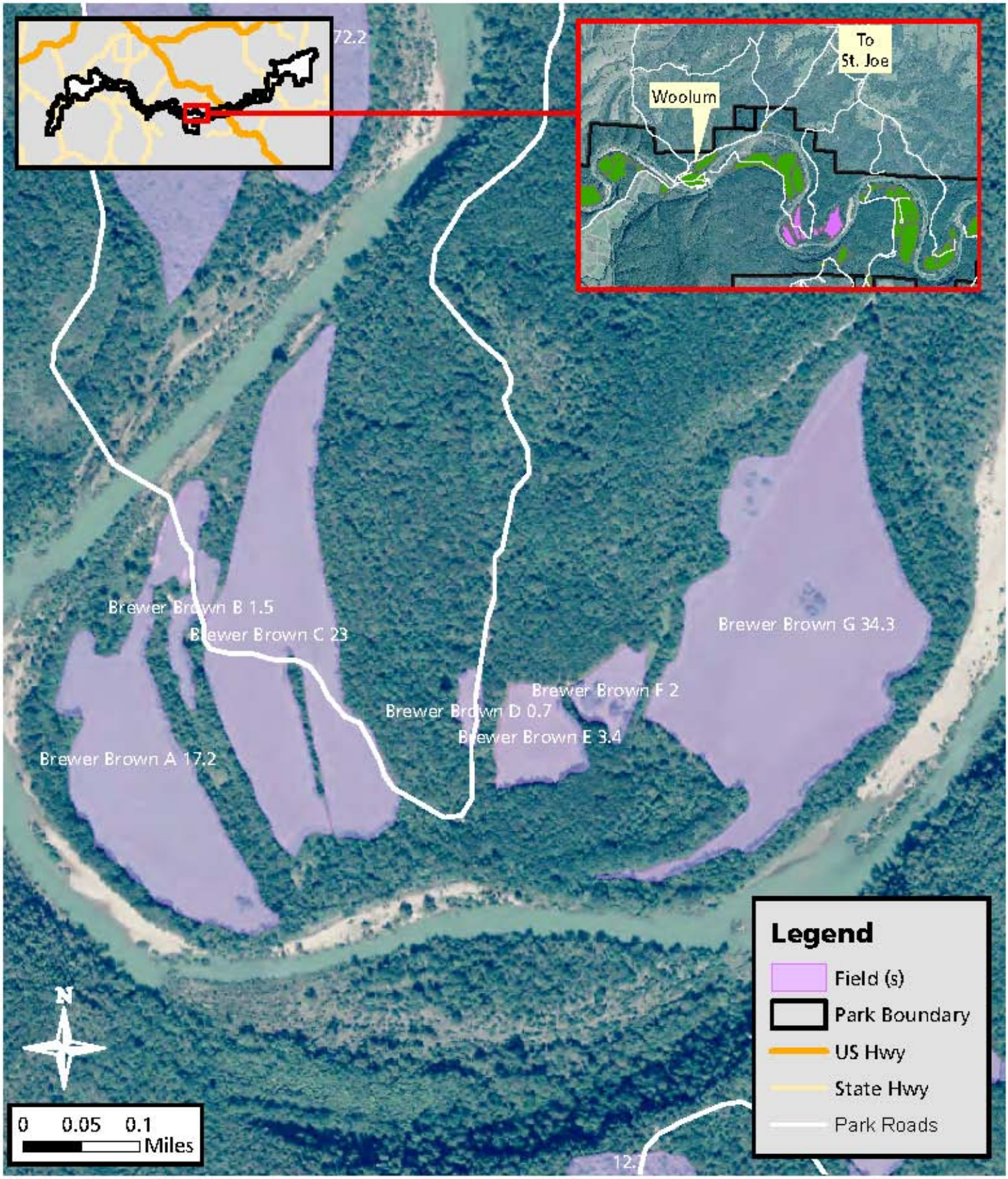
Harrison, AR

National Park Service
U.S. Department of the Interior

Attachment #2, Brewer Brown, Parcel #7



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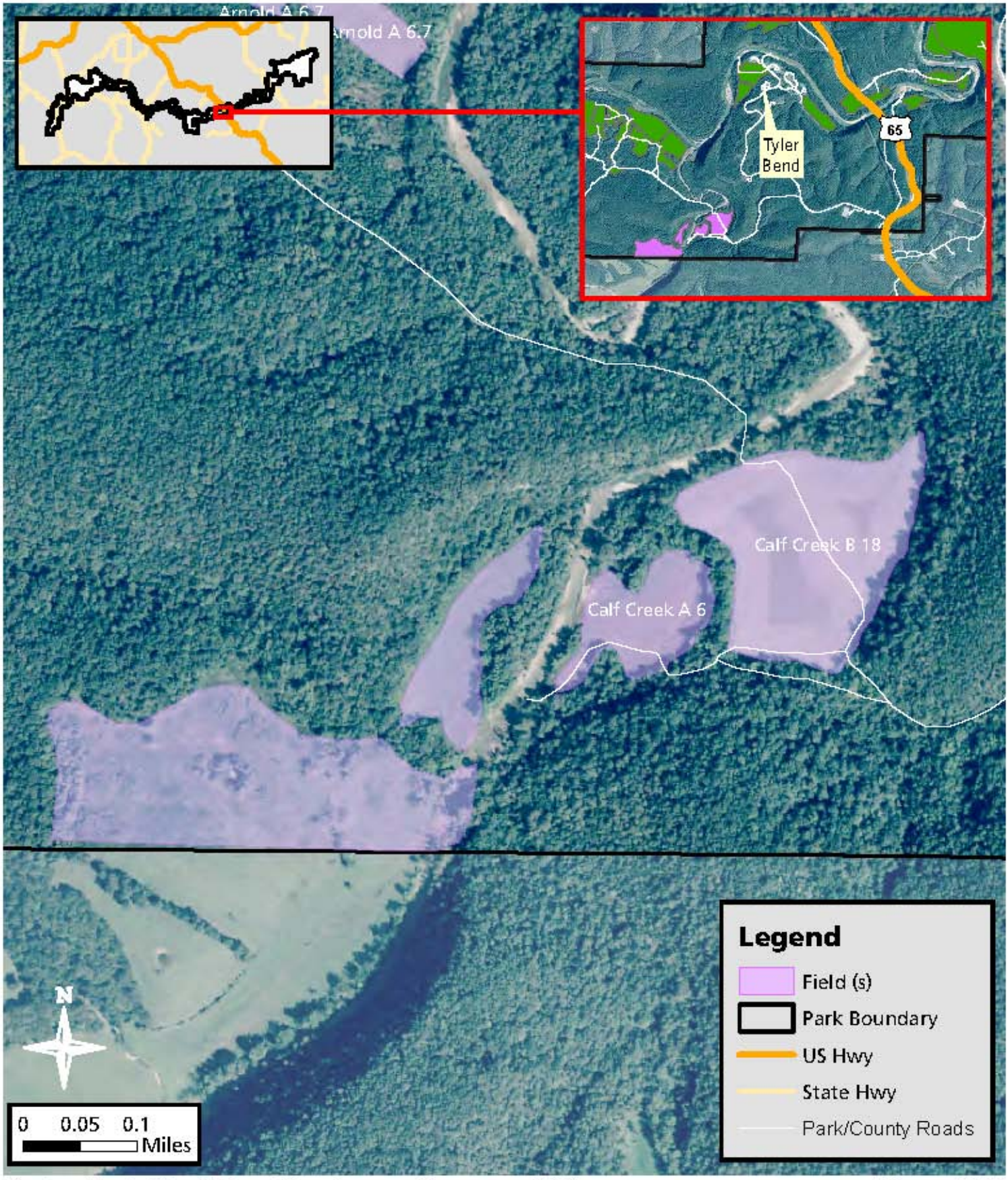
Attachment #2, Calf Creek, Parcel #8



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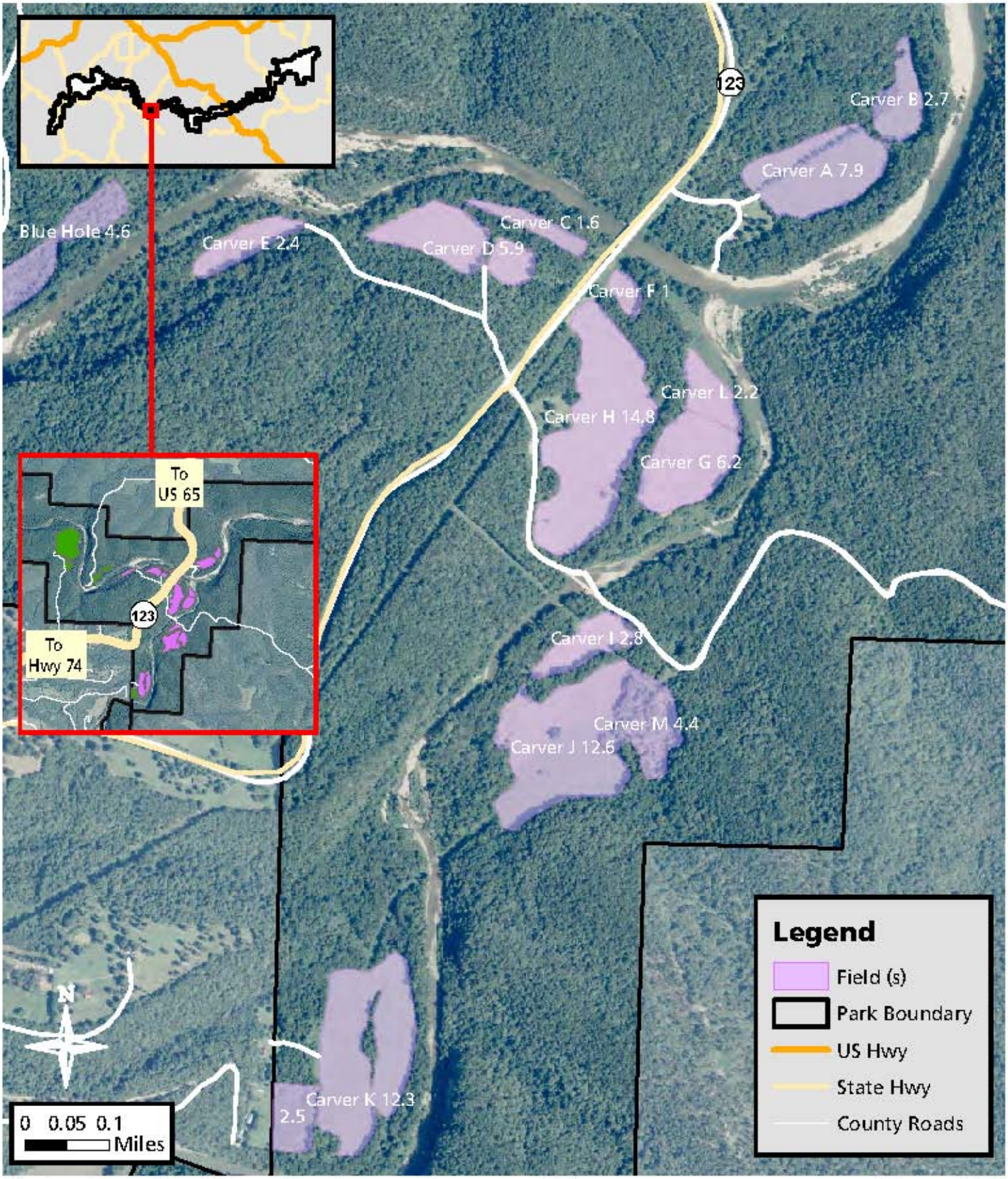
Attachment #2, Carver Complex, Parcel #9



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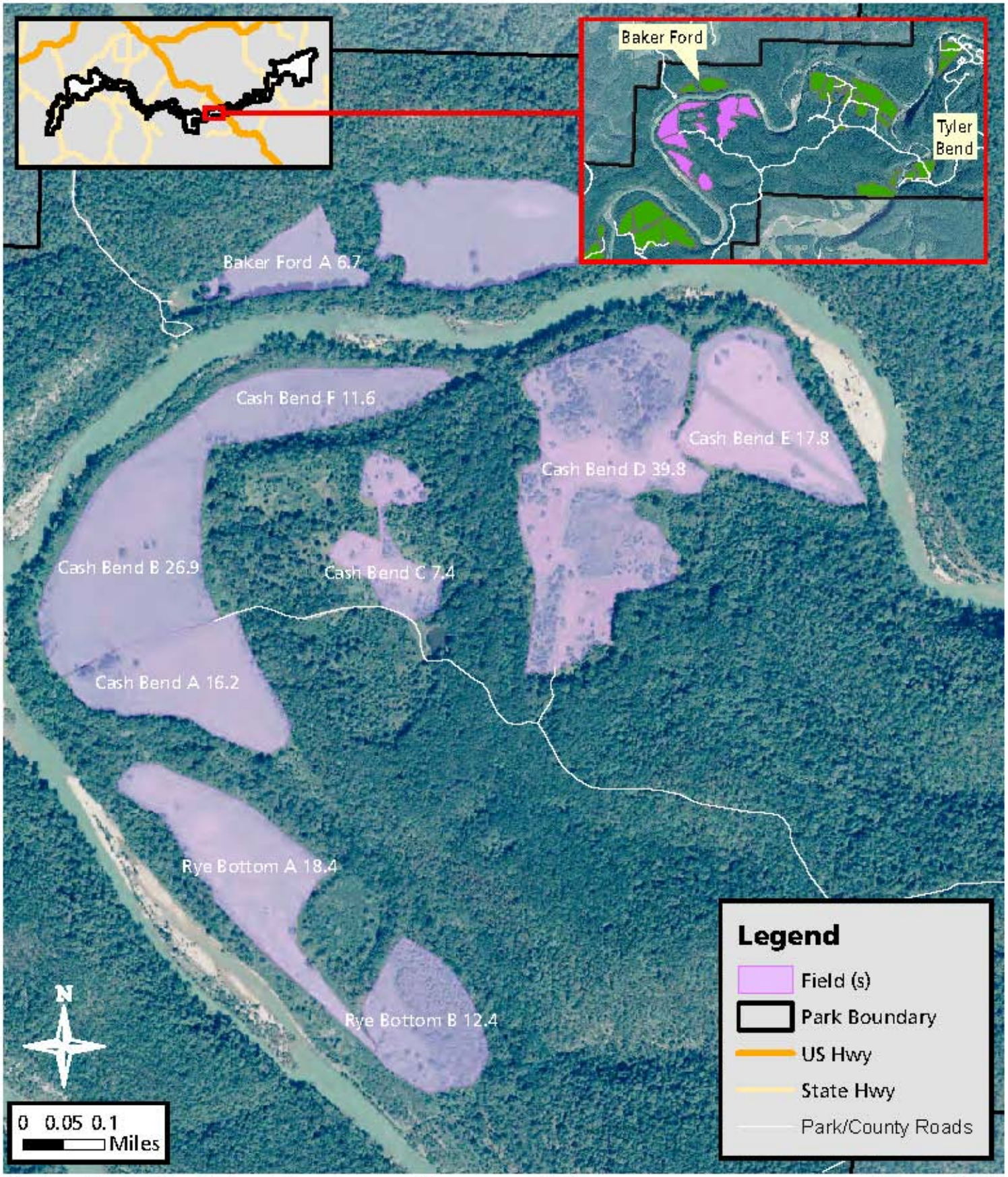
Attachment #2, Cash Bend/Rye Bottom, Parcel #10



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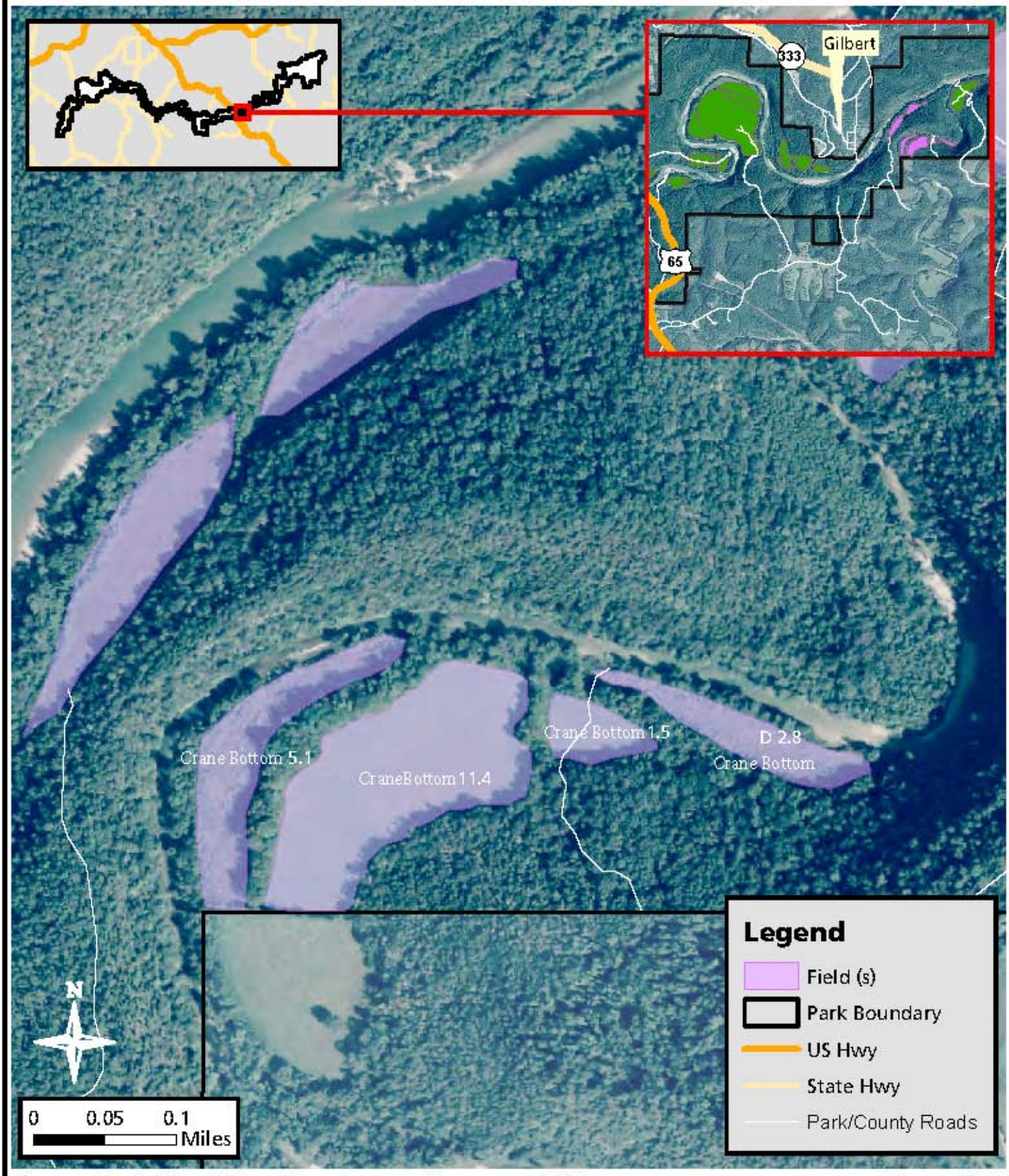
U.S. Department of the Interior

Attachment #2, Crane Bottom, Parcel #11



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Harrison, AR

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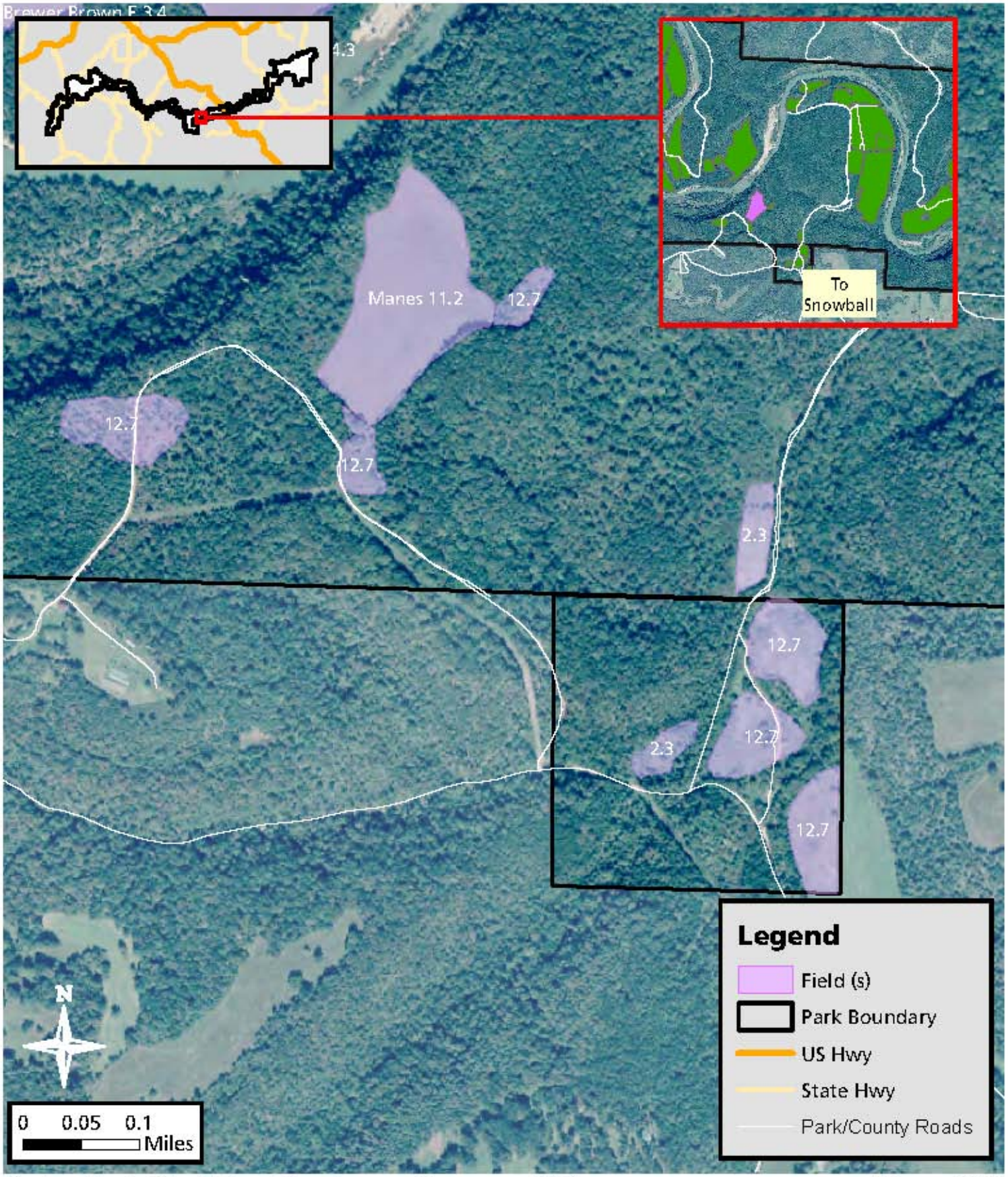
Attachment #2, Dave Manes Bluff, Parcel #12



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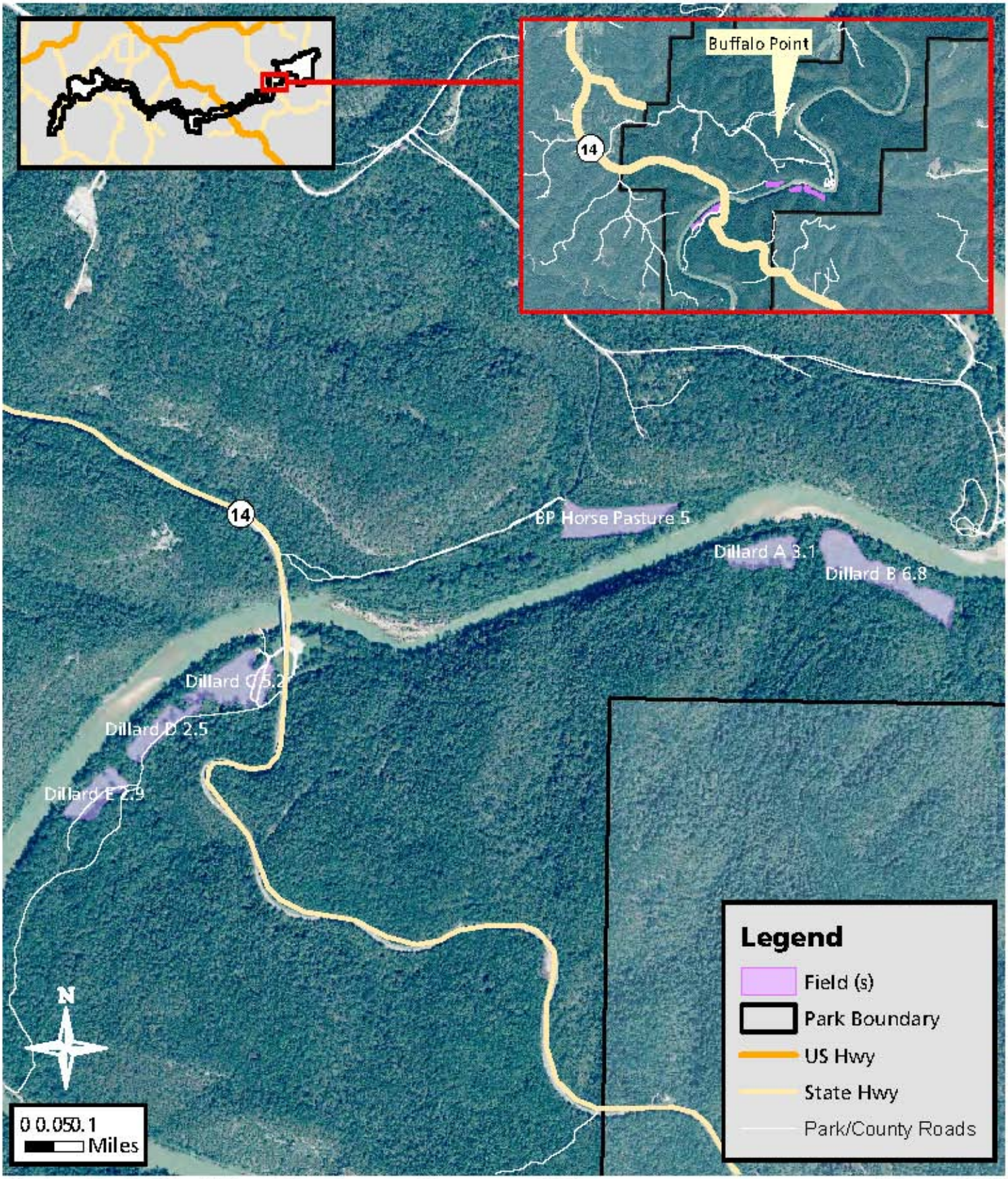
Attachment #2, Dillard's Ferry/Horse Pasture, Parcel #13



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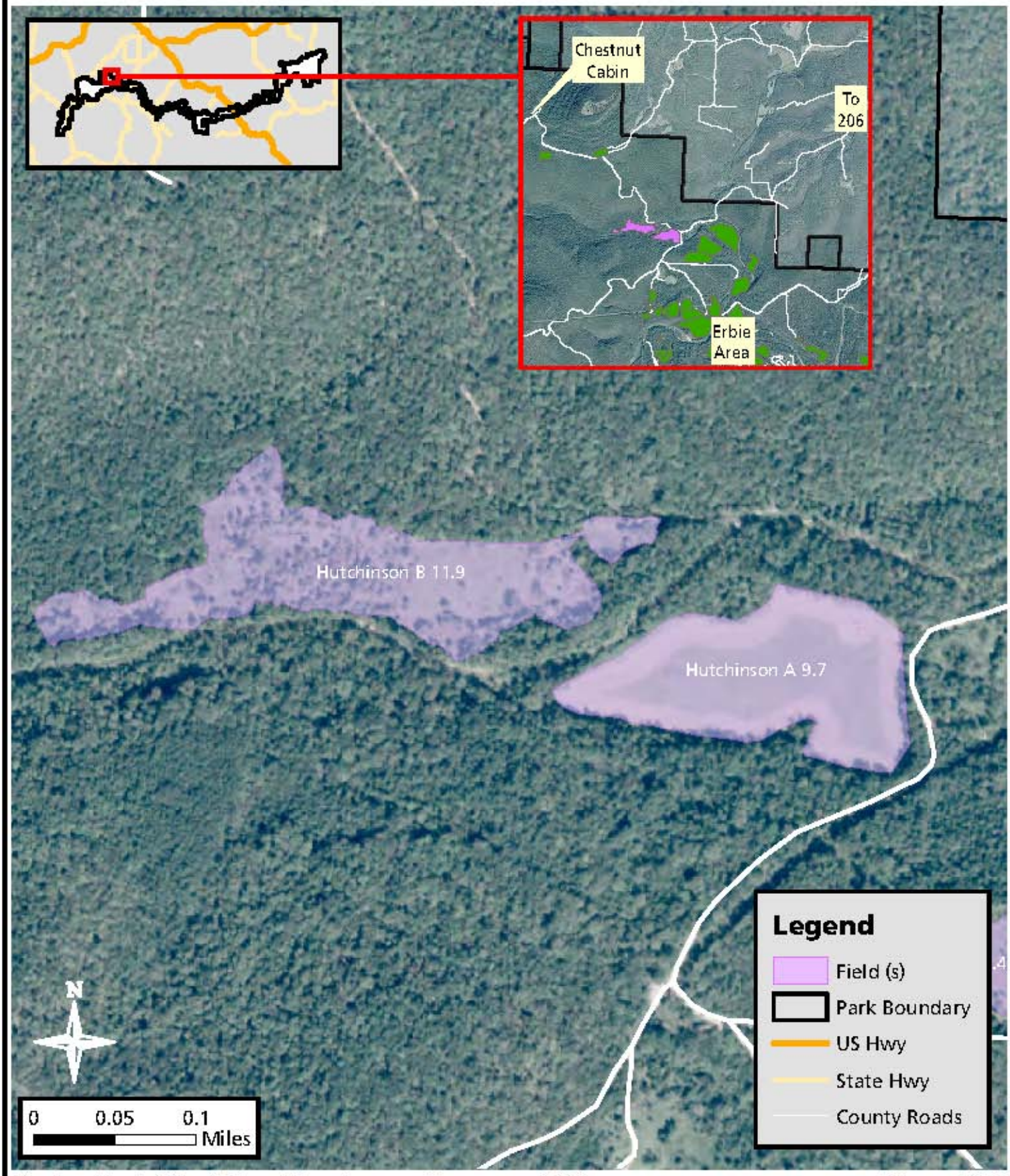
Attachment #2, Hutchinson, Parcel #14A



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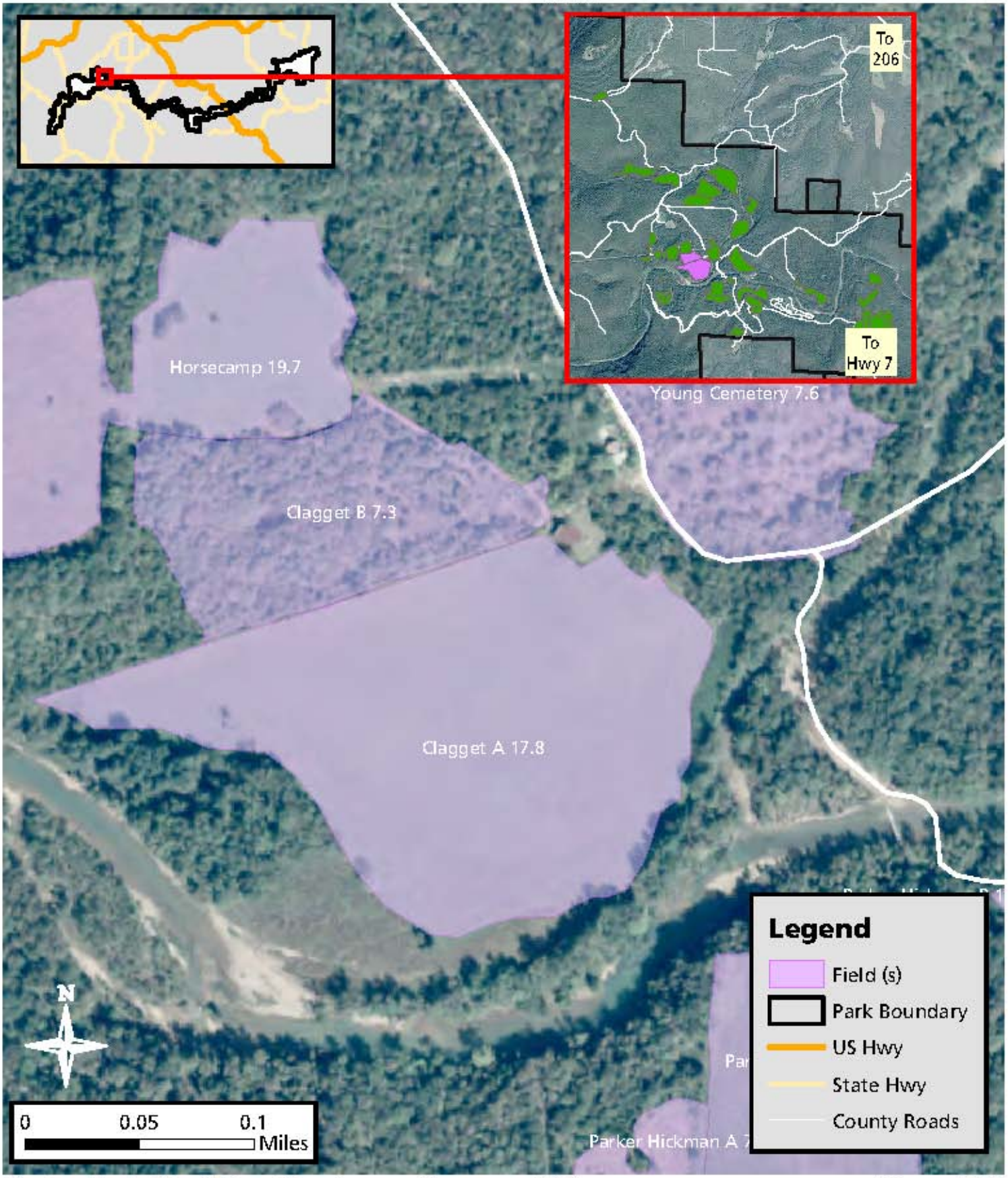
Attachment #2, Claggett, Parcel #14B



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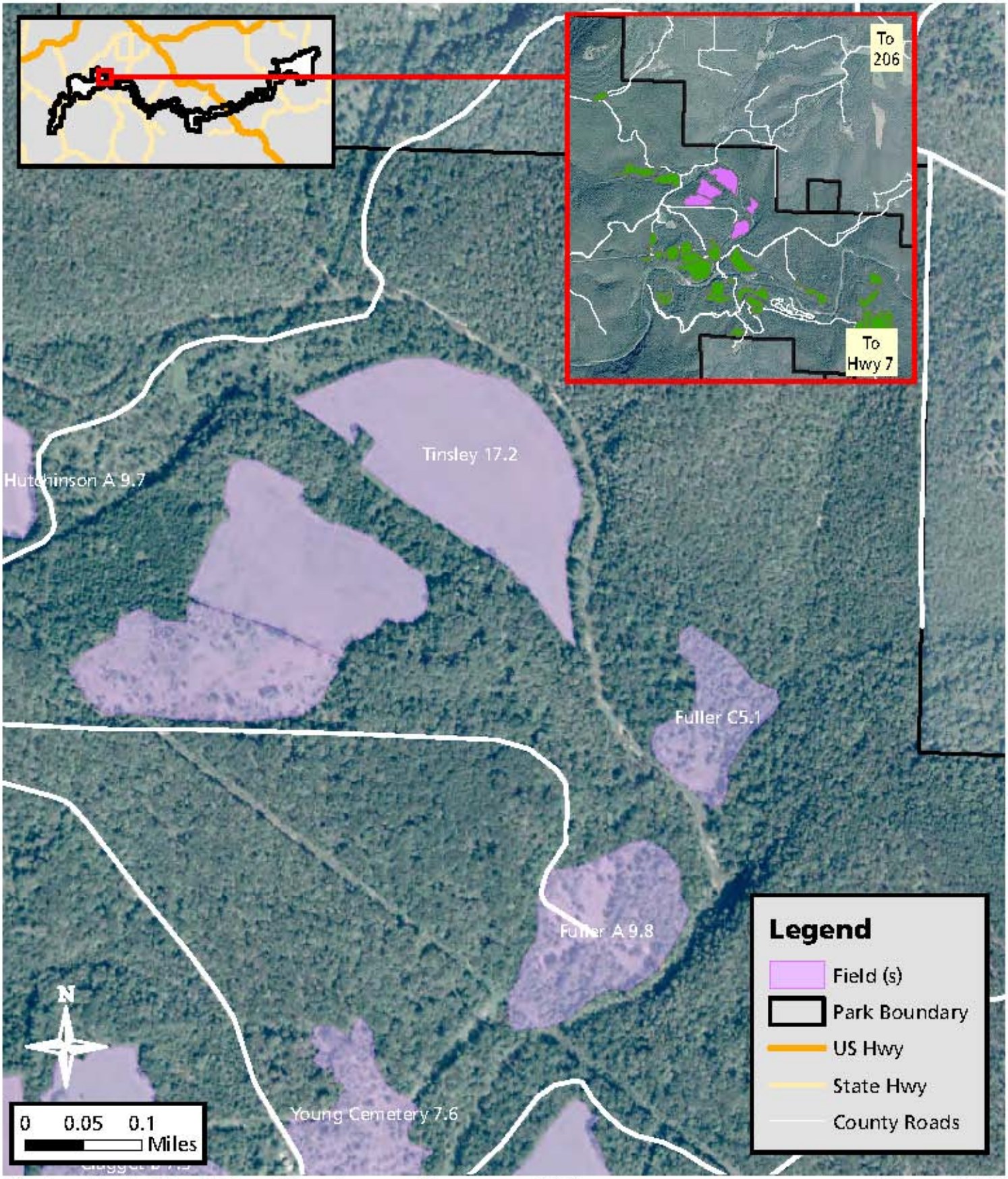
Attachment #2, Tinsley, Parcel #14C



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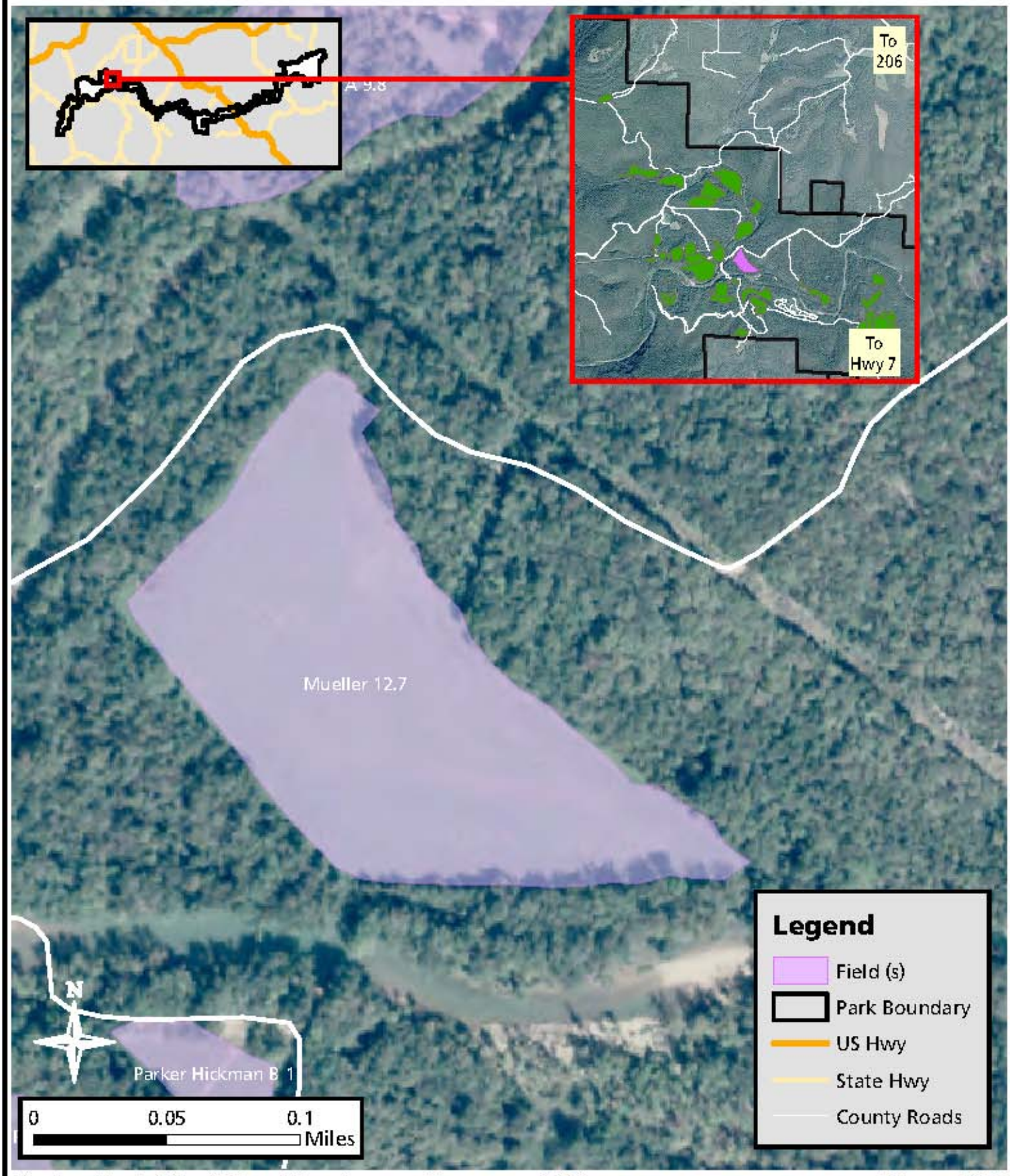
Attachment #2, Mueller, Parcel #14D



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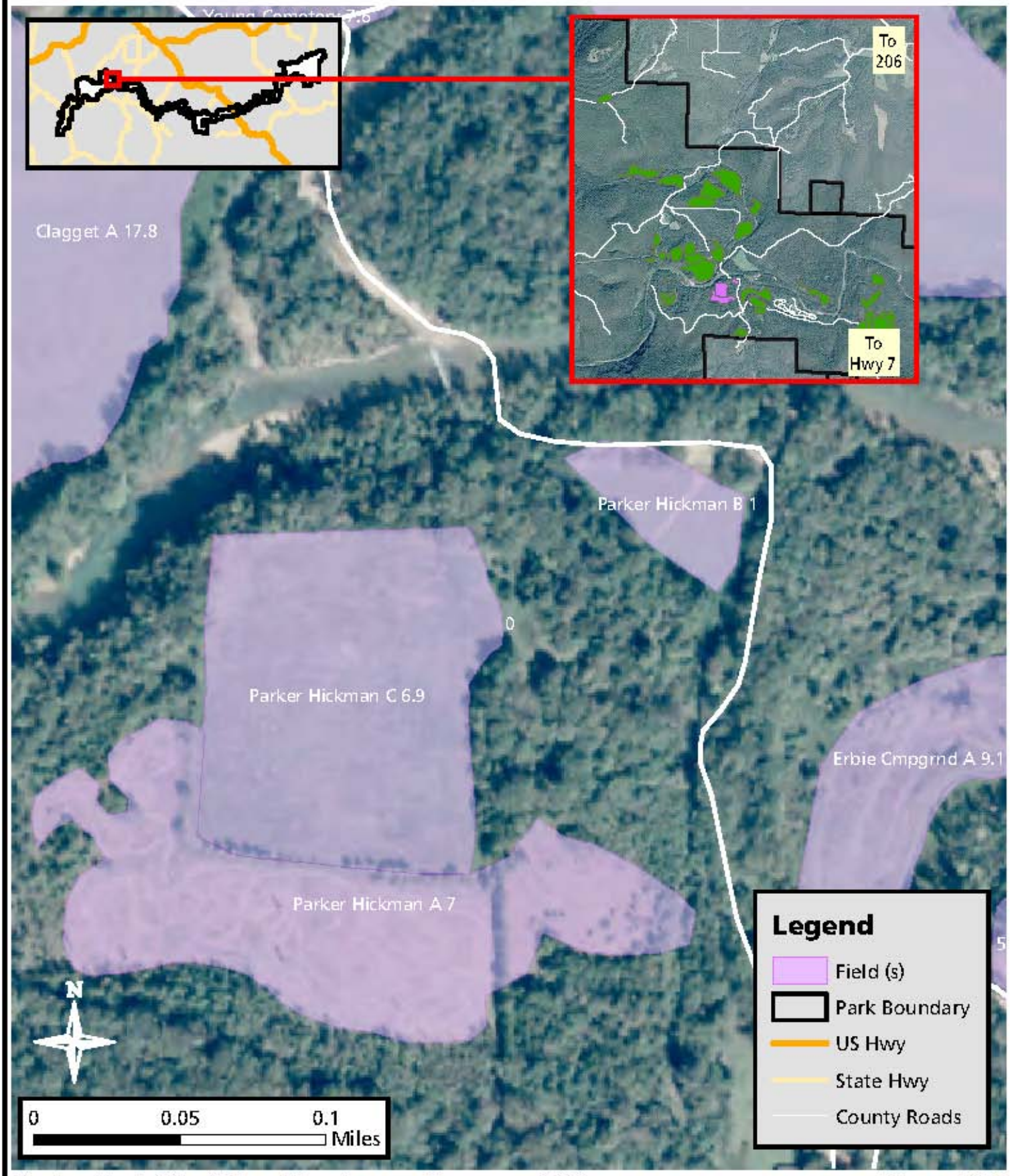
Attachment #2, Parker Hickman, Parcel #14E



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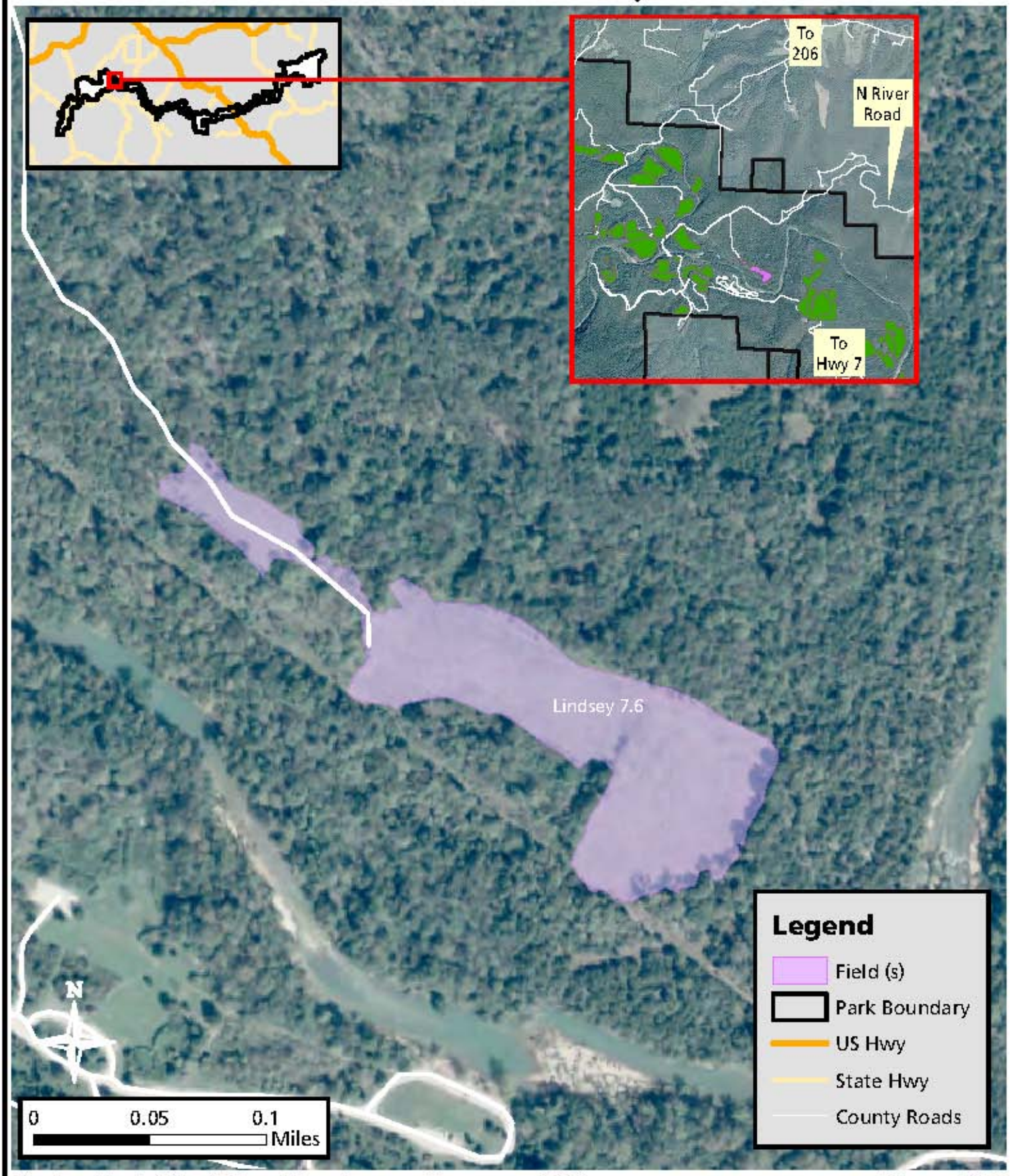
Attachment #2, Lindsey, Parcel # 14F



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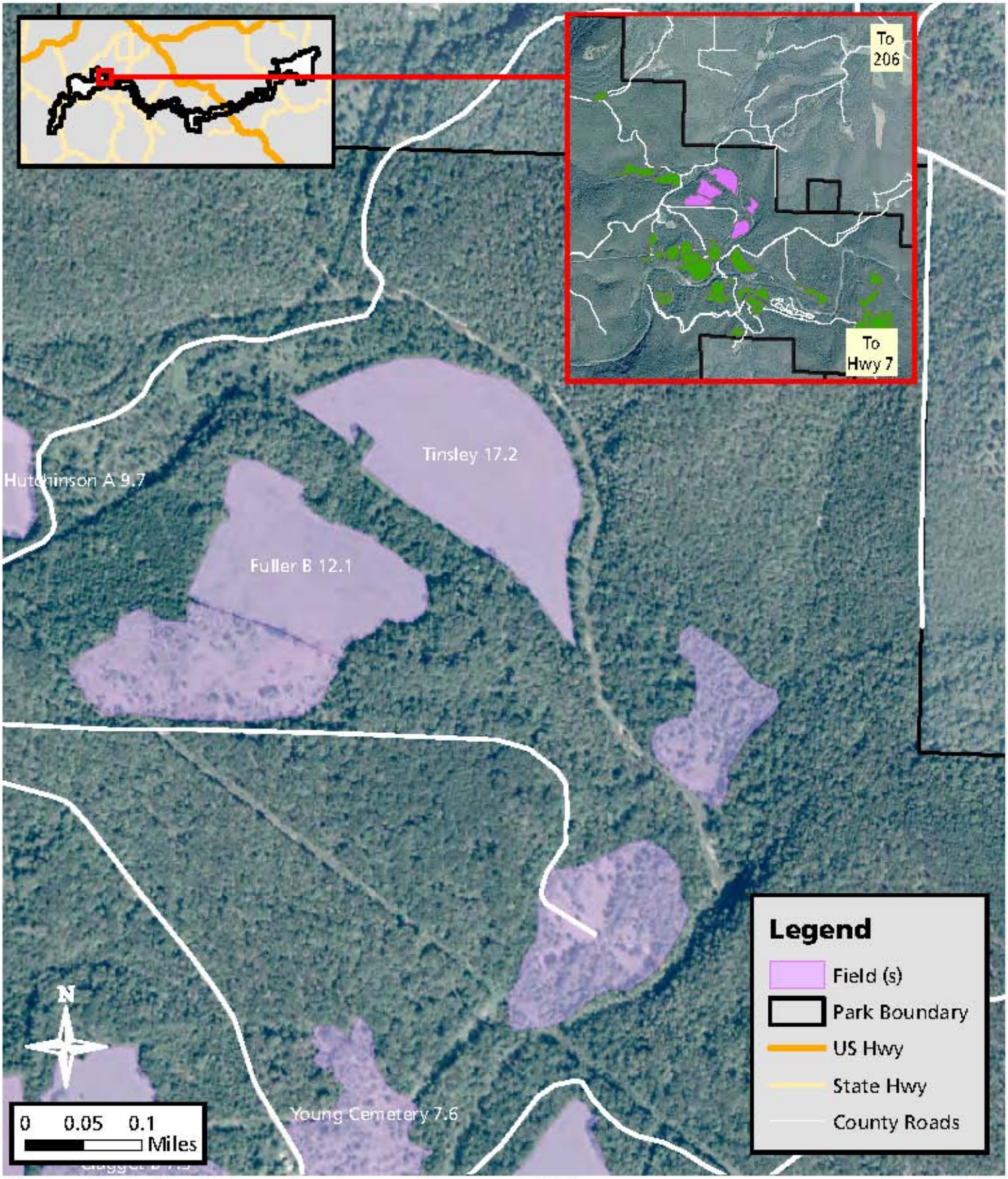
Attachment #2, Fuller, Parcel #14G



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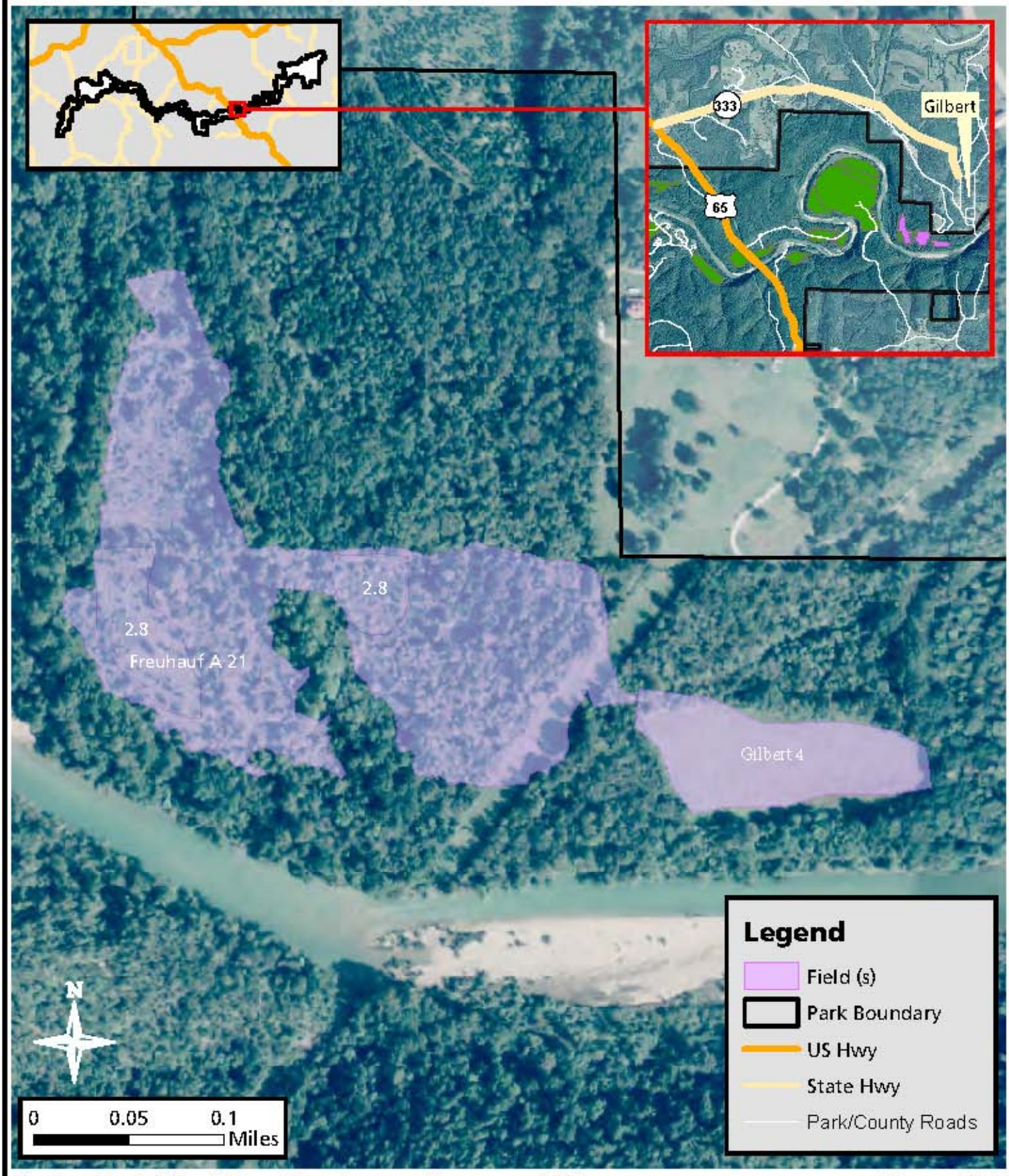
Attachment #2, Gilbert, Parcel #15



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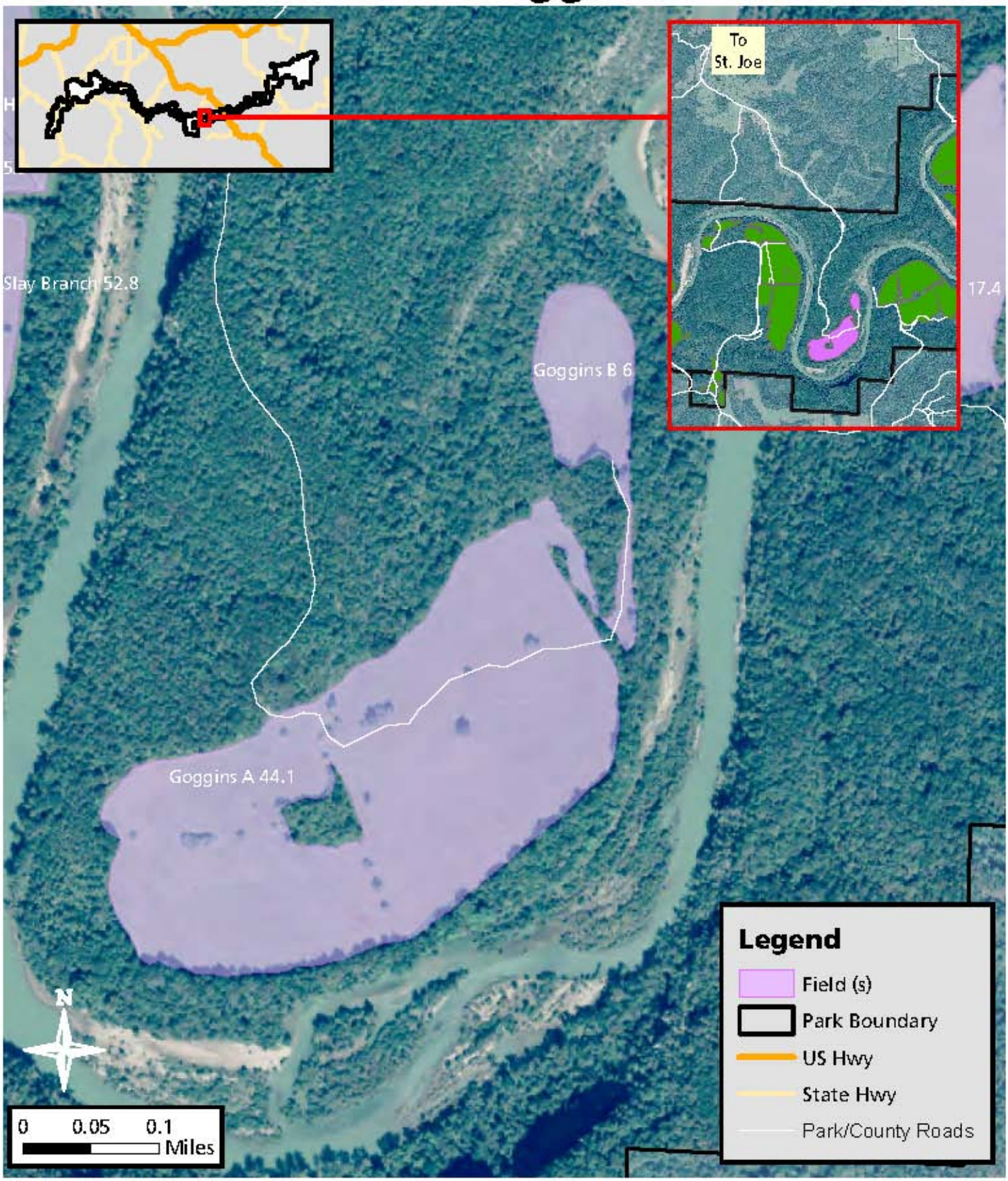
Attachment #2, Goggins, Parcel #16



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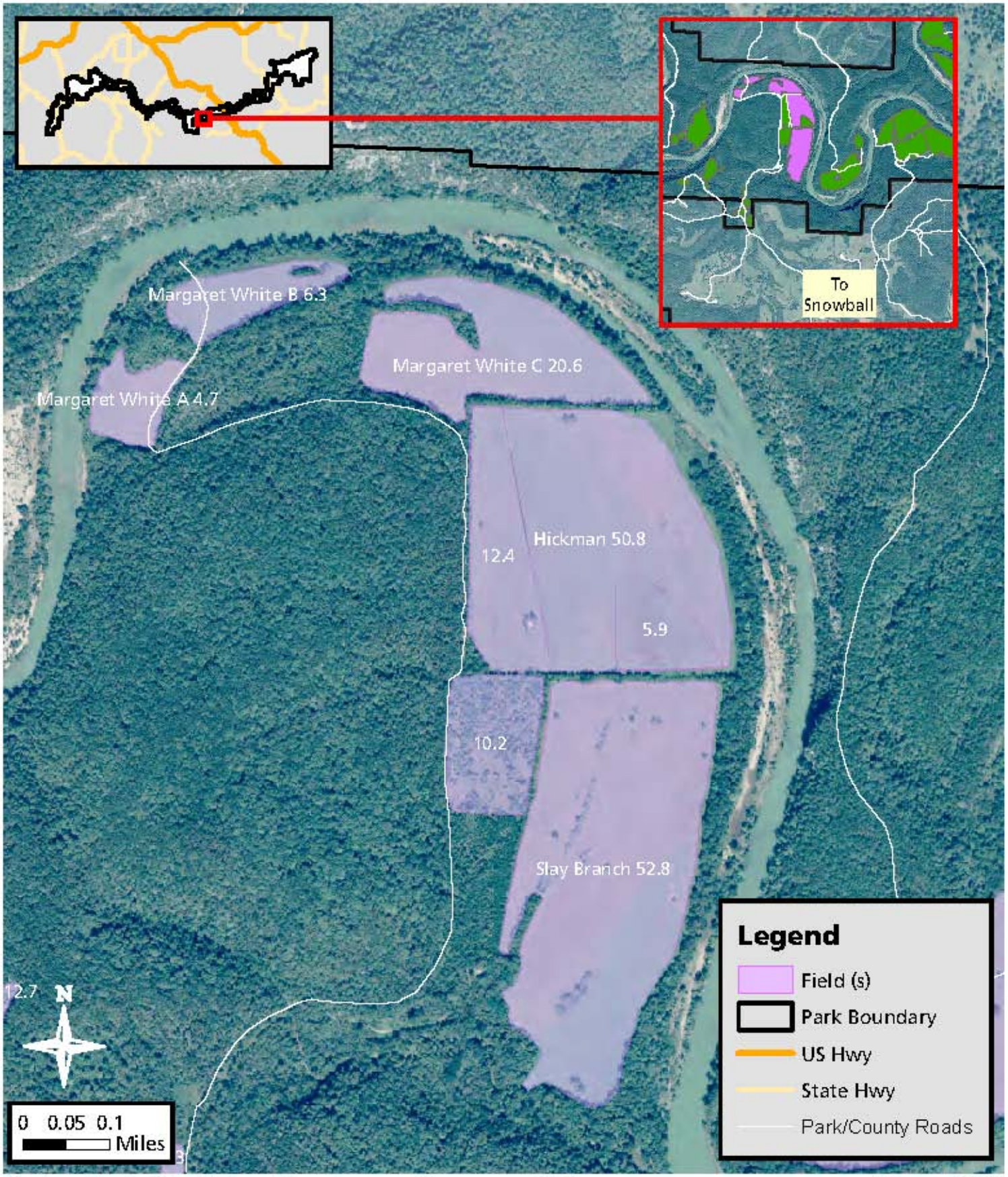
Attachment #2, Hickman, Parcel #17



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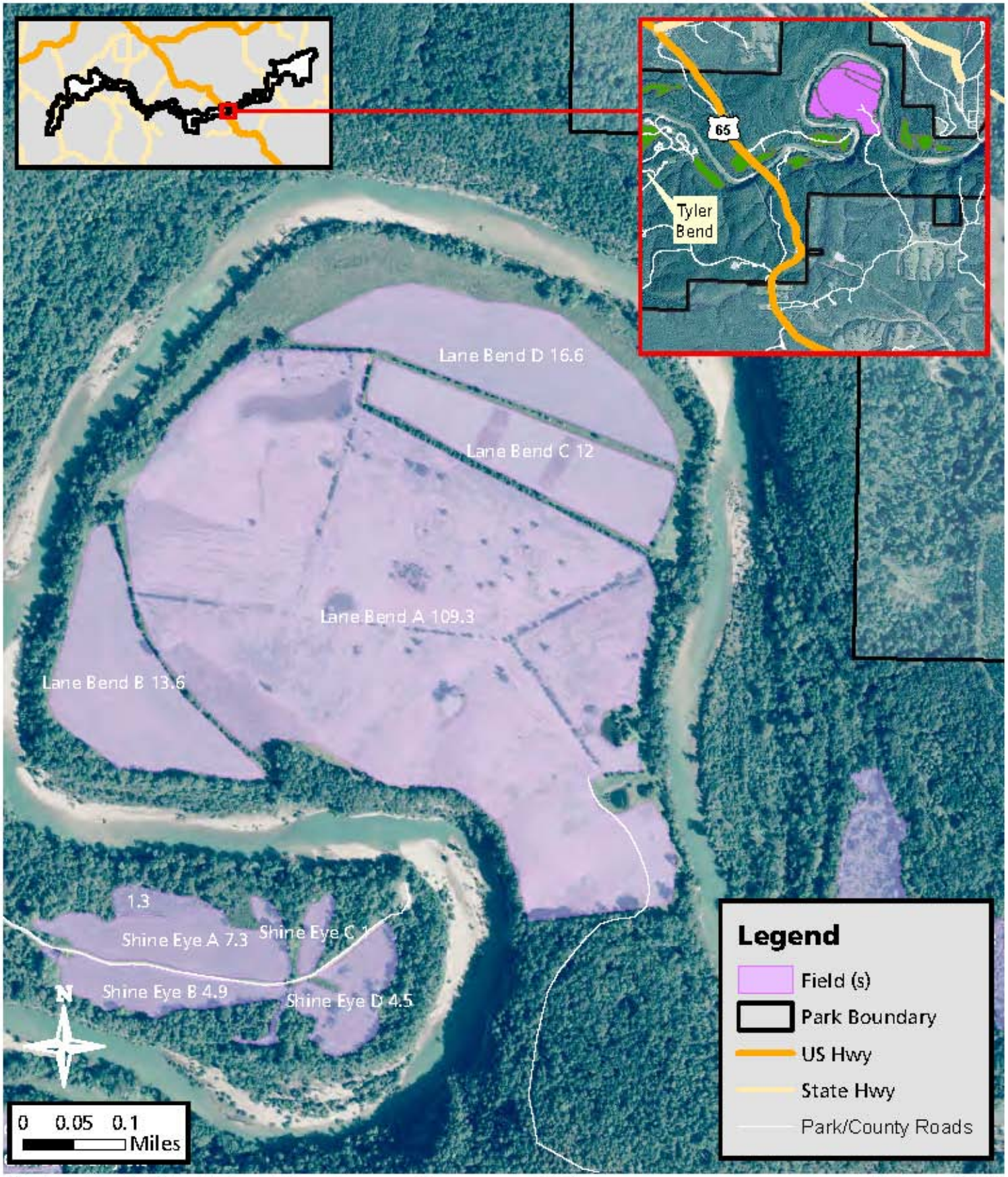
Attachment #2, Land Bend D & B, Parcel #18A & 18B



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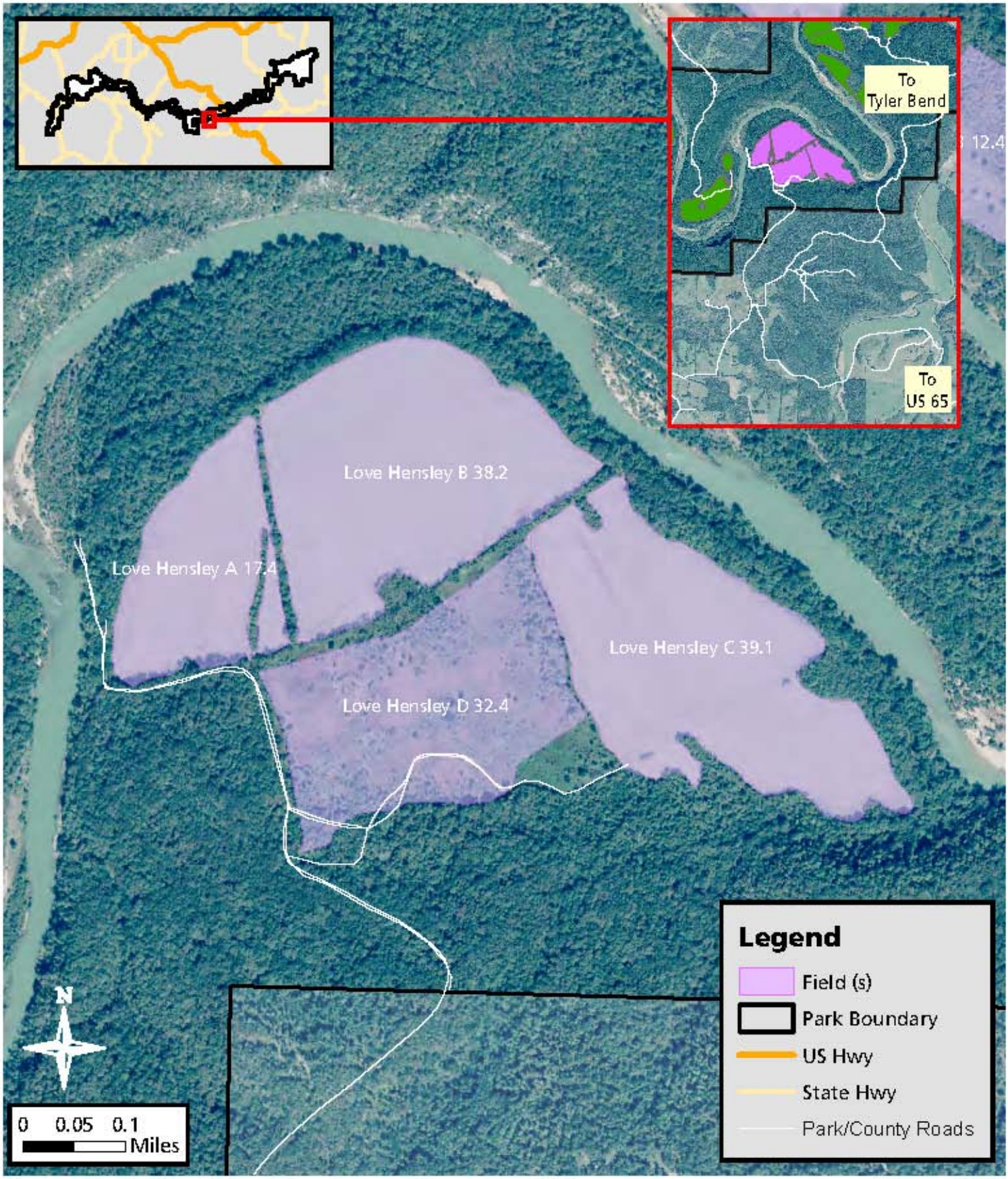
Attachment #2, Love Hensley, Parcel #19



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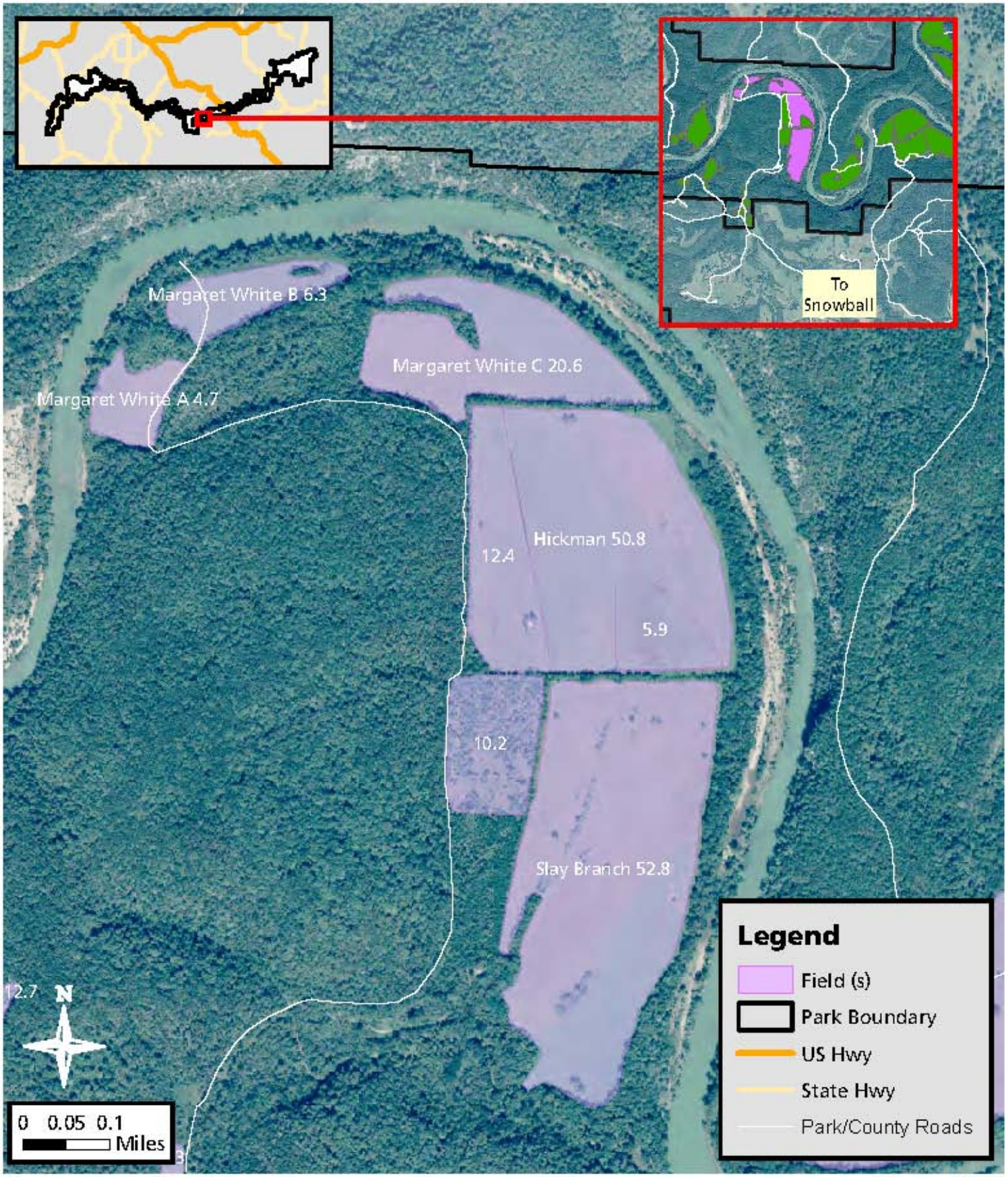
Attachment #2, Margaret White, Parcel #20



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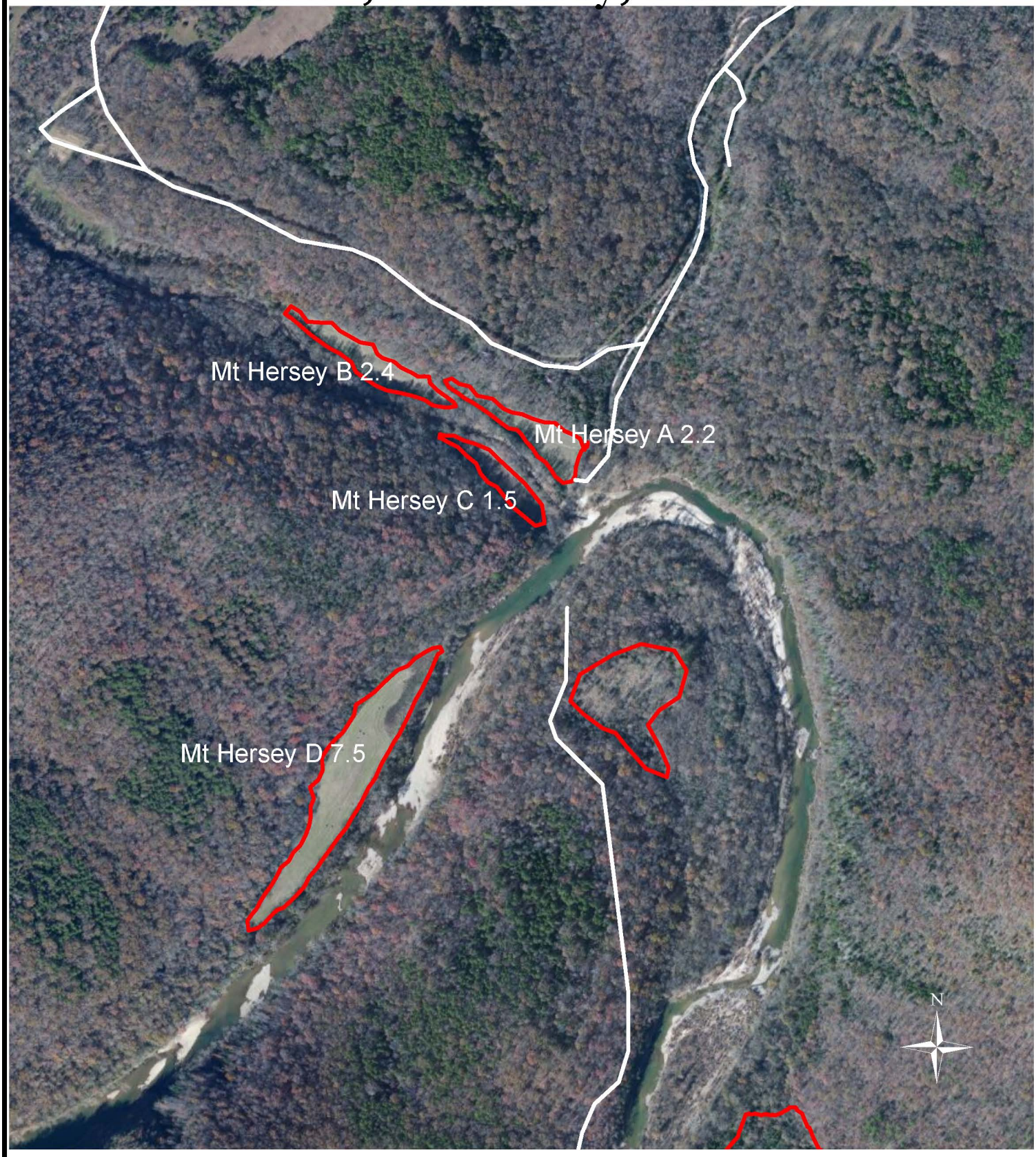
Attachment #2, Mt Hersey, Parcel # 21



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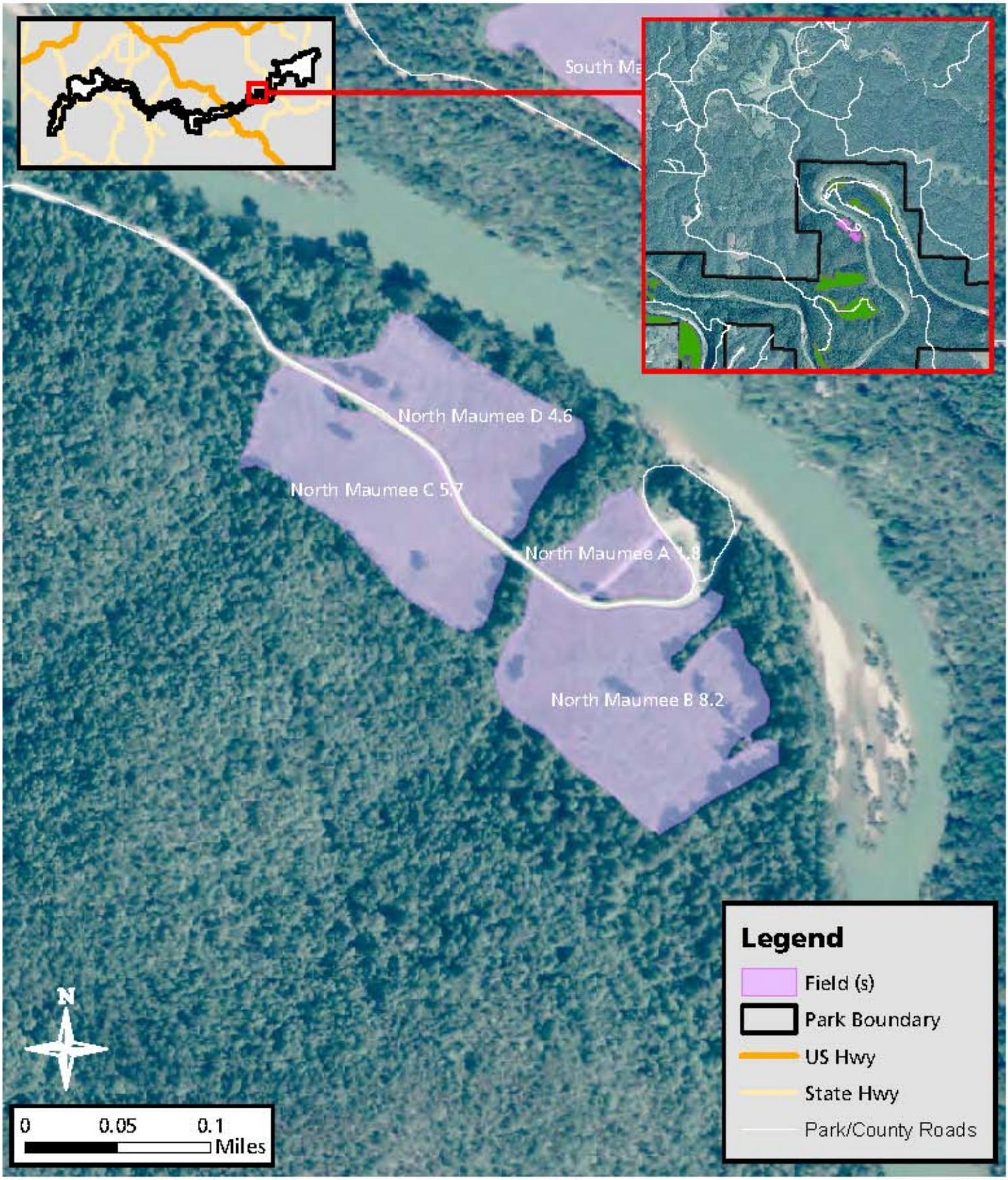
Attachment #2, North Maumee, Parcel #22



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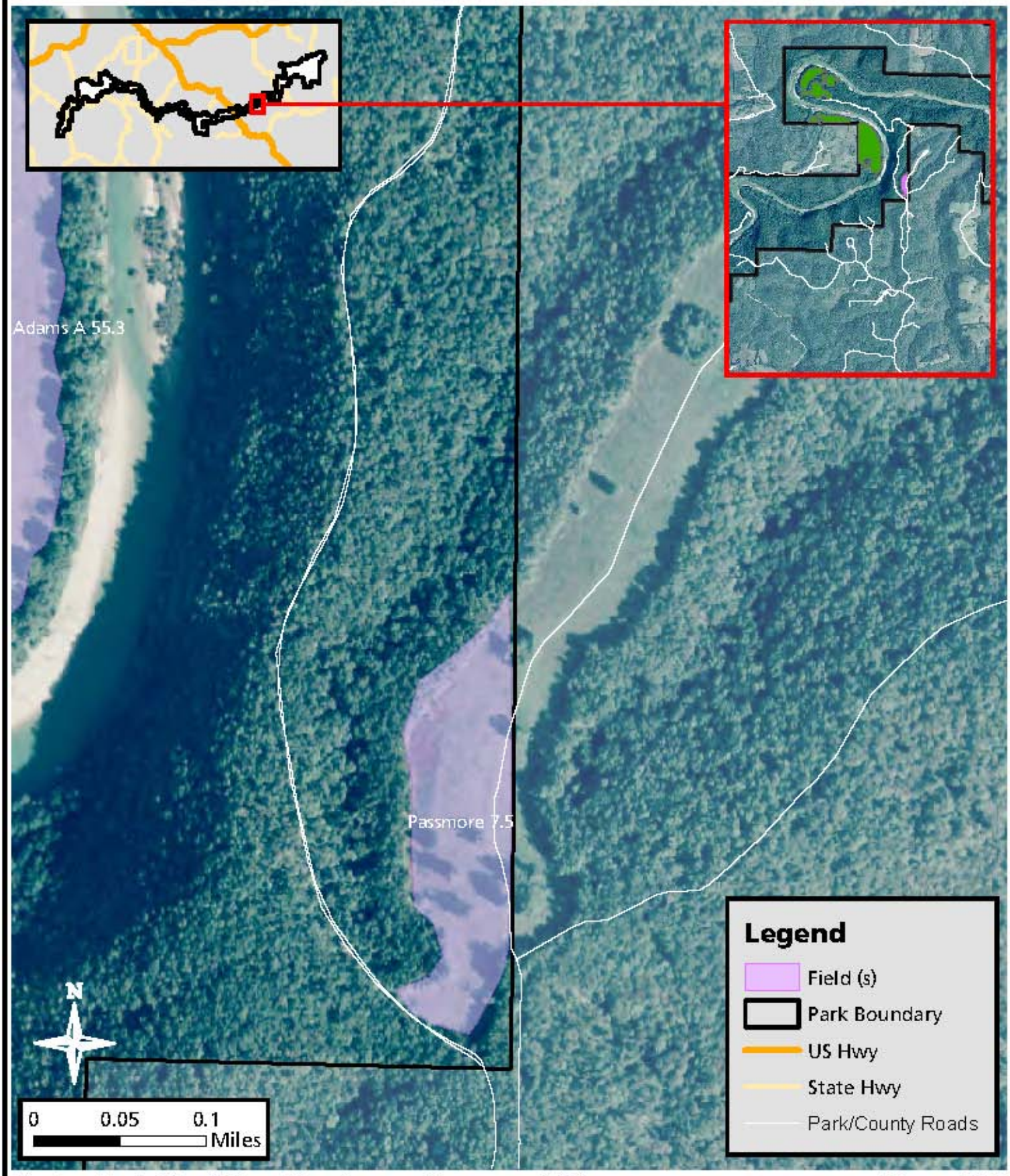
Attachment #2, Passmore, Parcel #23



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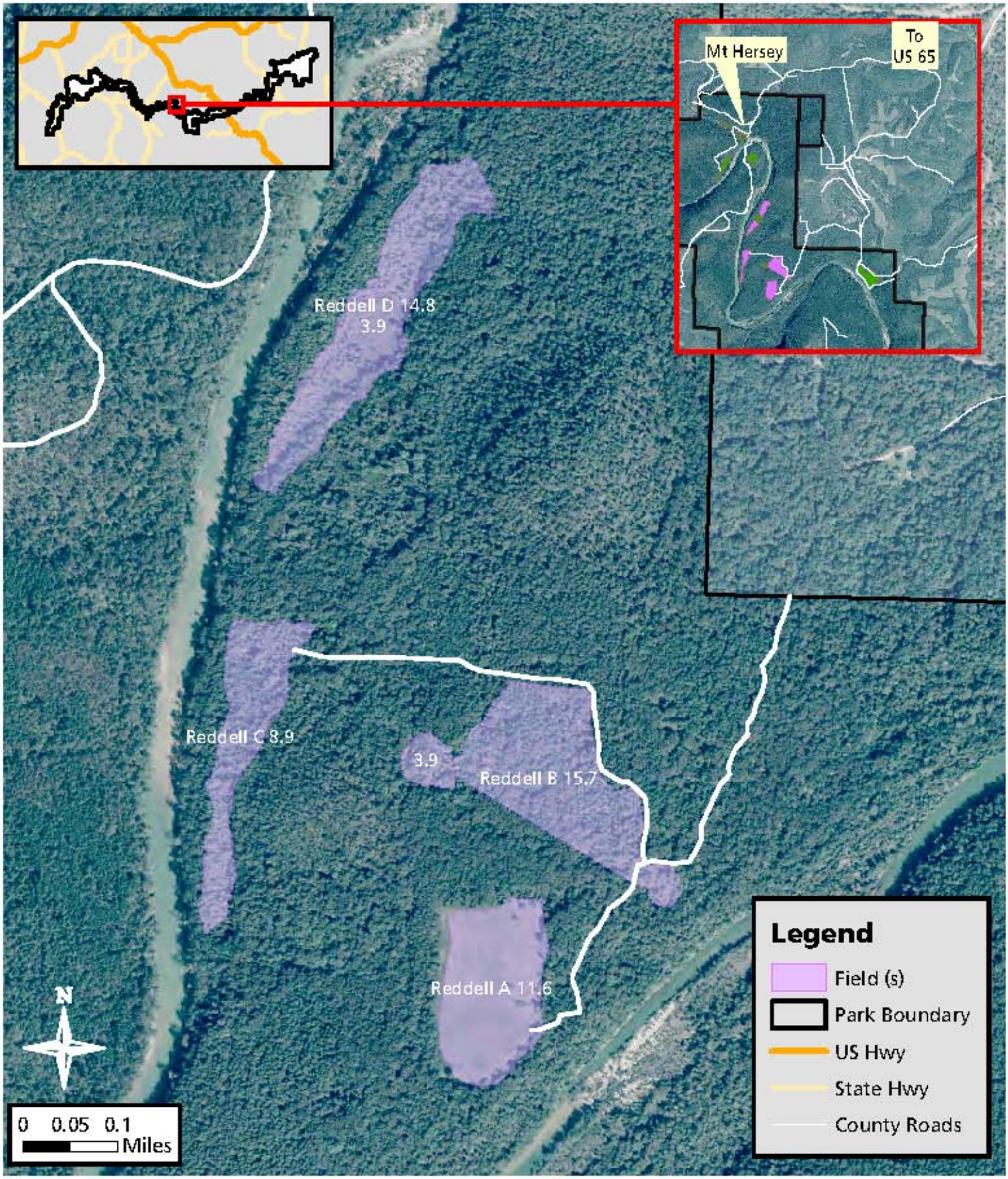
Attachment #2, Reddell, Parcel #24



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February 2011

Attachment #2, Ricketts, Parcel #25

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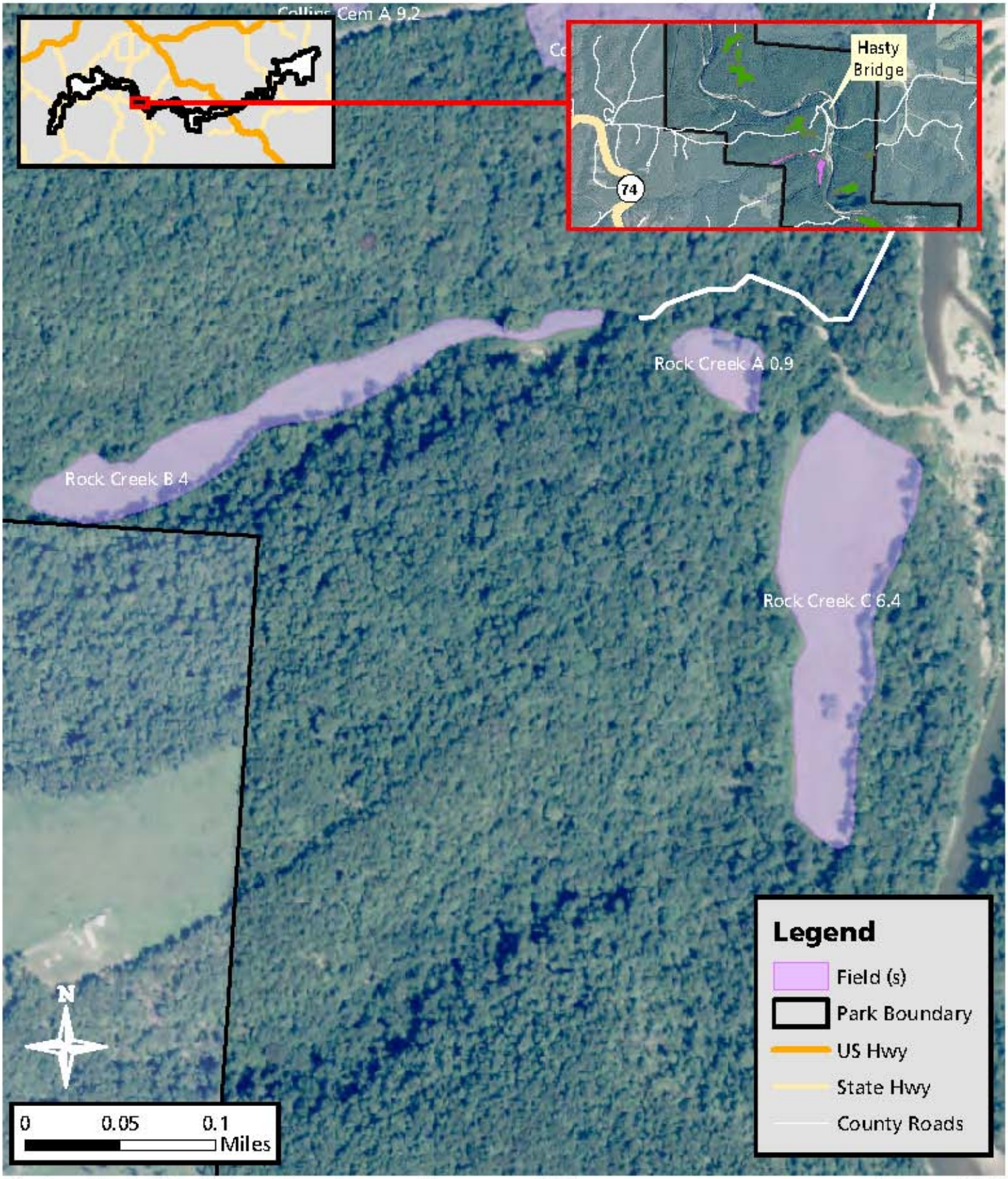
Attachment #2, Rock Creek, Parcel #26



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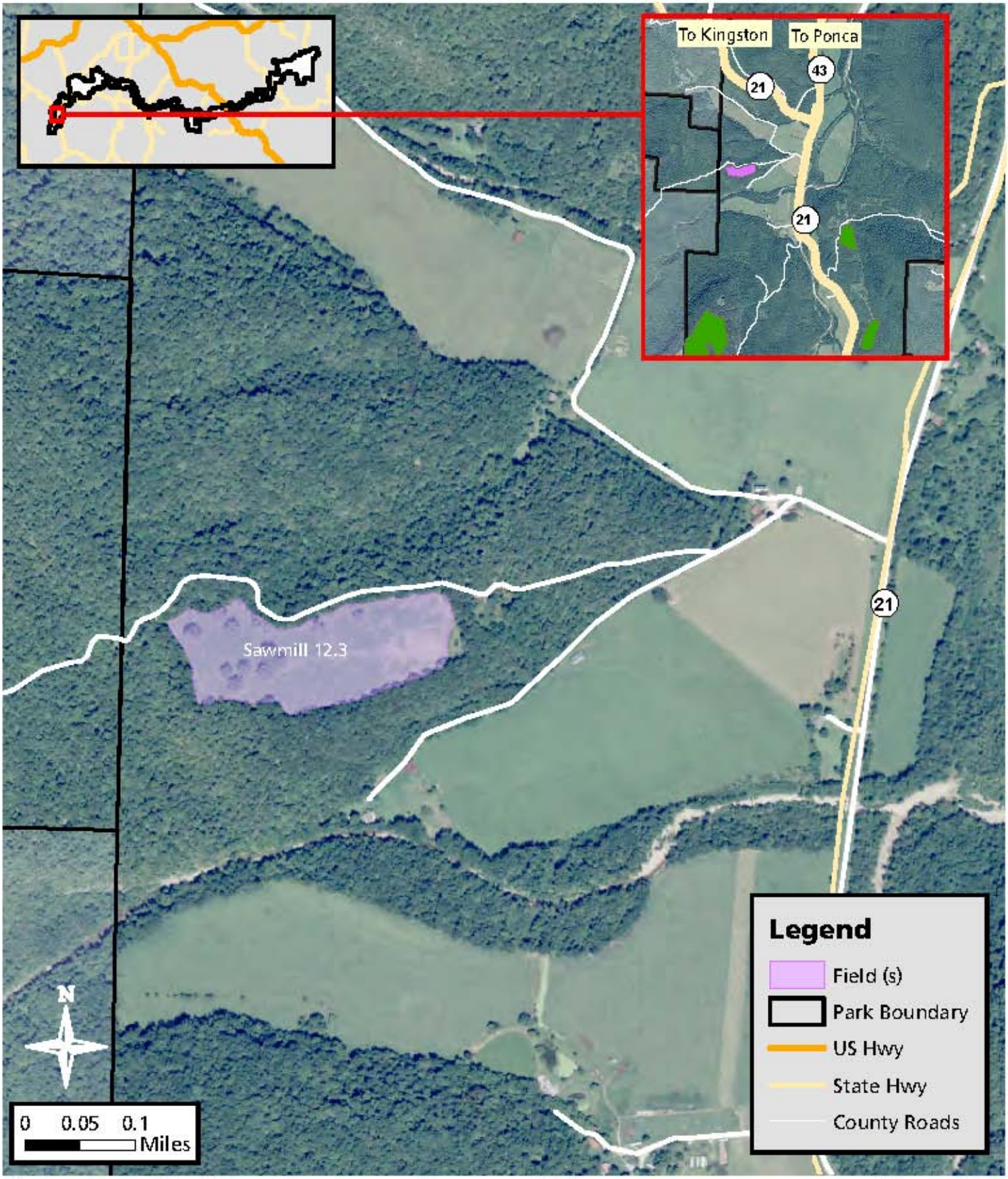
Attachment #2, Sawmill, Parcel #27



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February 2011

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Attachment #2, Shineye, Parcel #31B

Produced by Buffalo National River Resource Management Office

January 2011

*Roads are for general location purposes, their current accuracy/existence is uncorrected.

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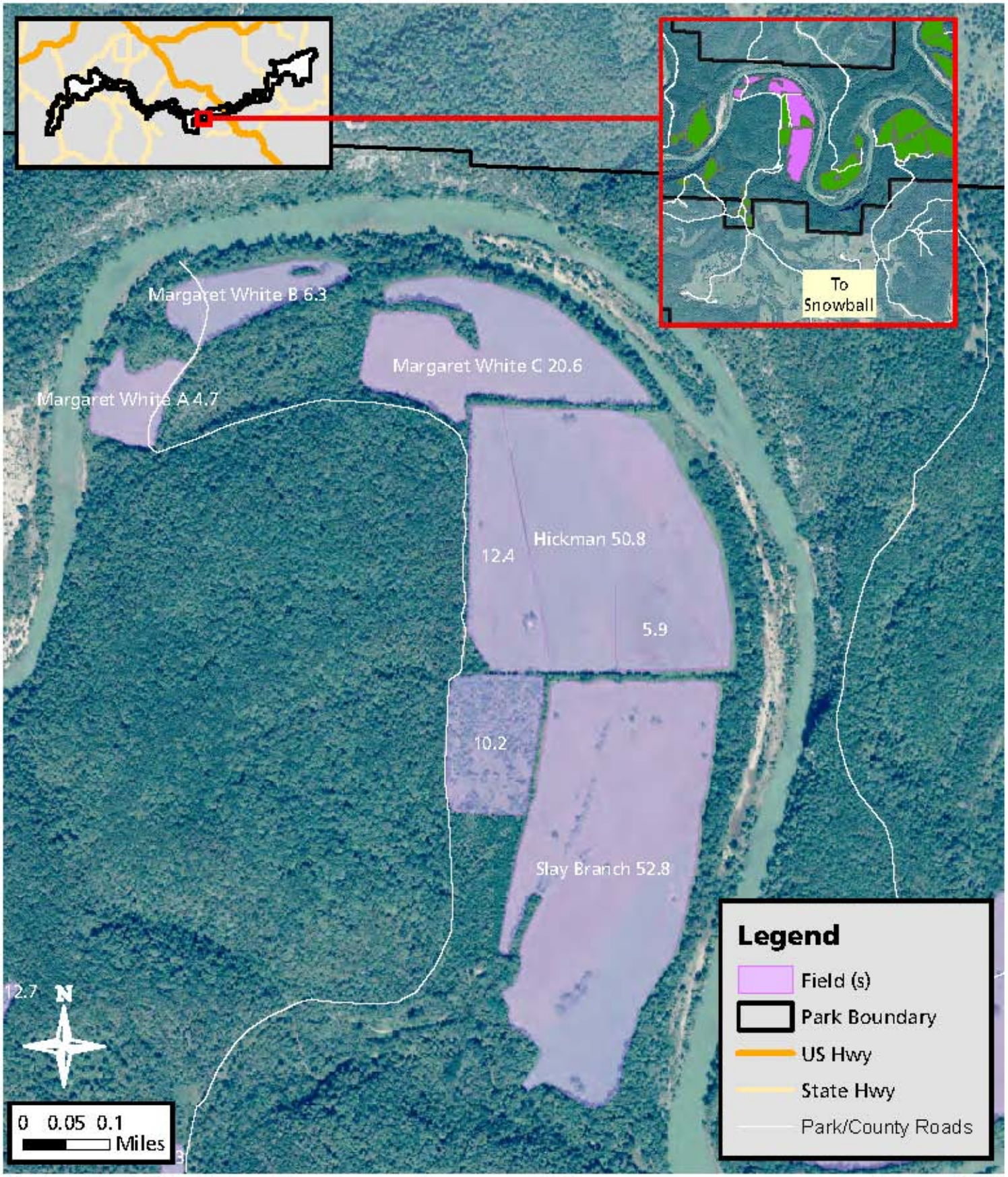
Attachment #2, Slay Branch, Parcel #28



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February 2011

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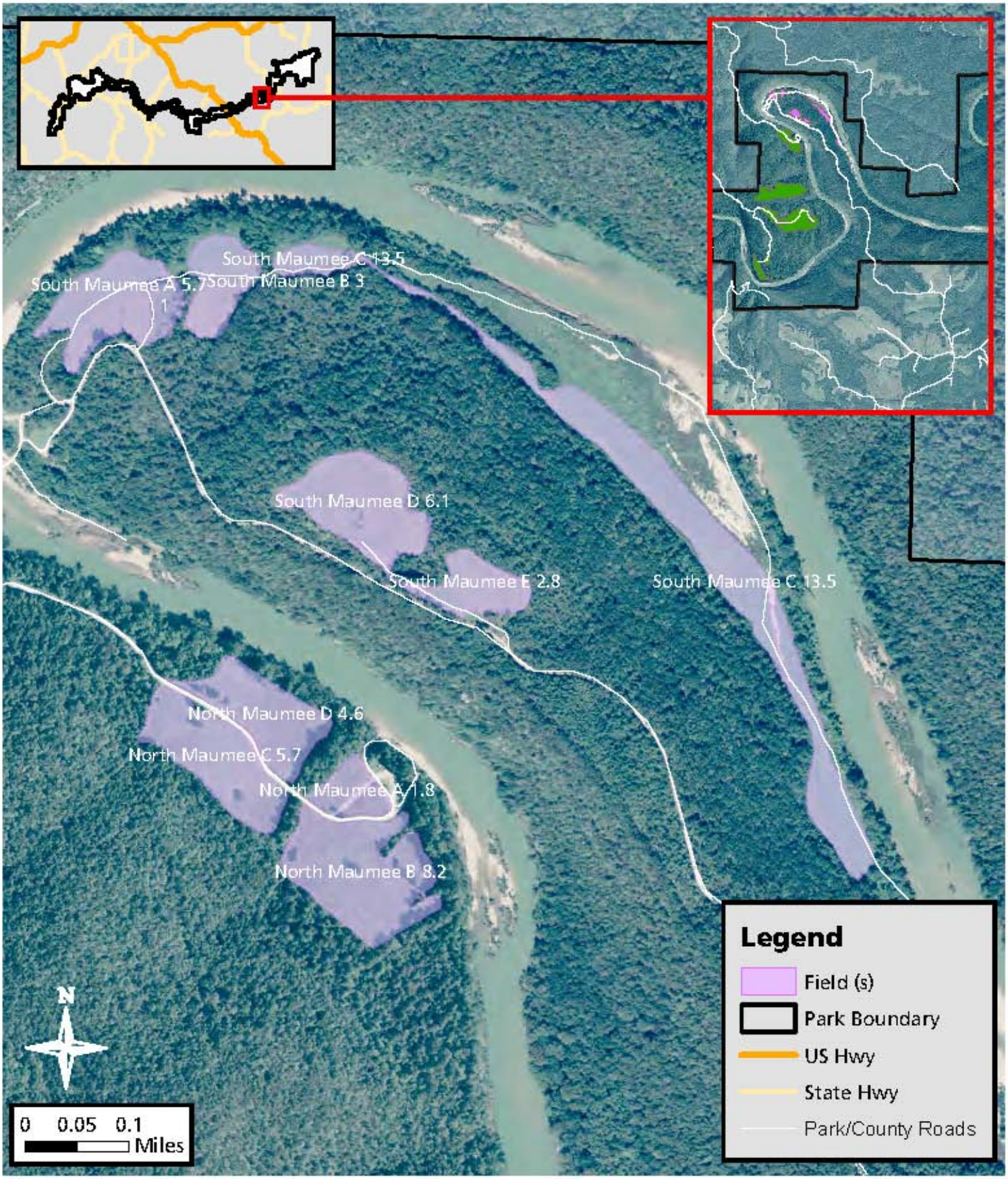
Attachment #2, South Maumee, Parcel #29



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February 2011

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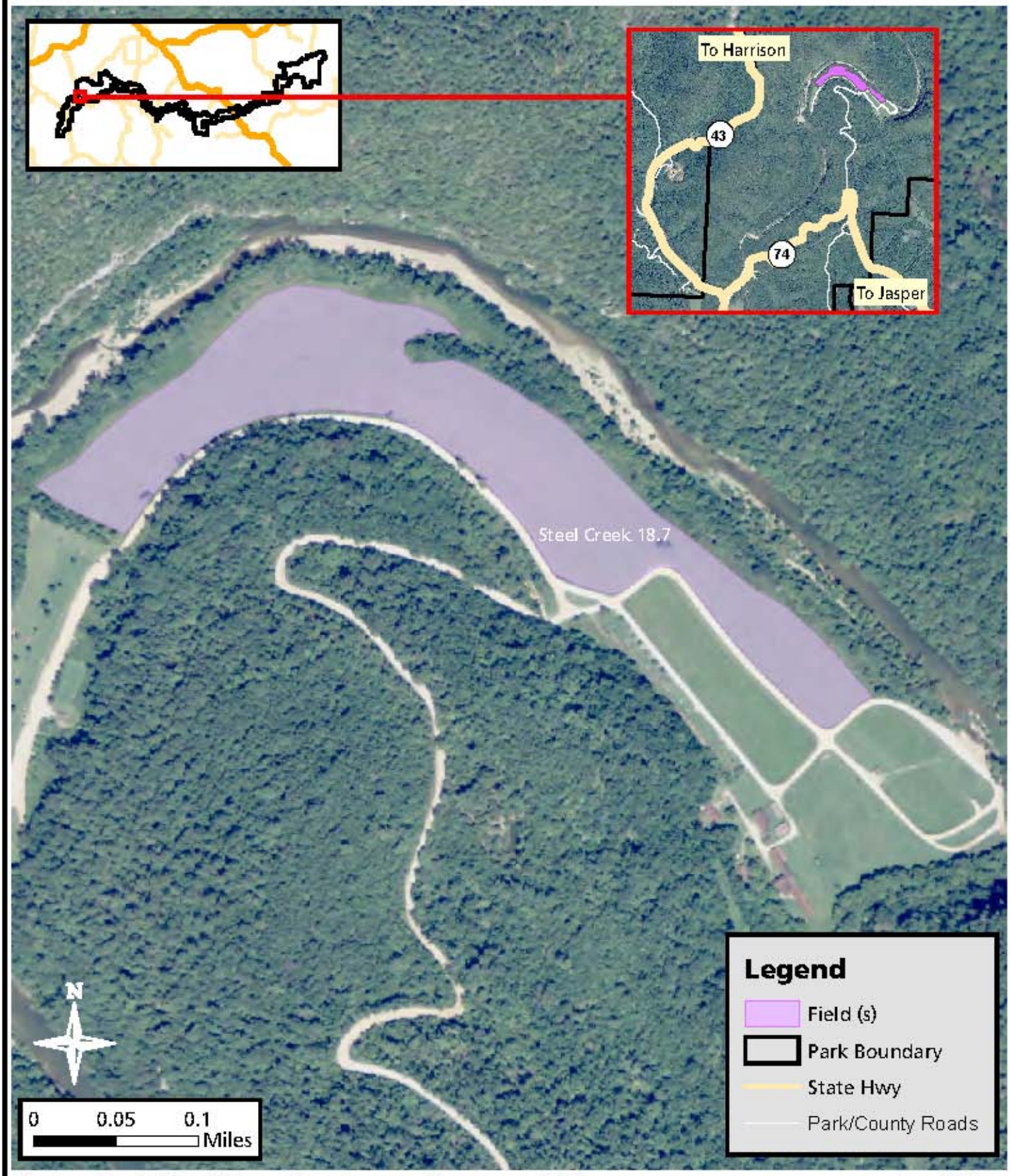
Attachment #2, Steel Creek, Parcel #30



Produced by Buffalo National River Resource Management Office

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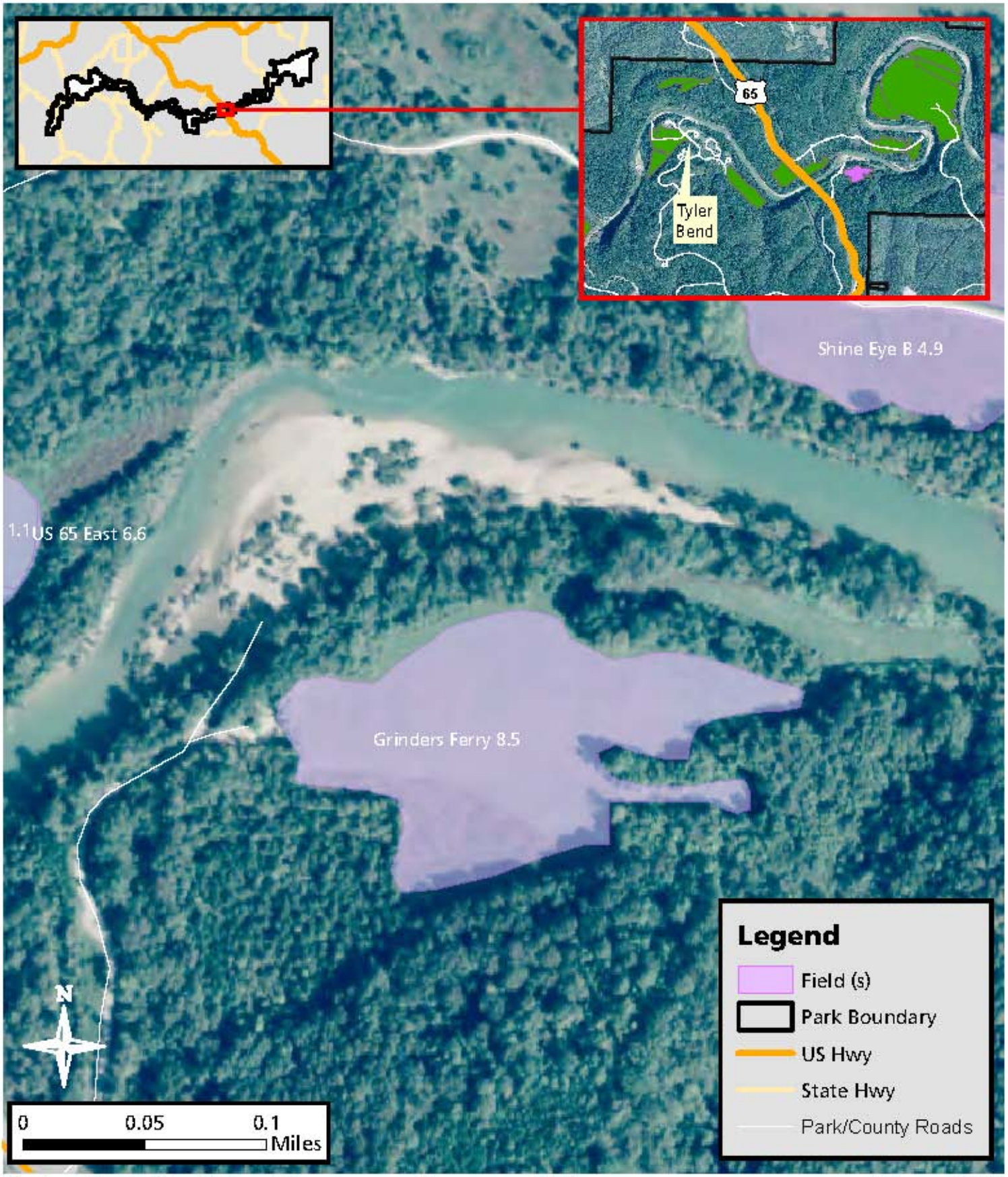
Attachment #2, Grinder's Ferry, Parcel #31A



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February 2011

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Attachment #2, Shineye, Parcel #31B

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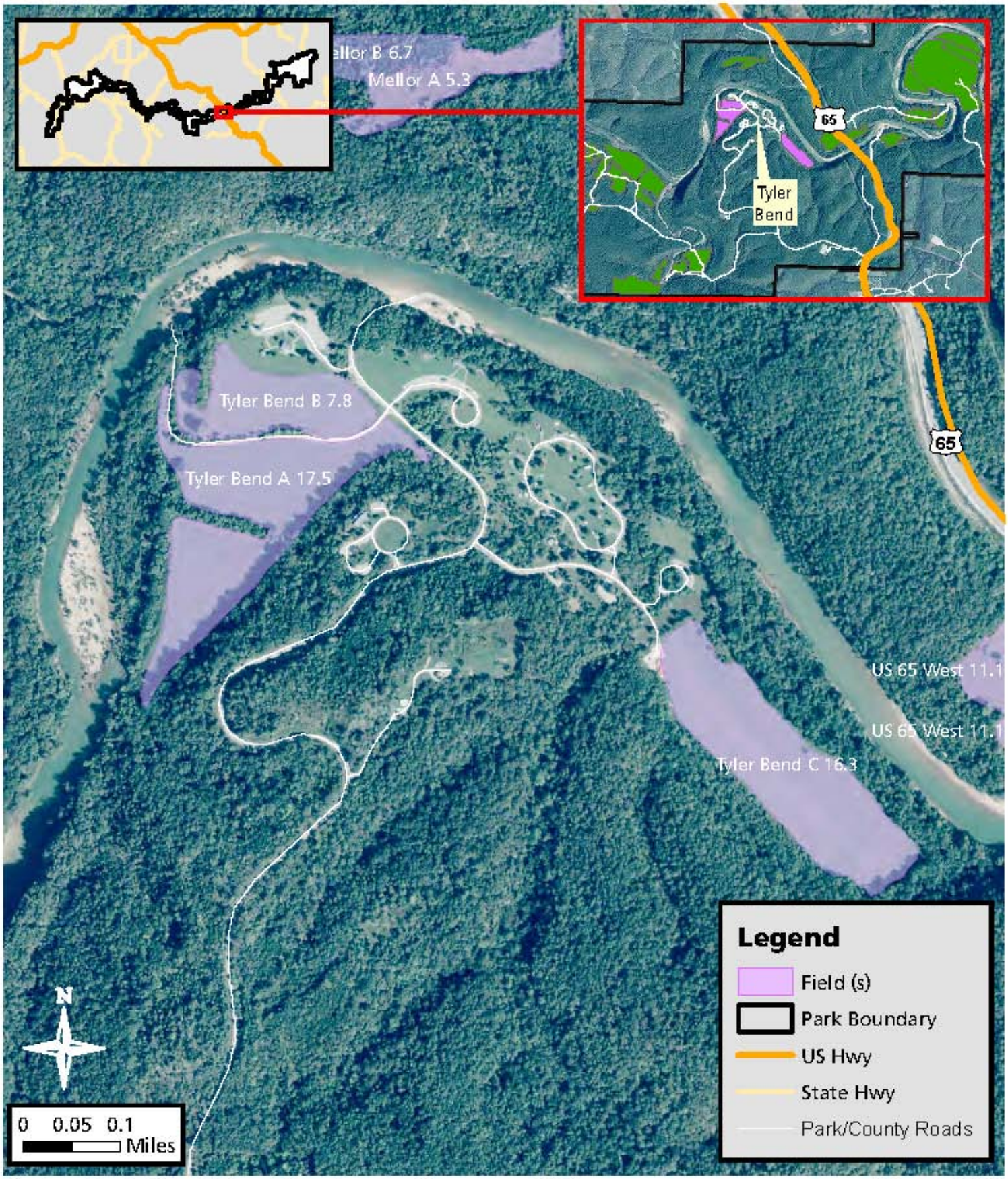
Attachment #2, Tyler Bend, Parcel #31C



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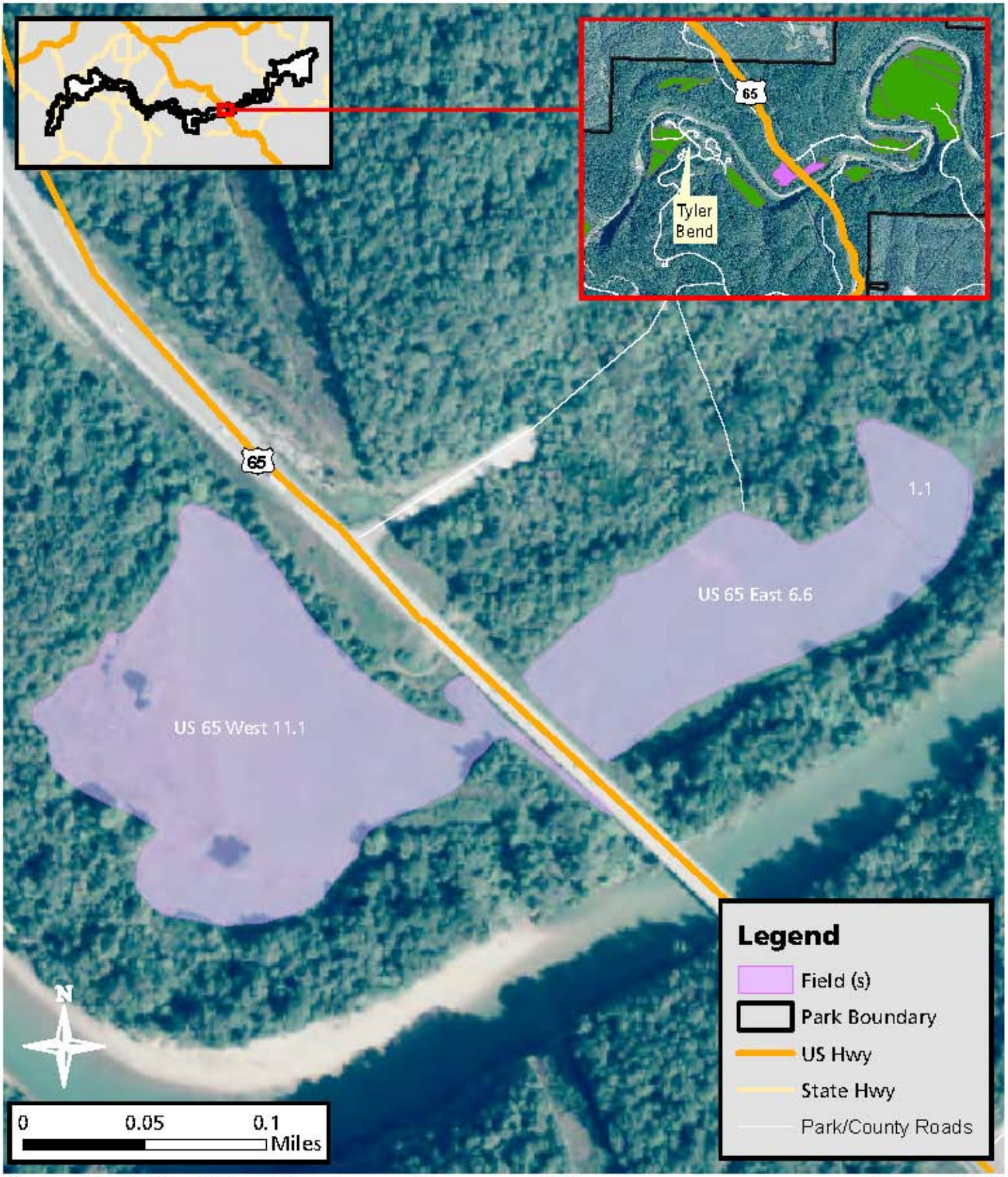
Attachment #2, US 65 Fields, Parcel 31D



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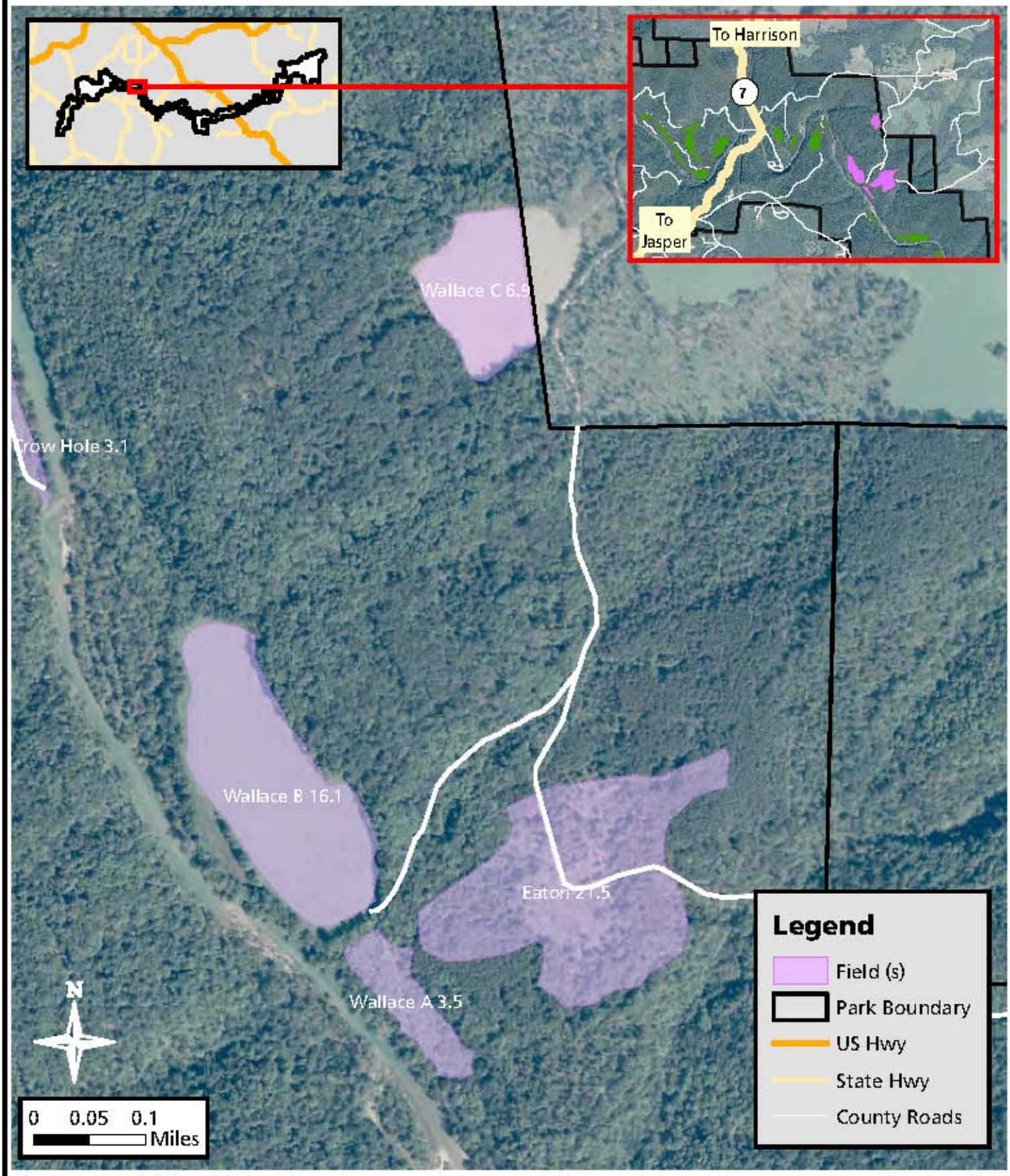
Attachment #2, Wallace, Parcel #32



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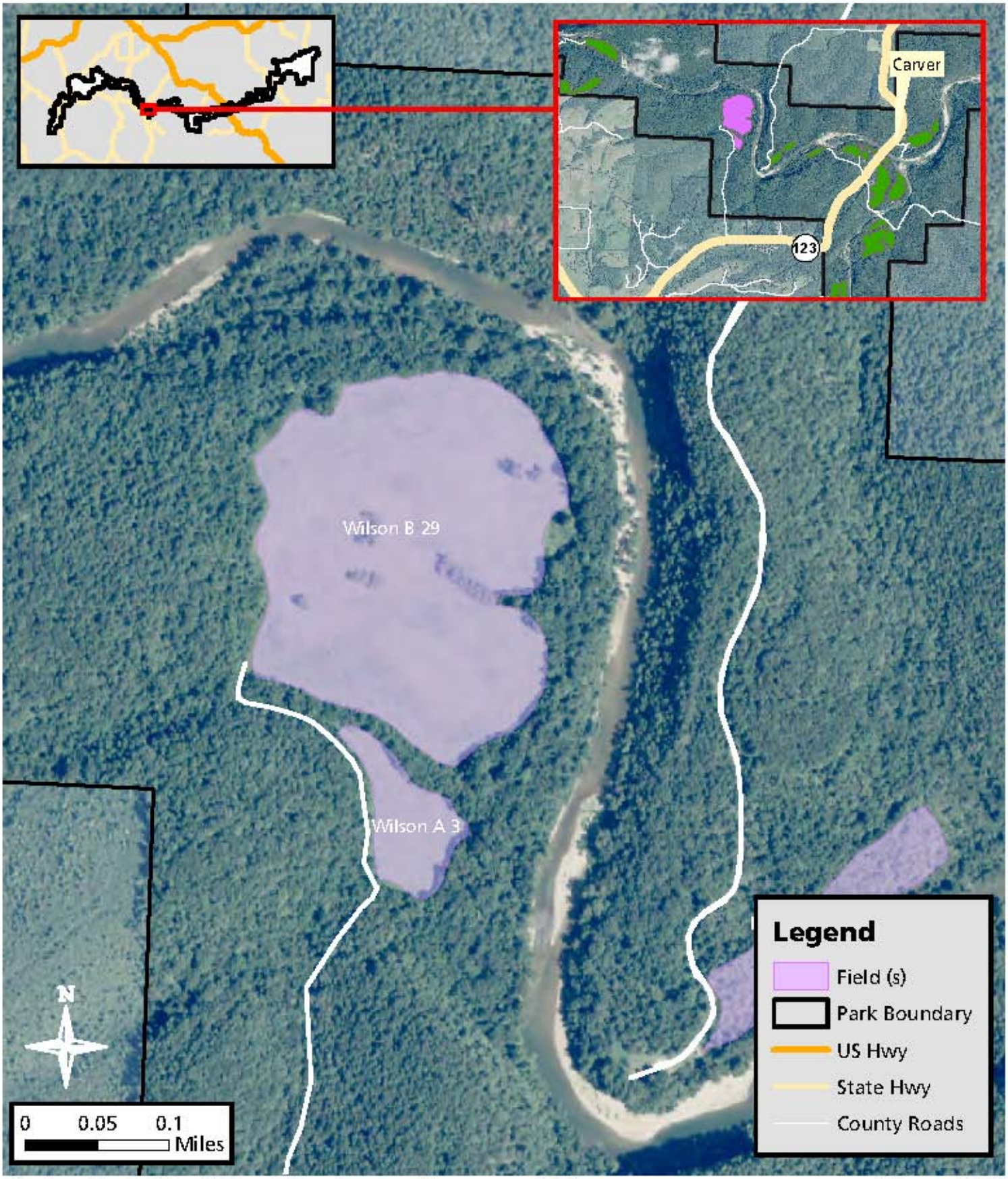
Attachment #2, Wilson, Parcel #33



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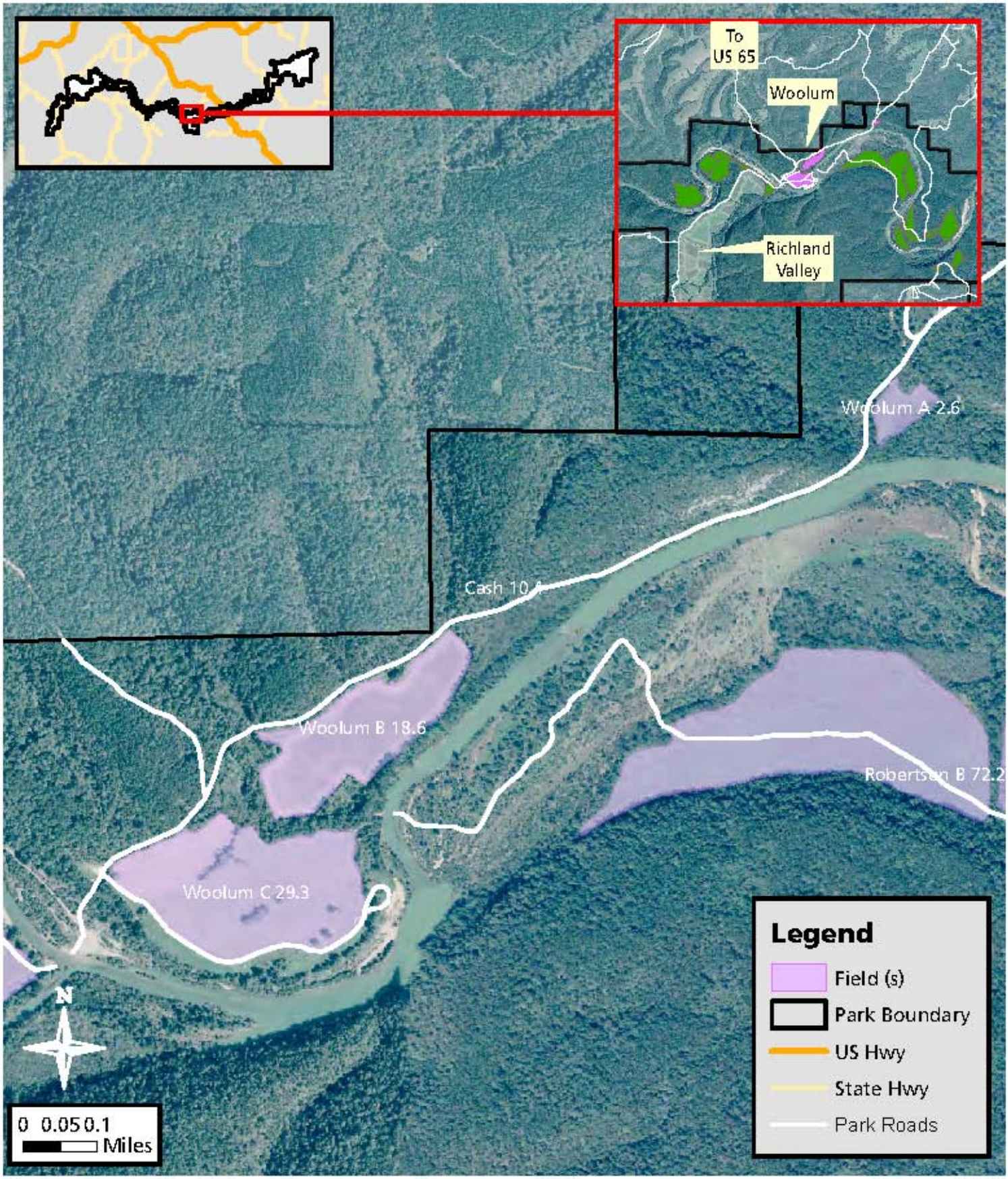
Attachment #2, Woolum, Parcel #34



Produced by Buffalo National River Resource Management Office

February 2011

2014 Buffalo National River Agriculture SUP Solicitation Application

Buffalo National River Hay Fields Special Use Permits

Solicitation # MWR-BUFF-1000-XXX

PLEASE PRINT

Name:_____

Address:_____

_____

Phone Number:_____

Please answer the following questions regarding your experince in farming and your ability to carry out the responsibilites of an Agriculuture Special Use Permit (SUP). You may attach additional pages in your response. Your responses will be ranked with a point value system.

1. Operational Experience (0-5 points)

a) Describe how your agricultural experience will help you effectively carry out the requirements of an Agriculture Special Use Permit. Please include the number of years of experience in hay field operations and where you have worked hay fields.

2. Special Use Permit History (0-5 points)

a) Have you ever held an Agricultural Special Use Permit with the National Park Service? If so, please provide the dates and locations.

b) If you have previously held an Agricultural SUP, was it terminated by the NPS or were you unable to perform the requirements? If so, please describe the circumstances that lead to a termination and/or explain why you were unable to perform the requirements of the permit.

3. Soliciation Application (0-4 points)

a) Please write in your bid ONLY for parcels you wish to bid on. All bids will be considered. This section to be completed on next page.

2014 Buffalo National River Agriculture SUP Solicitation Application

PLEASE SIGN THE LAST PAGE OF THIS APPLICATION TO SUMBIT YOUR BID

Parcel ID	Tract Number	Total Acres M/L	Parcel Name	Wildlife Enhancement Plan Requirements	Minimum Bid	Per Acre Bid Ex. $5.00/Acre	Total Bid Ex. $25.00 Total
1	94-102	70.4	Adams Field	None at this time	$15.30 per acre $1077.12 total		
2	11-100A, B	27.6	Angle Fields	None at this time	$13.95 per acre $385.02 total		
3	03-103	81.9	Arnold Bend	Bush-hog field I, annually, before July 1 to the height of 10 inches. No-till drill Fields E & G annually between Sept 15-Oct 15. Seed will be provided.	$19.20 per acre $1572.48 total		
4	02-100	26.3	Baker Ford	No-till drill field B annually between Sept 15- Oct 15. Seed will be provided.	$16.80 per acre $441.84 total		
5	92-104	17.7	Bear Creek	None at this time	$17.10 per acre $302.67 total		
6	87-114	2.5	Bolin Field	None at this time	$15.30 per acre $38.25 total		
7	01-118	82.1	Brewer Brown	None at this time	$18.00 per acre $1477.80 total		
8	05-101	24	Calf Creek	None at this time	$19.80 per acre $475.20 total		

Parcel Number	Tract Number	Total Acres M/L	Parcel Name	Wildlife Enhancement Plan Requirements	Minimum Bid	Per Acre Bid Ex. $5.00	Total Bid Ex. $5.00
9	86-102	72.4	Carver Complex	None at this time	$19.35 per acre $1400.94 total		
10	01-127	79.3	Cash Bend/ Rye Bottom	None at this time	$15.30 per acre $1213.29 total		
11	92-102	12.9	Crane Bottom	None at this time	$16.20 per acre $208.98 total		
12	10-105	11.2	Dave Manes Bluff	None at this time	$15.30 per acre $171.36 total		
13	34-105	25.3	Dillard's Ferry	None at this time	$17.10 per acre $432.63 total		
14	Erbie Complex				$13.60 per acre $983.28 total		
14A	48-100	9.7	Hutchinson	None at this time			
14B	47-103	17.8	Claggett	No-till drill annually between Sept 15- Oct 15. Seed will be provided.			
14C	50-100	17.2	Tinsley	No-till drill annually between Sept 15- Oct 15. Seed will be provided.			
14D	50-106	12.7	Mueller	No-till drill annually between Sept 15- Oct 15. Seed will be provided.			
14E	50-112	14.9	Parker Hickman	None at this time			

Parcel Number	Tract Number	Total Acres M/L	Parcel Name	Wildlife Enhancement Plan Requirements	Minimum Bid	Per Acre Bid Ex. $5.00	Total Bid Ex. $5.00
14F	50-119	7.6	Lindsey	No-till drill annually between Sept 15- Oct 15. Seed will be provided.	$13.60 per acre		
14G	50-100B	12.1	Fuller	None at this time	$983.28 total		
15	09-107	4	Gilbert	None at this time	$19.80 per acre $79.20 total		
16	01-118C	50.1	Goggins	None at this time	$15.30 per acre $766.53 total		
17	01-117	50.8	Hickman	None at this time	$17.10 per acre $868.68 total		
18			Lane Bend				
18A		16.6	Lane Bend D	None at this time	$16.65 per acre $276.39 total		
18B		13.6	Land Bend B	None at this time	$16.65 per acre $226.44 total		
19	01-124	94.7	Love Hensley	None at this time	$16.20 per acre $1534.14 total		
20	01-115	31.6	Margaret White	None at this time	$16.20 per acre $511.92 total		
21	91-107	13.6	Mt. Hersey	None at this time	$15.30 per acre $208.08 total		
22	97-102	20.3	North Maumee	None at this time	$15.75 per acre $319.79 total		
23	95-104A	7.5	Passmore Place	None at this time	$16.20 per acre $121.50 total		

Parcel Number	Tract Number	Total Acres M/L	Parcel Name	Wildlife Enhancement Plan Requirements	Minimum Bid	Per Acre Bid Ex. $5.00	Total Bid Ex. $5.00
24	60-101	11.6	Reddell	None at this time	$14.40 per acre $167.04 total		
25	85-110C	8	Ricketts	None at this time	$16.20 per acre $129.60 total		
26	85-105	11.3	Rock Creek	None at this time	$17.55 per acre $198.32 total		
27	63-1102	12.3	Sawmill	None at this time	$16.20 per acre $199.26 total		
28	01-127	52.8	Slay Branch	None at this time	$16.20 per acre $855.36 total		
29	97-102A	31.1	South Maumee	None at this time	$18.45 per acre $573.79 total		
30	21-102	18.7	Steel Creek	None at this time	$18.90 per acre $353.43 total		
31	Tyler Bend Complex						
31A	06-103	8.5	Grinders Ferry	None at this time	$20.48 per acre $1753.09 total		
31B	07-104	17.9	Shineye	None at this time			
31C	05-101	41.6	Tyler Bend	None at this time			
31D	08-105	17.6	US 65 Fields	None at this time			

Parcel Number	Tract Number	Total Acres M/L	Parcel Name	Wildlife Enhancement Plan Requirements	Minimum Bid	Per Acre Bid Ex. $5.00	Total Bid Ex. $5.00
32	15-102	23	Wallace	No-till field B annually between Sept 15- Oct 15. Seed will be provided.	$16.00/acre, $368.00 total		
33	86-102	32	Wilson	None at this time	$18.00 per acre $576.00 total		
34	57-104	50.5	Woolum	None at this time	$19.80 per acre $999.90 total		

*Acres m/l - approximate acreage

** Erbie Complex includes 17A-17GG

**Tyler Bend Complex includes 36A-36D

I agree to pay the above bid amount if chosen and abide by all conditions of the Agriculture Special Use Permit.

Signature:_____ Date:_____

Revised 06-10
Form 10-114

UNITED STATES DEPARTMENT OF THE INTERIOR
National Park Service
Buffalo National River
Special Use Permit

NAME Joe Farmer
ORGANIZATION
ADDRESS
TELEPHONE NUMBER FAX NUMBER

Park Alpha Code: BUFF
Type of Use: Agriculture
Permit #: BUFF-MWR-XXX

is hereby authorized to use the following described land or facilities in the below named area:

Tract #

The area must be restored to its original condition at the end of the permit.

The permit begins at _____ (am/pm) on _____ (Month/Day/Year)

The permit expires at _____ (am/pm) on _____ (Month/Day/Year).

SUMMARY OF PERMITTED ACTIVITY: (see attached sheets for additional information and conditions)

Hay Cutting

Person on site responsible for adherence to the terms and conditions of the permit (include contact information): _____

Authorizing legislation or other authority: _____

NEPA Compliance: CATEGORICALLY EXCLUDED ___ EA/FONSI ___ EIS ___ PEPC # _____ **OTHER** _____

APPLICATION FEE Received ___ Not Required ___ Amount $ 50.00

PERFORMANCE BOND: Required ___ Not Required ___ Amount $ _____

LIABILITY INSURANCE: Required ___ Not Required ___ Amount $ _____

COST RECOVERY: Required ___ Not Required ___ Amount $ _____

FACILITY USE FEE: Required ___ Not Required ___ Amount $ _____

LAND USE FEE: Required ___ Not Required ___ Amount $ _____

ISSUANCE of this permit is subject to the attached conditions. The undersigned hereby accepts this permit subject to the terms, covenants, obligations, and reservations, expressed or implied herein.

PERMITTEE _____
Signature Title Date

Authorizing NPS Official _____
Signature Superintendent Date

CONDITIONS OF THIS PERMIT

1. The permittee is prohibited from giving false information; to do so will be considered a breach of conditions and be grounds for revocation: [36 CFR 2.32(a)(3)].

2. The permittee shall exercise this privilege subject to the supervision of the Superintendent or designee, and shall comply with all applicable Federal, State, county and municipal laws, ordinances, regulations, codes, and the terms and conditions of this permit. Failure to do so may result in the immediate suspension of the permitted activity or the termination of the permit.

3. If any provision of this permit shall be found to be invalid or unenforceable, the remainder of this permit shall not be affected and the other provisions of this permit shall be valid and be enforced to the fullest extent permitted by law.

4. The permittee is responsible for making all necessary contacts and arrangements with other Federal, State, and local agencies to secure required inspections, permits, licenses, etc.

5. Failure to comply with any of the terms and conditions of this permit may result in the immediate suspension or revocation of the permit. All costs associated with clean up or damage repairs in conjunction with a terminated permit will be the responsibility of the permittee.

6. This permit may be revoked at the discretion of the Superintendent upon 24 hours notice, or without notice if damage to resources or facilities occurs or is threatened, notwithstanding any other term or condition of the permit to the contrary.

7. This agreement is made upon the express condition that the United States, its agents and employees shall be free from all liabilities and claims for damages and/or suits for or by reason of any injury, injuries, or death to any person or persons or property of any kind whatsoever, whether to the person or property of the (Permittee/Grantee), its agents or employees, or third parties, from any cause or causes whatsoever while in or upon said premises or any part thereof during the term of this agreement or occasioned by any occupancy or use of said premises or any activity carried on by the (Permittee) in connection herewith, and the (Permittee) hereby covenants and agrees to indemnify, defend, save and hold harmless the United States, its agents, and employees from all liabilities, charges, expenses and costs on account of or by reason of any such injuries, deaths, liabilities, claims, suits or losses however occurring or damages growing out of the same.

8. Permittee agrees to carry general liability insurance against claims occasioned by the action or omissions of the permittee, its agents and employees in carrying out the activities and operations authorized by this permit. The policy shall be in the amount of $_____and underwritten by a United States company naming the United States of America as **additionally insured**. The permittee agrees to provide the Superintendent with a Certificate of Insurance with the proper endorsements prior to the effective date of the permit.

9. Permittee agrees to deposit with the park a bond in the amount of $ _____ from an authorized bonding company or in the form of cash or cash equivalent, to guarantee that all financial obligations to the park will be met, including the restoration and rehabilitation of the permitted area.

10. Costs incurred by the park as a result of accepting and processing the application and managing and monitoring the permitted activity will be reimbursed by the permittee. Administrative costs and estimated costs for activities on site must be paid when the permit is approved. If any additional costs are incurred by the park, the permittee will be billed at the conclusion of the permit. Should the estimated costs paid exceed the actual costs incurred; the difference will be returned to the permittee.

11. The person named on the permit as in charge of the permitted activity on-site must have full authority to make any decisions about the activity and must remain on-site at all times. He/she shall be responsible for all individuals, groups, vendors, etc. involved with the permit

12. As a condition of acceptance of this permit by the permittee and pursuant to 41 U.S. C. 22, “No Member of Congress shall be admitted to any share or part of any contract or agreement made, entered into, or accepted by or on behalf of the United States, or to any benefit to arise thereupon.”

13. Nothing herein contained shall be construed as binding the Service to expend in any one fiscal year any sum in excess of appropriations made by Congress or administratively allocated for the purpose of this Agreement for the fiscal year, or to involve the Service in any contract or other obligation for the further expenditure of money in excess of such appropriations or allocations.

14. This permit may not be transferred or assigned without the prior written consent of the Superintendent.

Add additional park specific conditions sequentially.

SPECIAL USE PERMIT CONTINUATION SHEET
PERMIT #BUFF-MWR-XXX

Buffalo National River
Agricultural (Haying) Permit Conditions

1. Permittee is required to mow the entire acreage designated in this permit at least once each year to maintain the open field(s). The Superintendent reserves the right to request the permittee to mow, in addition, an acreage equal to 25% of the permitted acreage for the following park needs, but not limited to, historic structure protection, fire protection and visitor use. **No mowing will be permitted within 100 feet of river or creek banks**.

2. No trees or shrubs shall be cut without prior approval of the Superintendent or his representative, except for those which have fallen into the field or road access as a result of natural events such as flooding, ice storms, windstorms, etc.

3. Permittee will annually fertilize and/or lime to meet the minimum recommendations of the Cooperative Extension Service obtained from soil samples collected by National Park Service personnel.

4. Permittee is required to supply the National Park Service with copies of the TARE ticket(s) or receipt(s) from the supplier of fertilizer and/or lime applications by October 15 of each year. Receipts may be turned in immediately following application.

5. Permittee is required to complete all work on fields with Wildlife Habitat Enhancement Plans. Required work will be described in the final Special Use Permit. Not all fields will have Wildlife Habitat Enhancement Plans.

6. Plowing, disking, or disturbing the soil or surrounding vegetation, burning, or use of pesticides or agri-chemicals is prohibited without written approval from the Superintendent.

7. Once baled, hay will be removed from Buffalo National River lands within 30 days unless otherwise permitted by the Superintendent.

8. Permittee is to mow only the acreage designated by permit leaving all other areas unmowed.

9. Any archeological or historical artifacts found on park lands will be turned over to the Archeologist.

10. No grazing or pasturing of livestock is authorized on any areas pertaining to this permit.

11. The named permittee is held solely responsible for assuring that all conditions of this permit are met. No subleasing is permitted.

12. Permittee is required to maintain a lock on one side of the cable gate leading to the field. Not all fields have cable gates and require a gate.

13. The permittee understands that the National Park Service cannot guarantee that trespass grazing and feral hog trespass from neighboring lands will not occur and the National Park Service is not responsible for damages resulting from such trespass.

14. The permittee agrees to hold the United States free and harmless from any and all claims for injuries to persons or damage to property resulting from the exercise of privileges granted by this permit.

15. All lands under this permit shall be accessible to the general public for the purposes of hunting, fishing or other recreational purposes (excluding camping) providing that no property damage is caused, and shall not be posted otherwise.

16. Either party, Government or permittee, may cancel this permit upon 30 days written notice to the other party. No refund of fee or expenses is due to the permittee by reason of cancellation or revocation of this permit.

17. The National Park Service will give the permittee as much advance notice as possible, but reserves the right to enter upon and use the land or withdraw portions of the land from the permit for any purpose relevant to the development and/or maintenance of the park, including but not limited to construction of trails, and shall not be held responsible for any damages suffered by the permittee from such action.

18. An interest charge will be assessed on overdue amounts for each thirty (30 day period, or portion thereof), that payment is delayed. The percent of interest charged will be based on the current values of funds to the United State Treasury as published quarterly in the Treasury Fiscal Requirements Manual. The Director may also impose penalties for late payment to the extent authorized by Applicable Law.

19. Failure to comply with any of the above conditions will result in cancellation of this permit.

National Park Service
Buffalo National River
402 N. Walnut, Ste. 136, Harrison, AR 72601
870-365-2700

Application for Special Use Permit

Please supply the information requested below. **Attach additional sheets, if necessary, to provide required information**. A nonrefundable processing fee of $50.00 must accompany this application unless the requested use is an exercise of a First Amendment right. You must allow sufficient time for the park to process your request; check with the park for guidelines. You will be notified of the status of the application and the necessary steps to secure your final permit. Your permit may require the payment of cost recovery charges and proof of liability insurance naming the United States of America as also insured.

Applicant Name:	Telephone #:
Organization Name:	Cell phone #:
Social Security or Tax ID #:	Fax#:
Street/Address:	Email:
City/State/Zip Code:	

Proposed activity: Hay Cutting

Preferred Date	Preferred Location	Preferred Time
Alternate Date(s)	Alternate Location(s)	Alternate Time(s)

Alternatives will be considered if first choice is not available.

Maximum Number of Participants _____ Maximum Number of Vehicles _____

List of equipment (i.e. tables, chairs, grills, sound system, etc.)

Individual in charge of activity onsite (include cell phone number) and authorized to make decisions related to the permitted activity:

Have you visited the requested area? ☐Y ☐N
Is this an exercise of a First Amendment rights? ☐Y ☐N

The applicant by his or her signature certifies that all the information given is complete and correct, and that no false or misleading information or false statements have been given.

Signature: _____ Date: _____

Note: This is an application only, and does not serve as permission to conduct any special activity in the park. The information provided will be used to determine whether a permit will be issued. Send the completed application along with the application fee in the form of a cashier's check or money order made payable to **National Park Service** to *Commercial Services Office* at the Park address found on the first page of this application.

If your request is approved, a permit containing applicable terms and conditions will be sent to you. The permit must be signed by the responsible person and returned to the park for final approval by the Park Superintendent before the permitted activity may begin.

Notice to Customers Making Payment by Personal Check: When you provide a check as payment, you authorize us either to use information from your check to make a one-time electronic fund transfer from your account or to process the payment as a check transaction. When we use information from your check to make an electronic fund transfer, funds may be withdrawn from your account as soon as the same day we receive your payment, and you will not receive your check back from your financial institution.

NOTICES

Privacy Act Statement: The Privacy Act of 1974 (5 U.S.C. 552a) provides that you be furnished with the following information in connection with information required by this application. This information is being collected to allow the park manager to make a value judgment on whether or not to allow the requested use. Applicants are required to provide their social security or taxpayer identification number for activities subject to collection of fees and charges by the National Park Service (31 U.S.C. 7701). Information from the application may be transferred to appropriate Federal, State, and local agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

Paperwork Reduction Act Statement: We are collecting this information subject to the Paperwork Reduction Act (44 U.S.C. 3501) to provide the park managers the information needed to decide whether or not to allow the requested use. All applicable parts of the form must be completed in order for your request to be considered. You are not required to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

Estimated Burden Statement: Public reporting burden for this form is estimated to average 15 minutes per response, including the time it takes to read, gather and maintain data, review instructions and complete the form. Direct comments regarding this burden estimate or any aspect of this form to the Information Collection Clearance Officer, National Park Service, 1849 C Street, NW (1237), Washington, D.C. 20240.

Title 18 U.S.C. Section 1001 makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

Appendix D

EPA United States Environmental Protection Agency

Region 6 Compliance Assurance and Enforcement Division

INSPECTION REPORT

Inspection Date(s):	04/15-17/2014		
Media:	Water		
Regulatory Program(s)	NPDES - CAFO		
Company Name:	C & H Hog Farms, Inc.		
Facility Name:	C & H Hog Farm, Inc.		
Facility Physical Location:	HC 72 Box 2		
(city, state, zip code)	Vendor, AR 72683		
Mailing address:	HC 72 Box 2		
(city, state, zip code)	Vendor, AR 72683		
County/Parish:	Newton		
Facility Contact:	Jason Henson	President	
	chhogfarmsinc@yahoo.com		
FRS Number:	N/A		
Identification/Permit Number:	ARG590001		
Media Number:	N/A		
NAICS:	112210		
SIC:	0213		
Facility Representatives:	Jason Henson	President	870 688-1318
EPA Inspectors:	Carl Wills	6EN-WR	214 665-7276
	Chris Lister	6EN-WR	214 665-6672
State Inspector(s):	Jason Bolenbaugh	ADEQ Inspection Branch Manager	501 682-0659
Other Inspector(s):	None		

Metadata		
	Title:	C & H Hog Farms Judea Newton County Arkansas
	Author:	US EPA Region 6 Compliance Assurance and Enforcement Division Dallas TX
	Subject:	CAFO Inspection Report
	Keywords:	CAFO Clean Water Act, Compliance Evaluation

EPA Lead Inspector Signature/Date	Carl Wills	06/12/2014
	{Inspector name}	Date
Supervisor Signature/Date	Willie Lane	6-12-14
	{Supervisor name}	Date

Section I - INTRODUCTION

PURPOSE OF THE INSPECTION

EPA Region 6 Inspectors Carl Wills and Chris Lister arrived at C & H Farms, Inc. on April 15, 2014 at 8:54 a.m. for an unannounced inspection. We met with Mr. Jason Henson, presented credentials and explained that we were there to perform an inspection to determine compliance with the facilities Arkansas Pollution Discharge Elimination System (APDES) permit (ARG590001). The inspection included review of the facility's physical site conditions, applicable records as required by the facility's permit, and soil and water sampling. It was explained that EPA's presence was not prompted by a complaint.

FACILITY DESCRIPTION

C & H Hog Farms is permitted as a sow-farrowing confined animal feeding operation (CAFO) in accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*), and the Clean Water Act (33 U.S.C. § 1251 *et seq.).* The facility is located near the town of Mount Judea, Arkansas in Newton County. The facility is permitted to utilize two houses to confine 2,503 swine over 55 pounds and 4,000 swine under 55 pounds. At the time of the inspection the facility housed 2489 sows, 3 boars, and approximately 3000 nursery pigs (<10 lbs) and 1,000 weaned pigs (10-15 lbs). The weaned pigs are shipped to other facilities on a weekly basis. This facility was populated on April 17, 2013 and currently is a contract grower for Cargill Pork, LLC.

The facility utilizes a water flush system (8 inch pull-plug) to wash waste into the primary and then secondary holding pond. The two holding ponds and the under-barn pits were designed to store a total of 3,495,464 gallons with 2,469,903 gallons up to the 25-year 24-hour storage. The facility estimates that it generates 2,090,081 gallons of waste per year. This containment system has over 270 days of storage. The facility has 74.3 acres available for emergency application. The second holding pond requires a minimum freeboard of 1 foot in order to contain rainfall from a 25 year 24 hour storm event (6.96 inches).

A nutrient management plan (NMP) developed by DeHaan, Grabs & Associates, LLC is available. An amendment to the NMP was submitted by the facility on February 10, 2014, to allow application of waste by vacuum truck to fields 7 – 9. Generally Bermuda and Rye grass grow in the application fields. The NMP indicates the facility utilizes 630.7 acres for land application of wastes, but this may change slightly after the NMP amendment is processed.

The facility uses water from an on-site well (Photo 1, 320 feet total depth, depth to water 280 feet below ground level. A septic system is utilized to handle sanitary waste generated at the site (Photo 2).

Section II - OBSERVATIONS

The physical site inspection showed that the waste holding ponds were in good condition. Turf reinforcement mats were recently installed on the inside of the two waste holding ponds. This has been done to attempt to establish vegetative cover and control any erosion. The holding pond had adequate

freeboard to contain a 25 year 24 hour storm event as indicated by the staff gauge in place (Photos 3 – 6). Mortalities at the facility are disposed of using two diesel fired incinerators which appeared to be in good operating condition, ashes are then buried on site (Photos 7 – 8).

The farm has planted approximately 1,000 loblolly pine trees around the perimeter of the facility. While these trees are currently only 12" – 14" tall they may, in the future, provide a measure of odor control (Photo 34).

Water samples (Photos 9 – 33) were collected from various streams up-gradient and down-gradient of the facility. Samples were analyzed for E. coli, 5-day BOD (Environmental Services Company, Inc., Springdale, AR), cations, anions, EC, NH_4-N, ICAP-P and other analytes (Oklahoma State University Soil, Water & Forage Analytical Laboratory). The facility had 1.1 inches of rain on April 13 and as a result most of the small streams did have flowing water at the time of the inspection. Results and a map of the sample locations can be found in Appendix 2.

Soil samples were taken from all of the currently approved land application sites except Field 5 (this field had been located incorrectly in the NMP maps and was not approved for application by ADEQ at the time of the inspection). Twenty-two to thirty-eight grab samples (depending on field size) were composited to provide a sample for each field. Sample analyses were done by the University of Arkansas Agriculture Services Laboratory. Results and a map of the sample locations can be found in Appendix 2.

Section III – AREAS OF CONCERN

No areas of concern were noted at this facility. Record keeping was well managed and available on-site.

Section IV – FOLLOW UP

No follow-up with this facility is anticipated. However, we would recommend that the splash plate on back of the vacuum truck applicator be changed to a spray bar with multiple nozzles in order to provide more even application of effluent. Also the turf reinforcement mats need to be reseated in spots in the primary waste holding pond. The staff gauge in the secondary waste holding pond should to be lengthened in order to define the level at which the contents would actually over top the structure.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log
Appendix 2 – Water Sample Data
Appendix 3 – Soil Sample Data

Appendix 1

Photograph Log

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1336.JPG
Date of Photo: 04/15/2014
Time of Photo: 09:56:17
Latitude: N 35°55.440' (35°55'26.4")
Longitude: W 93°4.383' (93°4'23.0")
Heading: 359.51 (T)
UTC: 04/15/2014 14:55:0.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north of the water supply well. The well has a total depth of 320 feet with the depth of water being at approximately 280 feet.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1337.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:02:26
Latitude: N 35°55.426' (35°55'25.6")
Longitude: W 93°4.383' (93°4'23.0")
Heading: 47.45 (T)
UTC: 04/15/2014 15:01:8.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northeast of the cleanout (white riser in the center of the photograph) for human septage with the leachfield north of the cleanout.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 3

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1340.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:08:07
Latitude: N 35°55.389' (35°55'23.3")
Longitude: W 93°4.389' (93°4'23.3")
Heading: 91.14 (T)
UTC: 04/15/2014 15:06:48.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Descripption: View to the east of the secondary lagoon with geotextile fabric in place, to aid in soil stabilization.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 4

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1341.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:11:40
Latitude: N 35°55.359' (35°55'21.5")
Longitude: W 93°4.381' (93°4'22.8")
Heading: 24.31 (T)
UTC: 04/15/2014 15:10:23.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north-northeast of the staff gauge in the secondary lagoon – operator needs to extend the top of the gauge to show the lowest point of the lagoon berm, so that they will know when the effluent will overtop the berm.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 5

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1342.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:12:16
Latitude: N 35°55.356' (35°55'21.4")
Longitude: W 93°4.383' (93°4'23.0")
Heading: 58.28 (T)
UTC: 04/15/2014 15:10:58.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northeast of the concrete spillway entering the secondary lagoon and that the barns' flushwater is pumped from the area below the floating blue/green drum.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 6

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1343.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:12:35
Latitude: N 35°55.357' (35°55'21.4")
Longitude: W 93°4.381' (93°4'22.8")
Heading: 187.73 (T)
UTC: 04/15/2014 15:11:18.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south of the primary lagoon and concrete spillway (flow is toward the photographer). The geotextile fabric placed on the primary lagoon's interior berm slopes, for soil stabilization, needs re-anchoring around the perimeter.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 7

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1346.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:18:34
Latitude: N 35°55.362' (35°55'21.7")
Longitude: W 93°4.423' (93°4'25.4")
Heading: 2.86 (T)
UTC: 04/15/2014 15:17:16.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north of the two diesel fired incinerators between the south ends of the two barns. There is no evidence that either of the units has had any problems with improperly incinerated mortalities.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 8

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1347.JPG
Date of Photo: 04/15/2014
Time of Photo: 10:20:14
Latitude: N 35°55.345' (35°55'20.7")
Longitude: W 93°4.436' (93°4'26.2")
Heading: 140.96 (T)
UTC: 04/15/2014 15:18:56.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the southeast of the area where the ashes of incinerated mortalities are buried.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 9

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1373.JPG
Date of Photo: 04/16/2014
Time of Photo: 18:33:24
Latitude: N 35°56.346' (35°56'20.7")
Longitude: W 93°4.358' (93°4'21.5")
Heading: 188.62 (T)
UTC: 04/16/2014 23:32:4.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south of Big Creek (upstream), where WS-1 was collected (@ 09:15 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 10

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1374.JPG
Date of Photo: 04/16/2014
Time of Photo: 18:33:42
Latitude: N 35°56.346' (35°56'20.8")
Longitude: W 93°4.358' (93°4'21.5")
Heading: 7.80 (T)
UTC: 04/16/2014 23:32:22.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north of Big Creek (downstream), where WS-1 was collected (@ 09:15 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 11

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1385.JPG
Date of Photo: 04/17/2014
Time of Photo: 09:32:23
Latitude: N 35°55.418' (35°55'25.1")
Longitude: W 93°4.238' (93°4'14.3")
Heading: 232.32 (T)
UTC: 04/17/2014 14:31:3.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the southwest (upstream), where WS-2 was collected (@ 09:47 on 05/16/2014). This location is immediately downstream of the facility.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 12

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1386.JPG
Date of Photo: 04/17/2014
Time of Photo: 09:32:52
Latitude: N 35°55.424' (35°55'25.4")
Longitude: W 93°4.236' (93°4'14.1")
Heading: 15.30 (T)
UTC: 04/17/2014 14:31:32.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northeast (downstream), where WS-2 was collected (@ 09:47 on 05/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 13

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1383.JPG
Date of Photo: 04/17/2014
Time of Photo: 09:26:47
Latitude: N 35°55.001' (35°55'0.1")
Longitude: W 93°4.251' (93°4'15.1")
Heading: 272.64 (T)
UTC: 04/17/2014 14:25:26.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west (upstream), where WS-3 was collected (@ 10:03 on 04/16/2014 at which time, water was flowing over the concrete at this low water crossing).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 14

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1384.JPG
Date of Photo: 04/17/2014
Time of Photo: 09:26:58
Latitude: N 35°55.003' (35°55'0.2")
Longitude: W 93°4.248' (93°4'14.9")
Heading: 145.23 (T)
UTC: 04/17/2014 14:25:38.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the southeast (downstream), where WS-3 was collected (@ 10:03 on 04/16/2014 at which time, water was flowing over the concrete at this low water crossing).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 15

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1355.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:20:50
Latitude: N 35°54.740' (35°54'44.4")
Longitude: W 93°4.314' (93°4'18.8")
Heading: 269.75 (T)
UTC: 04/16/2014 15:19:31.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west (upstream), where WS-4 was collected (@ 10:15 on 04/16/2014). The water is flowing, it is just difficult to see with all of the rocks in the stream channel.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 16

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1356.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:21:12
Latitude: N 35°54.740' (35°54'44.4")
Longitude: W 93°4.309' (93°4'18.5")
Heading: 89.06 (T)
UTC: 04/16/2014 15:19:53.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the east (downstream), where WS-4 was collected (@ 10:15 on 04/16/2014). The water is flowing, it is just difficult to see with all of the rocks in the stream channel.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 17

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1357.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:35:28
Latitude: N 35°53.498' (35°53'29.9")
Longitude: W 93°5.086' (93°5'5.2")
Heading: 338.55 (T)
UTC: 04/16/2014 15:34:10.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northwest (upstream), where WS-5 was collected (@ 10:34 on 04/16/2014). This is a concrete low water crossing with the photographer standing in the middle of the road.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 18

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1358.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:35:40
Latitude: N 35°53.495' (35°53'29.7")
Longitude: W 93°5.085' (93°5'5.1")
Heading: 123.74 (T)
UTC: 04/16/2014 15:34:21.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the east-southeast (downstream), where WS-5 was collected (@ 10:34 on 04/16/2014). You can see the water flowing across the road surface with algae growing on the eastern slope side of the road.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 19

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1359.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:55:23
Latitude: N 35°53.379' (35°53'22.7")
Longitude: W 93°5.022' (93°5'1.3")
Heading: 242.16 (T)
UTC: 04/16/2014 15:54:4.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west-southwest (upstream), where WS-6 was collected (@ 10:50 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 20

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1360.JPG
Date of Photo: 04/16/2014
Time of Photo: 10:55:40
Latitude: N 35°53.379' (35°53'22.7")
Longitude: W 93°5.020' (93°5'1.2")
Heading: 55.10 (T)
UTC: 04/16/2014 15:54:21.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northeast (downstream), where WS-6 was collected (@ 10:50 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 21

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1361.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:28:50
Latitude: N 35°53.662' (35°53'39.7")
Longitude: W 93°4.226' (93°4'13.5")
Heading: 268.28 (T)
UTC: 04/16/2014 16:27:32.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west (upstream), where WS-7 was collected (@ 11:26 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 22

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1362.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:29:02
Latitude: N 35°53.662' (35°53'39.7")
Longitude: W 93°4.226' (93°4'13.6")
Heading: 88.75 (T)
UTC: 04/16/2014 16:27:43.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the east (downstream), where WS-7 was collected (@ 11:26 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 23

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1363.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:38:22
Latitude: N 35°53.668' (35°53'40.1")
Longitude: W 93°4.056' (93°4'3.4")
Heading: 168.91 (T)
UTC: 04/16/2014 16:37:3.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south (upstream) of Big Creek, where WS-8 was collected (@ 11:37 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 24

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1364.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:38:37
Latitude: N 35°53.669' (35°53'40.2")
Longitude: W 93°4.056' (93°4'3.4")
Heading: 15.58 (T)
UTC: 04/16/2014 16:37:18.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north-northwest (downstream) of Big Creek, where WS-8 was collected (@ 11:37 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 25

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1365.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:58:52
Latitude: N 35°53.922' (35°53'55.3")
Longitude: W 93°4.342' (93°4'20.5")
Heading: 282.68 (T)
UTC: 04/16/2014 16:57:34.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west (upstream), where WS-9 was collected (@ 11:58 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 26

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1366.JPG
Date of Photo: 04/16/2014
Time of Photo: 11:59:05
Latitude: N 35°53.922' (35°53'55.3")
Longitude: W 93°4.339' (93°4'20.3")
Heading: 86.52 (T)
UTC: 04/16/2014 16:57:46.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the east (downstream), where WS-9 was collected (@ 11:58 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 27

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1367.JPG
Date of Photo: 04/16/2014
Time of Photo: 12:20:58
Latitude: N 35°54.349' (35°54'21.0")
Longitude: W 93°4.021' (93°4'1.2")
Heading: 188.27 (T)
UTC: 04/16/2014 17:19:38.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south (upstream) of Big Creek, where WS-10 was collected (@ 12:19 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 28

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1368.JPG
Date of Photo: 04/16/2014
Time of Photo: 12:21:08
Latitude: N 35°54.349' (35°54'21.0")
Longitude: W 93°4.020' (93°4'1.2")
Heading: 28.98 (T)
UTC: 04/16/2014 17:19:48.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north-northeast (downstream) of Big Creek, where WS-10 was collected (@ 12:19 on 04/16/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 29

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1387.JPG
Date of Photo: 04/17/2014
Time of Photo: 10:05:08
Latitude: N 35°55.423' (35°55'25.4")
Longitude: W 93°4.408' (93°4'24.5")
Heading: 49.42 (T)
UTC: 04/17/2014 15:03:48.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northeast of the northwest corner of the farrowing barn, under which a 55,000-gallon concrete tank holds water pumped from the facility's only water supply well onsite. The supply well pumps directly into this holding tank and another pump transfers water to a pressure tank, that then supplies water to the animals and employees. That pressure tank connects to the black hose, just to the left of the cool cell, which was where we collected WS-11 (@ 09:54 on 04/17/2014). The only other way to collect a sample from the well would be to shower in/out and dip the water out of the concrete vault/tank. A valve should be added inline prior to the vault/tank so that a fresh water sample could be collected at

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 30

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

that point. WS-11A (@ 10:14 on 04/17/2014) was collected from a refrigerator in the employee break room. That water (WS-11A) goes through a water softener and filtering system before it is dispensed.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 31

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1388.JPG
Date of Photo: 04/17/2014
Time of Photo: 10:37:42
Latitude: N 35°54.940' (35°54'56.4")
Longitude: W 93°3.957' (93°3'57.4")
Heading: 166.40 (T)
UTC: 04/17/2014 15:36:21.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south-southeast (upstream) of Big Creek from the Newton County 6370 Road bridge, where WS-12 was collected (@ 10:33 on 04/17/2014).

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Photograph Log

Photo No. 32

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1389.JPG
Date of Photo: 04/17/2014
Time of Photo: 10:38:03
Latitude: N 35°54.944' (35°54'56.6")
Longitude: W 93°3.956' (93°3'57.4")
Heading: 347.23 (T)
UTC: 04/17/2014 15:36:43.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the north-northwest (downstream) of Big Creek from the Newton County 6370 Road bridge, where WS-12 was collected (@ 10:33 on 04/17/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 33

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1390.JPG
Date of Photo: 04/17/2014
Time of Photo: 11:33:55
Latitude: N 35°55.800' (35°55'48.0")
Longitude: W 93°4.465' (93°4'27.9")
Heading: 270.62 (T)
UTC: 04/17/2014 16:32:35.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the west (upstream) from the Newton County 6335 Road bridge, where WS-13 was collected (@ 11:31 on 04/17/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 34

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1391.JPG
Date of Photo: 04/17/2014
Time of Photo: 11:34:10
Latitude: N 35°55.800' (35°55'48.0")
Longitude: W 93°4.462' (93°4'27.7")
Heading: 80.90 (T)
UTC: 04/17/2014 16:32:36.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the east-northeast (downstream) from the Newton County 6335 Road bridge, where WS-13 was collected (@ 11:31 on 04/17/2014).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 35

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1392.JPG
Date of Photo: 04/17/2014
Time of Photo: 11:55:20
Latitude: N 35°55.423' (35°55'25.4")
Longitude: W 93°4.453' (93°4'27.2")
Heading: 189.49 (T)
UTC: 04/17/2014 16:54:0.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the south-southwest along the western side of the gestation barn road. There were loblolly pines (approximately 1,000) about 12 to 14-inches tall planted around the perimeter of the pad site to provide soil stabilization and odor control.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

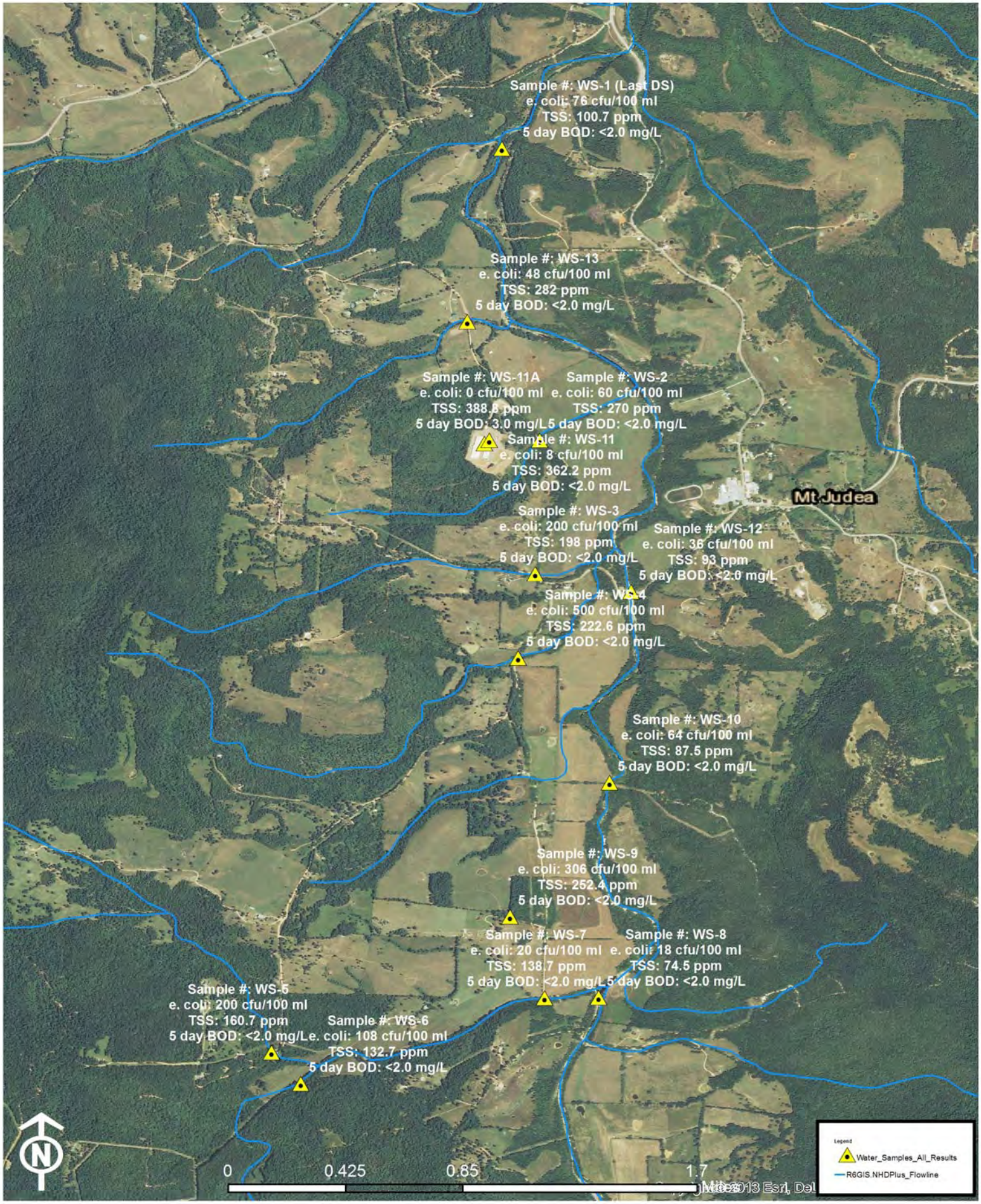
Photograph Log

Photo No. 36

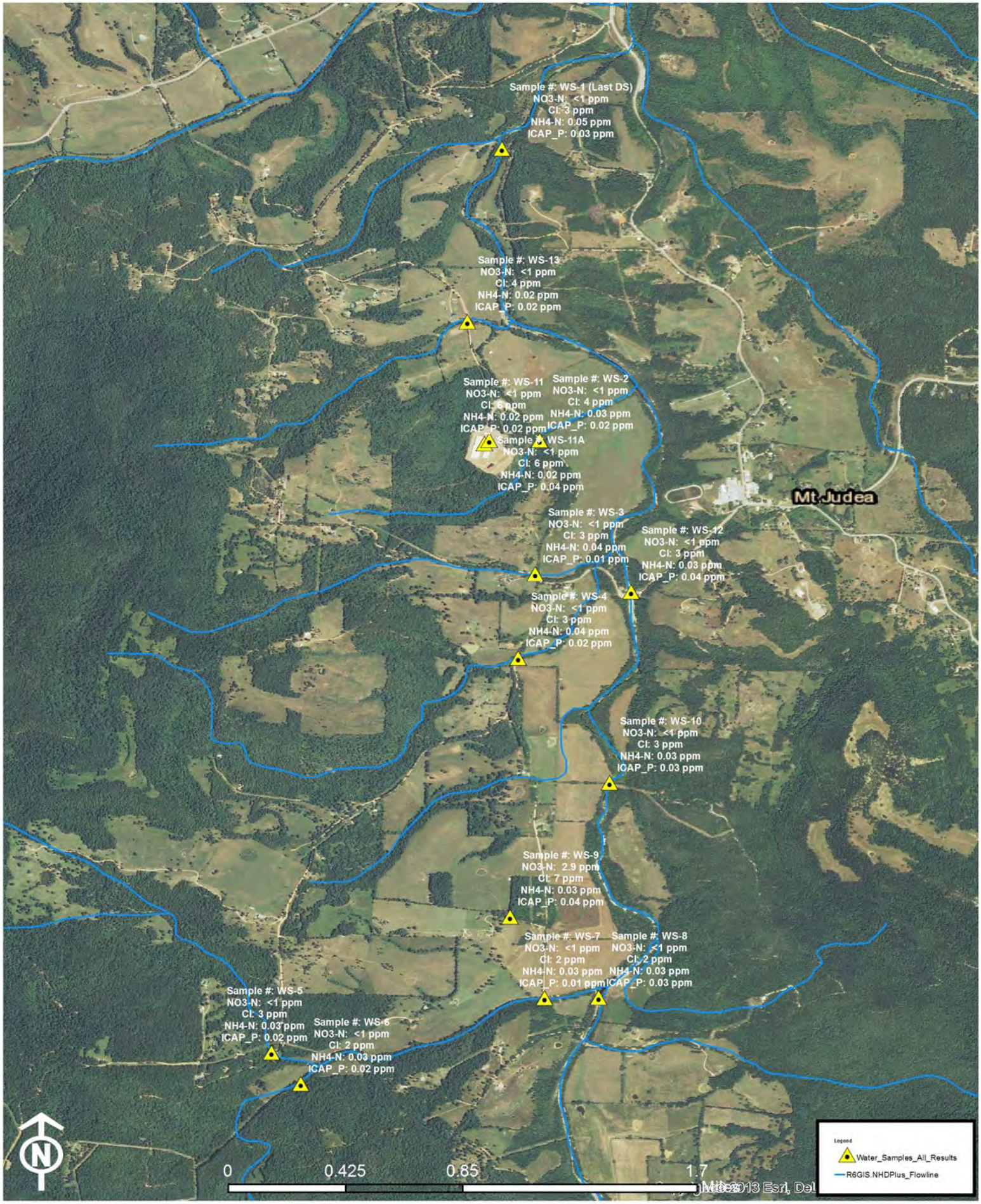
Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

Photo File Name: DSCN1393.JPG
Date of Photo: 04/17/2014
Time of Photo: 12:21:29
Latitude: N 35°55.515' (35°55'30.9")
Longitude: W 93°4.320' (93°4'19.2")
Heading: 301.04 (T)
UTC: 04/17/2014 17:20:9.00
Map Datum: WGS-84
Photographer: Carl E. Wills
Description: View to the northwest of the facility's sign at the entrance off Newton County 6335 Road.

Appendix 2
Water Sample Results



C & H Hog Farm - Mount Judea, AR
E. coli, Total Soluble Salts, 5 day BOD,



C & H Hog Farm - Mount Judea, AR
Nitrate-N, Chloride, Ammonia-N, Phosphorus

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020296
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 0915
Sample Type : GRAB
Sample From : WS-1 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	76 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature Richard Brom
Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020297
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 0947
Sample Type : GRAB
Sample From : WS-2 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	60 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

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Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020298
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1003
Sample Type : GRAB
Sample From : WS-3 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	200 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

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Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020299
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1015
Sample Type : GRAB
Sample From : WS-4 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	500 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature Richard Broom
Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020300
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1034
Sample Type : GRAB
Sample From : WS-5 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	2.46	93.9
04/16	1615	KIK	E. Coli	200 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

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Signature Richard Brown
Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020301
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1050
Sample Type : GRAB
Sample From : WS-6 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	108 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

All equipment used is checked and/or calibrated daily. All NPDES testing is conducted in accordance with 40 CFR Part 136. A minimum of 10% spiked and duplicate samples is run on each parameter where applicable for Quality Assurance purposes. Quality Assurance Plan on file with Arkansas Department of Environmental Quality. Analysis time indicates the time of the start of the analytical batch in which the specific sample was included.

Signature Richard Broom
Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020302
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1126
Sample Type : GRAB
Sample From : WS-7 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	20 /100ml			HACH mColiBlue	1.98	0.0

* QA data shown is from a different sample or standard on the same date.

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Signature Richard Brown
Environmental Services Co., Inc.

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020303
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1137
Sample Type : GRAB
Sample From : WS-8 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	18 /100ml			HACH mColiBlue	1.98	0.0

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1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020304
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1158
Sample Type : GRAB
Sample From : WS-9 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	306 /100ml			HACH mColiBlue	1.98	0.0

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Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020305
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/16/14
Sample Time : 1200
Sample Type : GRAB
Sample From : WS-10 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/16	1615	KIK	E. Coli	64 /100ml			HACH mColiBlue	1.98	0.0

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Signature Richard Broom
Environmental Services Co., Inc.

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	E. Coli	5 Day BOD	REMARKS
	C+H Hog Farm – Mount Judea, AR				

SAMPLERS: (Signature) Carl E. Wills / Chris A. Lister

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION		NO. OF CONTAINERS	E. Coli	5 Day BOD	REMARKS
1	04/16/14	9:15 a.m.		✓	WS-1	1404020296	2	✓	✓	1 Sodium Thiosulfate
2	4/16/14	9:47 a.m.		✓	WS-2	1404020297	2	✓	✓	(Total Enumeration)
3	4/16/14	10:03 a.m.		✓	WS-3	1404020298	2	✓	✓	
4	4/16/14	10:15 a.m.		✓	WS-4	1404020299	2	✓	✓	
5	4/16/14	10:34 a.m.		✓	WS-5	1404020300	2	✓	✓	
6	4/16/14	10:50 a.m.		✓	WS-6	1404020301	2	✓	✓	
7	4/16/14	11:26 a.m.		✓	WS-7	1404020302	2	✓	✓	
8	4/16/14	11:39 a.m.		✓	WS-8	1404020303	2	✓	✓	
9	4/16/14	11:58 a.m.		✓	WS-9	1404020304	2	✓	✓	
10	4/16/14	12:19 pm		✓	WS-10	1404020305	2	✓	✓	
					No further entries					

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Chris A. Lister	4/16/14 3:22 pm				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Richard Brom	Date / Time 4/16/14 1522	Remarks	RHB Samples Intact? YES RHB Samples ≤ 4°C? YES
Shipped by: VIA – Chris Lister		Airbill Number: NA			

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files; Green to Report; Yellow Returns with Warrant

SJR

EPA 7[illegible]-53 (11/[illegible])

6- 0937

Environmental Services Company, Inc.

Corporate Office
13715 West Markham
Little Rock, AR 72211
Tel. (501)221-2565 Fax (501)221-1341

Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020315
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/17/14
Sample Time : 0954
Sample Type : GRAB
Sample From : WS-11 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	8 /100ml			HACH mColiBlue	0.00	0.0

* QA data shown is from a different sample or standard on the same date.

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Signature Richard Brom
Environmental Services Co., Inc.

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Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020316
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/17/14
Sample Time : 1014
Sample Type : GRAB
Sample From : WS-11A C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	3.0 mg/L			SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	< 2 /100ml			HACH mColiBlue	0.00	0.0

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Little Rock, AR 72211
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1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020317
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/17/14
Sample Time : 1033
Sample Type : GRAB
Sample From : WS-12 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	36 /100ml			HACH mColiBlue	0.00	0.0

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Northwest Arkansas Branch
1107 Century Avenue
Springdale, AR 72762
Tel. (479)750-1170 Fax (479)750-1172

Control Number: 1404020318
Customer Name : US EPA REGION 6 ENFORCEMENT
Customer Number : 1773
Report Date : 04/23/14

Sample Date : 04/17/14
Sample Time : 1131
Sample Type : GRAB
Sample From : WS-13 C&H

Collected By: CARL E WILLS
Delivery By : CHRIS LISTER
Work Order :
Purchase Order :

Laboratory Analysis

Analysis Date	Time	By	Parameter	Result	Notes	Quantity	Method	Quality Assurance Precision % RPD	Quality Assurance Accuracy % Recover
04/18	0730	RHB	BOD, 5-day	< 2.0 mg/L			SM 2001 5210B	1.22	93.9
04/17	1635	KIK	E. Coli	48 /100ml			HACH mColiBlue	0.00	0.0

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Signature Richard Brown
Environmental Services Co., Inc.

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL
CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME: C & H Hog Farm - Mount Judea, AR
	SAMPLERS: (Signature) Chris A. Lister C&H

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	E. Coli & C&I	5 Day BOD	E. coli				REMARKS
1	4/17/14	9:54am		✓	WS-11 140402031S	2	✓	✓					1 Sodium Thiosulfate (total enumeration)
2	4/17/14	10:14am		✓	WS-11A 140402031G	2	✓	✓					
3	4/17/14	10:33a.m.		✓	WS-12 1404020317	2	✓	✓					
4	4/17/14	11:31a.m.		✓	WS-13 1404020318	2	✓	✓					
					No further Entries C&I								

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Chris A. Lister	4/17/14 3:22 p.m.				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Richard Broom	Date / Time 4/17/14 1522	Remarks RB Samples Intact? YES RB Samples ≤ 4°C YES	
Shipped by: Via Chris Lister		Airbill Number: N/A			

S/R

EPA [illegible]0-53
(11/[illegible])

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files;
Green to Report; Yellow Returns with Warrant

6 – 0788

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
Website: www.soiltesting.okstate.edu

WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : Field Blank 1

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721854
Customer Code : 1361
Sample No. : 1
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	1	Nitrate-N (ppm)	<1	pH	5.7
Calcium (ppm)	5	Chloride (ppm)	2	EC (µmhos/cm)	7.6
Magnesium (ppm)	0	Sulfate (ppm)	0	NH4_N (ppm)	0.03
Potassium (ppm)	0	Boron (ppm)	<.01	ICAP_P	0.01
		Bicarbonate (ppm)	5		

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	13.2	Sodium Percentage	
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	12.0
Potassium Adsorption Ratio (PAR)		Hardness Class	Soft
		Alkalinity (ppm as CaCO3)	4.1

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

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Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-1

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721855
Customer Code : 1361
Sample No. : 2
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.4
Calcium (ppm)	22	Chloride (ppm)	3	EC (µmhos/cm)	132.7
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.11
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.05
		Bicarbonate (ppm)	66	ICAP_P	0.03

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	100.7	Sodium Percentage	6.5 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	60.1
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium
		Alkalinity (ppm as CaCO3)	54.4

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-2

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721856
Customer Code : 1361
Sample No. : 3
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	65	Chloride (ppm)	4	EC (µmhos/cm)	324
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	192	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	270.0	Sodium Percentage	3 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	167.9
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	157

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-3

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721857
Customer Code : 1361
Sample No. : 4
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	45	Chloride (ppm)	3	EC (µmhos/cm)	248
Magnesium (ppm)	3	Sulfate (ppm)	13	Iron (ppm)	0.12
Potassium (ppm)	2	Boron (ppm)	<.01	NH4_N (ppm)	0.04
		Bicarbonate (ppm)	130	ICAP_P	0.01

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	198.0	Sodium Percentage	4.2 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	122.4
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	106.8

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-4

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721858
Customer Code : 1361
Sample No. : 5
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	3	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	50	Chloride (ppm)	3	EC (µmhos/cm)	271
Magnesium (ppm)	2	Sulfate (ppm)	12	Iron (ppm)	0.00
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.04
		Bicarbonate (ppm)	150	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	222.6	Sodium Percentage	4.9 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	135.2
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	122.7

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-5

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721860
Customer Code : 1361
Sample No. : 6
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	36	Chloride (ppm)	3	EC (µmhos/cm)	201
Magnesium (ppm)	2	Sulfate (ppm)	8	Iron (ppm)	0.12
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	108	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	160.7	Sodium Percentage	4.5 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	99.5
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium
		Alkalinity (ppm as CaCO3)	88.5

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
Website: www.soiltesting.okstate.edu

WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-6

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721861
Customer Code : 1361
Sample No. : 7
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	29	Chloride (ppm)	2	EC (µmhos/cm)	164.5
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.07
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	90	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	132.7	Sodium Percentage	4.6 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	78.8
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium
		Alkalinity (ppm as CaCO3)	74.0

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
Website: www.soiltesting.okstate.edu

WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : Replicate (WS-6)

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721862
Customer Code : 1361
Sample No. : 8
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	29	Chloride (ppm)	2	EC (µmhos/cm)	164.7
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.07
Potassium (ppm)	0	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	89	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	130.2	Sodium Percentage	4.4 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	78.2
Potassium Adsorption Ratio (PAR)	0	Hardness Class	Medium
		Alkalinity (ppm as CaCO3)	73.0

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-7

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721863
Customer Code : 1361
Sample No. : 9
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.9
Calcium (ppm)	31	Chloride (ppm)	2	EC (µmhos/cm)	174.8
Magnesium (ppm)	2	Sulfate (ppm)	7	Iron (ppm)	0.08
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	93	ICAP_P	0.01

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	138.7	Sodium Percentage	4.3 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	85.8
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Medium
		Alkalinity (ppm as CaCO3)	76.6

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

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045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-8

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721864
Customer Code : 1361
Sample No. : 10
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.5
Calcium (ppm)	15	Chloride (ppm)	2	EC (µmhos/cm)	95.8
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.15
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	49	ICAP_P	0.03

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	74.5	Sodium Percentage	8 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	41.3
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft
		Alkalinity (ppm as CaCO3)	40.5

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-9

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721865
Customer Code : 1361
Sample No. : 11
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	2.9	pH	7.9
Calcium (ppm)	64	Chloride (ppm)	7	EC (µmhos/cm)	320
Magnesium (ppm)	1	Sulfate (ppm)	4	Iron (ppm)	0.01
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	170	ICAP_P	0.04

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	252.4	Sodium Percentage	2.9 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	164.4
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	139.4

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-10

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721866
Customer Code : 1361
Sample No. : 12
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.5
Calcium (ppm)	19	Chloride (ppm)	3	EC (µmhos/cm)	116.8
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.13
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	57	ICAP_P	0.03

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	87.5	Sodium Percentage	6.7 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	51.9
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft
		Alkalinity (ppm as CaCO3)	47

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory
Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : Soil Equipment Rinsate Blank

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721867
Customer Code : 1361
Sample No. : 13
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	1	Nitrate-N (ppm)	<1	pH	5.1
Calcium (ppm)	1	Chloride (ppm)	2	EC (µmhos/cm)	14.2
Magnesium (ppm)	0	Sulfate (ppm)	0	Iron (ppm)	0.02
Potassium (ppm)	0	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	3	ICAP_P	0.04

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	9.4	Sodium Percentage	
Sodium Adsorption Ratio (SAR)	0.3	Hardness (ppm)	2.3
Potassium Adsorption Ratio (PAR)	0	Hardness Class	Soft
Residual Carbonates (meq)	0.0	Alkalinity (ppm as CaCO3)	2.4

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
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Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : Field Blank 2

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721868
Customer Code : 1361
Sample No. : 14
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	1	Nitrate-N (ppm)	<1	pH	5.1
Calcium (ppm)	1	Chloride (ppm)	1	EC (µmhos/cm)	9.1
Magnesium (ppm)	0	Sulfate (ppm)	0	NH4_N (ppm)	0.03
Potassium (ppm)	0	Boron (ppm)	<.01	ICAP_P	0.03
		Bicarbonate (ppm)	3		

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	6.0	Sodium Percentage	
Sodium Adsorption Ratio (SAR)	0.2	Hardness (ppm)	1.7
Potassium Adsorption Ratio (PAR)		Hardness Class	Soft
Residual Carbonates (meq)	0.0	Alkalinity (ppm as CaCO3)	2.3

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

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Oklahoma State University Division of Agricultural Sciences and Natural Resources
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Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-11

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721870
Customer Code : 1361
Sample No. : 15
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	14	Nitrate-N (ppm)	<1	pH	7.8
Calcium (ppm)	77	Chloride (ppm)	6	EC (µmhos/cm)	429
Magnesium (ppm)	4	Sulfate (ppm)	14	NH4_N (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	0.06	ICAP_P	0.02
		Bicarbonate (ppm)	246		

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	362.2	Sodium Percentage	12.7 %
Sodium Adsorption Ratio (SAR)	0.4	Hardness (ppm)	207.0
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Very Hard
		Alkalinity (ppm as CaCO3)	201.3

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-11A (Drinking Water)

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721871
Customer Code : 1361
Sample No. : 16
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	105	Nitrate-N (ppm)	<1	pH	8.0
Calcium (ppm)	2	Chloride (ppm)	6	EC (µmhos/cm)	444
Magnesium (ppm)	0	Sulfate (ppm)	12	NH4_N (ppm)	0.02
Potassium (ppm)	3	Boron (ppm)	<.01	ICAP_P	0.04
		Bicarbonate (ppm)	260		

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	388.8	Sodium Percentage	97.8 %
Sodium Adsorption Ratio (SAR)	20.3	Hardness (ppm)	5.1
Potassium Adsorption Ratio (PAR)	0.3	Hardness Class	Soft
Residual Carbonates (meq)	4.2	Alkalinity (ppm as CaCO3)	213.0

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

Water of this quality is not recommended for crop irrigation due to its high total soluble salts and/or sodium level.

Residual carbonates are present in excess amounts lowering water quality to unsuitabe.
Water with too high residual carbonates may contain effective sodium in excess of that indicated by the sodium percentage of the water. The calcium and magnesium may precipitate out as lime, thus increasing the percentage of sodium.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
E-mail: soiltesting@okstate.edu
Website: www.soiltesting.okstate.edu

WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-12

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721872
Customer Code : 1361
Sample No. : 17
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	2	Nitrate-N (ppm)	<1	pH	7.6
Calcium (ppm)	20	Chloride (ppm)	3	EC (µmhos/cm)	123
Magnesium (ppm)	1	Sulfate (ppm)	5	Iron (ppm)	0.09
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	61	ICAP_P	0.04

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	93.0	Sodium Percentage	6.8 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	56.3
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Soft
		Alkalinity (ppm as CaCO3)	49.7

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

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Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : WS-13

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721873
Customer Code : 1361
Sample No. : 18
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	4	Nitrate-N (ppm)	<1	pH	8.2
Calcium (ppm)	64	Chloride (ppm)	4	EC (µmhos/cm)	342
Magnesium (ppm)	5	Sulfate (ppm)	23	Iron (ppm)	0.01
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.02
		Bicarbonate (ppm)	182	ICAP_P	0.02

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	282.0	Sodium Percentage	4.4 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	178.8
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	148.9

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

Soil, Water & Forage Analytical Laboratory

Oklahoma State University Division of Agricultural Sciences and Natural Resources
045 Agricultural Hall
Stillwater, OK 74078
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WATER QUALITY REPORT

CARL E WILLS (6EN-WR)
US EPA REGION 6
1445 ROSS AVE SUITE 1200
DALLAS, TX 75202
(214) 665-7276

Name : Replicate (WS-13)

Location : C & H Hog Farms, Inc.
Vendor, AR 72683

Lab ID No.: 721874
Customer Code : 1361
Sample No. : 19
Received : 4/21/2014
Report Date : 4/25/2014

Test Results for Irrigation Water

---------- Cations ----------		---------- Anions ----------		---------- Other ----------	
Sodium (ppm)	4	Nitrate-N (ppm)	<1	pH	8.2
Calcium (ppm)	64	Chloride (ppm)	4	EC (µmhos/cm)	345
Magnesium (ppm)	5	Sulfate (ppm)	23	Iron (ppm)	0.02
Potassium (ppm)	1	Boron (ppm)	<.01	NH4_N (ppm)	0.03
		Bicarbonate (ppm)	181	ICAP_P	0.01

---------- Derived Values ----------		-------- Derived Values(cont'd) ----------	
Total Soluble Salts (TSS in ppm)	281.8	Sodium Percentage	4.4 %
Sodium Adsorption Ratio (SAR)	0.1	Hardness (ppm)	178.5
Potassium Adsorption Ratio (PAR)	0.0	Hardness Class	Hard
		Alkalinity (ppm as CaCO3)	148.6

INTERPRETATION AND REQUIREMENTS FOR *Irrigation Water*

The total soluble salt and sodium content of this water are low enough that no problem should result from its use.

Signature

CC# 1361 4/21

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL
CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	Irrigation Analysis	NH4-N	ICAP-P				REMARKS
	C&H Hog Farm - Mount Judea, AR								
SAMPLERS: (Signature)									

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION								Lab ID
1	4/16/14	8:44 a.m.		✓	Field Blank 1	2	✓	✓	✓				721454
2	4/16/14	9:15 a.m.		✓	WS-1	2	✓	✓	✓				721455
3	4/16/14	9:47 a.m.		✓	WS-2	2	✓	✓	✓				721456
4	4/16/14	10:07 a.m.		✓	WS-3	2	✓	✓	✓				721457
5	4/16/14	10:15 a.m.		✓	WS-4	2	✓	✓	✓				721458
6	4/16/14	10:34 a.m.		✓	WS-5	2	✓	✓	✓				721460
7	4/16/14	10:50 a.m.		✓	WS-6	2	✓	✓	✓				721461
8	4/16/14	—		✓	Replicate	2	✓	✓	✓				721462
9	4/16/14	11:26 a.m.		✓	WS-7	2	✓	✓	✓				721463
10	4/16/14	11:37 a.m.		✓	WS-8	2	✓	✓	✓				721464
11	4/16/14	11:58 a.m.		✓	WS-9	2	✓	✓	✓				721465
12	4/16/14	12:19 Am.		✓	WS-10	2	✓	✓	✓				721466
13	4/16/14	4:10 p.m.		✓	Soil Equipment Rinsate Blank	2	✓	✓	✓				721467
14	4/17/14	7:14 a.m.		✓	Field Blank 2	2	✓	✓	✓				721468
15	4/17/14	9:54 a.m.		✓	WS-11	2	✓	✓	✓				721470

Custody Seal

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Chris Lott	4/17/14 4:00 p.m.				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			4/21 9:30	Y Custody Seals Intact? AB Y Samples Intact? AB Y Samples ≤ 4°C AB	
Shipped by: UPS		Airbill Number: 1ZA46 R22 01 9896 8264			

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files;
Green to Report; Yellow Returns with Warrant

EPA 7500-53
(11/96)

6 — 07882

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL
CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	Irrigation Analysis	NH4-N	ICAP-P				REMARKS
	C+H Hog Farm- Mount Judea, AR								
SAMPLERS: (Signature)	Chris A. Liste CAL								

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Irrigation Analysis	NH4-N	ICAP-P				REMARKS
													Lab ID
16	4/17/14	9:14 a.m.		✓	WS-11A		✓	✓	✓				721571
17	4/17/14	10:33 a.m.		✓	WS-12		✓	✓	✓				721572
18	4/17/14	11:31 a.m.		✓	WS-13		✓	✓	✓				721573
19	4/17/14	—		✓	Replicate		✓	✓	✓				721574

No Further Entries Appl

* Under Custody Seal

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
~~Relinquished by:~~ (Signature) Chris A. Liste	4/17/14 4:00 p.m.				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			4/21 9:30	Y Custody Seals Intact AB Y Samples Intact AB Y Samples ≤ 4°C AB	
Shipped by: UPS		Airbill Number: 1ZA46 R22 01 9896 8264			

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files;
Green to Report; Yellow Returns with Warrant

EPA 7500-53
(11/96)

6 — 07883

Log File Name : C&H HOG FARM
Setup Date (MMDDYY) : 041614
Setup Time (HHMMSS) : 042048
Datum WGS 84

Hydrolab DS5 Water Quality Probe

Sample Name	Date MMDDYY	Time HHMMSS	IBVSvr4 Volts	Temp øF	BPSvr4 mmHg	Latitude DMS	Longitude DMS	pH Units	LDO% Sat	LDO mg/l	SpCond µS/cm	Sal ppt	TDS g/l	NH4+ mg/l-N	NH4Tot mg/l-N	NO3- mg/l-N
WS-1	4/16/2014	9:07:06	7.8	49.6	621.7	N 35ø56'20.3"	W 93ø04'21.3"	7.33	99.1	9.18	117.8	0.05	0.0754	0.1	0.1	0.03
WS-2	4/16/2014	9:55:19	7.4	56.1	632.8	N 35ø55'25.3"	W 93ø04'14.1"	7.43	100.5	8.72	303.9	0.15	0.1945	0.11	0.11	0.04
WS-3	4/16/2014	10:05:44	7.4	46.6	628.8	N 35ø55'00.2"	W 93ø04'15.2"	7.86	74.8	7.34	225.1	0.11	0.144	0.38	0.39	0.02
WS-4	4/16/2014	10:20:20	7.3	51.9	629.1	N 35ø54'44.3"	W 93ø04'18.4"	7.38	100	9.14	250.9	0.12	0.1606	0.34	0.35	0.03
WS-5	4/16/2014	10:38:56	7.3	50	625.7	N 35ø53'29.6"	W 93ø05'04.9"	7.97	99.9	9.23	182.5	0.08	0.1168	0.14	0.14	0.01
WS-6	4/16/2014	10:56:59	7.3	50.9	623.3	N 35ø53'23.8"	W 93ø04'59.5"	7.1	92.5	8.45	148.6	0.06	0.0951	0.14	0.14	0.01
WS-7	4/16/2014	11:31:09	7.4	52.5	617.5	N 35ø53'39.7"	W 93ø04'13.4"	7.57	98.5	8.81	158.1	0.07	0.1012	0.18	0.18	0.01
WS-8	4/16/2014	11:42:50	7.3	54.2	621.3	N 35ø53'40.1"	W 93ø04'03.3"	7.5	100.4	8.72	90.7	0.03	0.0582	0.14	0.14	0.01
WS-9	4/16/2014	12:01:37	7.3	57.8	622.7	N 35ø53'55.4"	W 93ø04'19.9"	7.53	90.5	7.51	303.6	0.15	0.1943	0.29	0.29	0.24
WS-10	4/16/2014	12:24:24	7.3	52.8	622.2	N 35ø54'20.7"	W 93ø04'01.2"	6.91	93.5	8.26	102.3	0.04	0.0655	0.21	0.21	0.02
WS-11	4/17/2014	10:07:39	7.9	60.4	625.3	N 35ø55'25.2"	W 93ø04'24.7"	6.79	78.1	6.32	411.5	0.21	0.2634	0.38	0.38	0.09
WS-11A	4/17/2014	10:22:13	7.9	66.5	628.4	N 35ø55'25.5"	W 93ø04'23.9"	7.3	52.8	3.98	421.9	0.21	0.27	1.07	1.08	0.07
WS-12	4/17/2014	10:42:48	7.8	51.3	636.8	N 35ø54'56.4"	W 93ø03'57.1"	7.47	100.2	9.28	107.4	0.04	0.0688	0.08	0.08	0.02
WS-13	4/17/2014	11:40:53	7.8	55.6	634	N 35ø55'48.1"	W 93ø04'27.7"	8.07	99.4	8.66	317.5	0.16	0.2036	0.13	0.14	0.01

Recovery finished at 042314 160606

----------CUT HERE ----------

Please attach this label clearly to the outside of the shipping carton.

**** Do Not Cover This Label **** **** Do Not Cover This Label ****		
*** Service Request Number**	**Serial Number**	**Priority**
3911893	**048298**	**RUSH**
3911902	**S05272**	**RUSH**

3.0

Surveyor 4, 4A and 2002 4A Functional Test Sheet

Section A:

Service Request#	Customer	Serial #
391902	US EPA	0408055272 505272

Technician	Keypad Rev. 2010	Model Type	Date Started
RO	Pre- (Post-)	4 (4A) 2002 4A	4-2-14

Section B:

	Submission 1 Day 1	Submission __ Day	Submission __ Day	Submission __ Day
Repair information gathered	(Y) / N	Y / N	Y / N	Y / N
Visual Inspection performed	(Y) / N	Y / N	Y / N	Y / N
Customer problem verified	(Y) / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
Firmware updates performed----- Current FW Rev.	3.20			
Updated FW Rev.				
Display Clean	(Y) / N	Y / N	Y / N	Y / N
Replace and Date Internal Lithium battery	(Y) / N	Y / N	Y / N	Y / N
Desiccant changed	(Y) / N	Y / N	Y / N	Y / N
New style gold 22 pin header present or installed	(Y) / N	Y / N	Y / N	Y / N
Loctite Threadlocker applied to screws in Display Board half hole connectors	(Y) / N	Y / N	Y / N	Y / N
Screw O-rings replaced	(Y) / N	Y / N	Y / N	Y / N
Battery door O-rings replaced if pinched	(Y) / N	Y / N	Y / N	Y / N
Verify Surveyor to PC connection	(P) / F	P / F	P / F	P / F
Verify Surveyor charge circuit charges correctly	(P) / F	P / F	P / F	P / F
Real Time Clock set to correct Time and Date	(Y) / N	Y / N	Y / N	Y / N
Surveyor 2002 -- C26 and C27 are removed for RTC fix	(Y) / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
Serial number matches number on door and Hach Business System	(Y) / N	Y / N	Y / N	Y / N
Backlight operational	(P) / F	P / F	P / F	P / F
"No Conn" displayed when not connected to external unit	(P) / F	P / F	P / F	P / F
Verify Surveyor to Sonde communication	(P) / F	P / F	P / F	P / F
Barometric Pressure displayed & calibrated -No asterisk	(P) / F / NA	P / F / NA	P / F / NA	P / F / NA
GPS Parameters displayed and tested --use production antenna	(P) / F / NA	P / F / NA	P / F / NA	P / F / NA
Batteries fully charged -- (7.8 volts minimum)	✓ 8.4			
Battery pad installed	(Y) / N	Y / N	Y / N	Y / N
Verify unit has both rubber feet on door	(Y) / N	Y / N	Y / N	Y / N
Verify lens is clean, free of smears and dust	(Y) / N	Y / N	Y / N	Y / N

Calibrated Test Equipment Used –

Description	X-number
DVM Multimeter	X- 7212

Section C. Final Check-off Prior to Submitting for Estimate -

Exterior is clean	✓	Admin Notified	✓
Unit Powered down and tagged	✓	**Closer Initials**	✓
Hach Business System updated	✓	**Date Completed**	4-2-14

DATE: 10-2-12	DOCUMENT #: 19005-00-Tech_Series5_Instruc
PAGE: 1 OF 2	REVISION: 1

HACH Hydromet

Series 5, and 5X Sonde Functional Test Data Sheet

Section A:

Service Request # 3911893	Customer US EPA	Date Started 4-2-14
Housing Serial # 48298	Embedded Serial# 48298	Additional Driver Firmware:
Technician RO	Model: **Datasonde** ✓ **Minisonde** **5** ✓ **5X**	IONS-1A LDO 1.03 2.70

Customer Display Information

I/D NA	DOM 082609	Baud Rate 19.2	Security 2	SDI NA	TTY
Parameter	TIME	TEMP	pH	SpCond	SAL
Units		C	UNITS	mS/cm	PPT
Parameter	NO3-	NH4+	LDO%	LDO	
Units	mg/l-N	mg/l-N	SAT	mg/L	

For Sonde with Depth – Coefficients

A: NA	B:	C:	D:
E:	F:	G:	H:
I:	J:	SER:	

FLUOROMETER OFFSETS

1ST NA	X10:	X1:
2ND	X10:	X1:

For Sonde with TDG or PAR – Coefficients

A: NA	**B:**	**C:**	**D:**
Local:	Ref:		

Performance, Test and Evaluation

Current MPL Rev-- 5.44 Upgrade to MPL Rev--	pH Electrolyte & Teflon Junction Replaced- Yes ✓ No NA	DO membrane Replaced Yes No NA ✓
Lenses cleaned –Yes ✓ No NA	RTC Battery Replaced Yes ✓ No	Desiccant Replaced –Yes ✓ No

Section B:

	Submission 1 Day 1	Submission Day
Customer Observations Verified	Y N PT&E ✓ Upgrade	Y N PT&E Upgrade
Set Time and Date	Yes ✓	Yes
Verified all hardware updates as current	Yes ✓	Yes
Total current draw. (Circle all that apply) MPL PCB 40mA ✓ SC Turbidity 20mA LDO 80mA ✓ 4Beam Turbidity 10mA Flourometers: 1st 30mA 2nd 30mA 3rd 30mA PAR 10mA (Optimal Values not to exceed +20mA overall.)	110mA	
Current draw of circulator. (20 mA max. beyond previous values.)	NA	
Operation of self-cleaning motor verified—	P F NA ✓	P F NA
Audio functions correctly	P ✓ F	P F
RTC sleep/wake-up test.	P ✓ F	P F

Additional Notes:

Temp probe test at room temperature. 20.68 ° C (+/- 0.1)	Sonde Temp : 20.70	Sonde Temp :
DO 100% sat integrity window verified at +50 mmHg over current bp. (Clark Cell only)	P F NA ✓	P F NA
DO 100% saturation calibration verified- local –(+/- 0.2 mg/l Clark Cell) (+/- 0.1 mg/l LDO)	Temp : 23.11 BP : 627 mg/L : 7.03 Drift +/- :	Temp : BP : mg/L : Drift +/- :
Scale Factor. (1.5 to 0.5) (LDO only)	1.112647	
Conductivity zero (air) calibration verified - (+/-.005mS)	.000	
Conductivity calibration verified – (+/-.2 mS) 12.856 mS/cm / ✓ 47.6 mS/cm	47.6	
Conductivity 1.412mS linearity verified –(+/-.15 mS)	1.406	
Conductivity .100mS verified – (+/-.005 mS)	.103	
pH 7 buffer calibration verified– (+/- .2 pH)	7.00	
pH slope calibration verified at 10 units.	10.00	
ORP calibration verified at NA ° C (+/- 20 mV)	NA	
Turbidity - Calibration accepted & verified with DI Water (0.0 +/- 0.7 NTU)	NA	
Turbidity - Calibration accepted & verified at (100.0 +/- 1 NTU) with Hach StablCal	NA	
Turbidity - Linearity verified with 40 NTU Hach StablCal – (+/- 4 NTU)	NA	
Depth zero calibration verified – (.02 meters)	NA	
Depth Check verified – (+/- 0.03 meters) Tank depth:	NA	

Specific Ion NO3 Low C 22.54 High C 22.67 mV 59.6 mV 5.1	Specific Ion NH4 Low C 22.33 High C 22.53 mV 41.0 mV 95.3	Specific Ion Low C High C mV mV
N03- calibration verified	P ✓ F NA	P F NA
NH4+ calibration verified	P ✓ F NA	P F NA
Cl- calibration verified	P F NA ✓	P F NA
Chlorophyll 'a' calibration verified	P F NA ✓	P F NA
Rhodamine 'wt' calibration verified	P F NA ✓	P F NA
Blue-green Algae calibration verified	P F NA ✓	P F NA
PAR calibration verified	P F NA ✓	P F NA
TDG calibration verified (+/- 2 mmHg)	P F NA ✓	P F NA
Logging/Sensor Stability Test	P ✓ F	P F
pH linearity verified at 4 units. (+/- 0.20 units)	4.07	
Battery pack setup and checked	P F NA ✓	P F NA

Display, Baud Rate, Communications mode settings returned as received.	Yes ✓ No

Calibrated Test Equipment Used – Description	**X-number**
Power Supply	X- 8011
DVM Digital Multimeter	X- 7212

Section C. Final Check-off Prior to Submitting for Estimate

Exterior is clean ✓ pH 4 Buffer in storage cup ✓	Hach Business System updated ✓ Date Completed 4-3-14

Date: 3-Apr-14
Delivery Id: 21199246

Service Summary / Packing List

Shipped From :
Hach Hydromet Technical Support & Service
5600 Lindbergh Dr
Loveland, CO 80539
United States
E-mail: services@hach.com
Phone : 800-949-3766 opt.2
Fax : 970-461-3921

Ship Method : UPS1-UPS1**UPS -Next Day-Air
Customer Ref. :
Customer Ref. :

Shipping Order : 313121541
Cust Acct : 311335
Purchase Order : EP-13-6-000039
Contact Name : CARL WILLS
Contact Email : WILLS.CARL@EPA.GOV
Contact Phone : 214-6652210

Ship To :
Attn: Richard Brown / 479-750-1170
Environmental Services Company, Inc.
NW Arkansas Branch
1107 Century St
Springdale, AR 72762

Bill To:
US EPA
109 T W ALEXANDER DR /MAIL D143-02
USE ACCT 311060
DURHAM, NC, 27711, US

Line	Item Code	Item Description	SN	Qty	Technician	SR #	Task #
1.1	SVR4AJBABASE	Surveyor4a with the following option	S05272		10492	3911902	166989

Additional Information
**********ACCESSORIES**********

Additional Notes
ATTN: CARL WILLS
SR# 3911902
S/N S05272

NO CHARGES

Customer Requests: PT&E

Evaluation: As received Surveyor is in perfect working order. Verified communication with customers sonde using service cable.

Description of repair: Replaced internal RTC battery, desiccant, o-rings and put loctite on all internal screws. Calibrated internal Barometer and GPS. Verified surveyor with customer's data sonde 5. Please reference attached functional test sheet: Performed all updates complete along with P T & E.

313121541 21199246

Date: 3-Apr-14
Delivery Id: 21199246

Service Summary / Packing List

313121541

21199246

Date: 3-Apr-14
Delivery Id: 21199249

Service Summary / Packing List

Shipped From :
Hach Hydromet Technical Support & Service
5600 Lindbergh Dr
Loveland, CO 80539
United States
E-mail: services@hach.com
Phone : 800-949-3766 opt.2
Fax : 970-461-3921

Ship Method : UPS1-UPS1**UPS -Next Day-Air
Customer Ref. :
Customer Ref. :

Shipping Order : 313121582
Cust Acct : 311335
Purchase Order : EP-13-6-000039
Contact Name : CARL WILLS
Contact Email : WILLS.CARL@EPA.GOV
Contact Phone : 214-6652210

Ship To :
Attn: Richard Brown / 479-750-1170
Environmental Services Company, Inc.
NW Arkansas Branch
1107 Century St
Springdale, AR 72762

Bill To:
US EPA
109 T W ALEXANDER DR /MAIL D143-02
USE ACCT 311060
DURHAM, NC, 27711, US

Collect UPS 1Z A46R2201 9296 6802

Line	Item Code	Item Description	SN	Qty	Technician	SR #	Task #
1.1	DS5BASE	DS5 WITH THE FOLLOWING OPTIONS:	048298		10492	3911893	166988
Additional Information							
**********ACCESSORIES**********							

Additional Notes

ATTN: CARL WILLS
SR# 3911893
S/N 048298

NO CHARGES

CUSTOMER OBSERVATION: PT&E

EVALUATION: Sonde needs a PT&E on sensors. Service will need to replace the N03 and NH4 Ion tips part of factory service. Parts listed will have to be replaced in order to get sonde to function correctly. Sonde needs test, calibration, and maintenance of all sensors as part of the PT&E.

Description of repair: Replaced RTC battery and desiccant, teflon junction. Calibrated LDO at 100% saturation +/- 0.1 mg/l sensor measured 100.2. Calibrated the conductivity sensor at 47.6 mS/cm (±

313121582 21199249

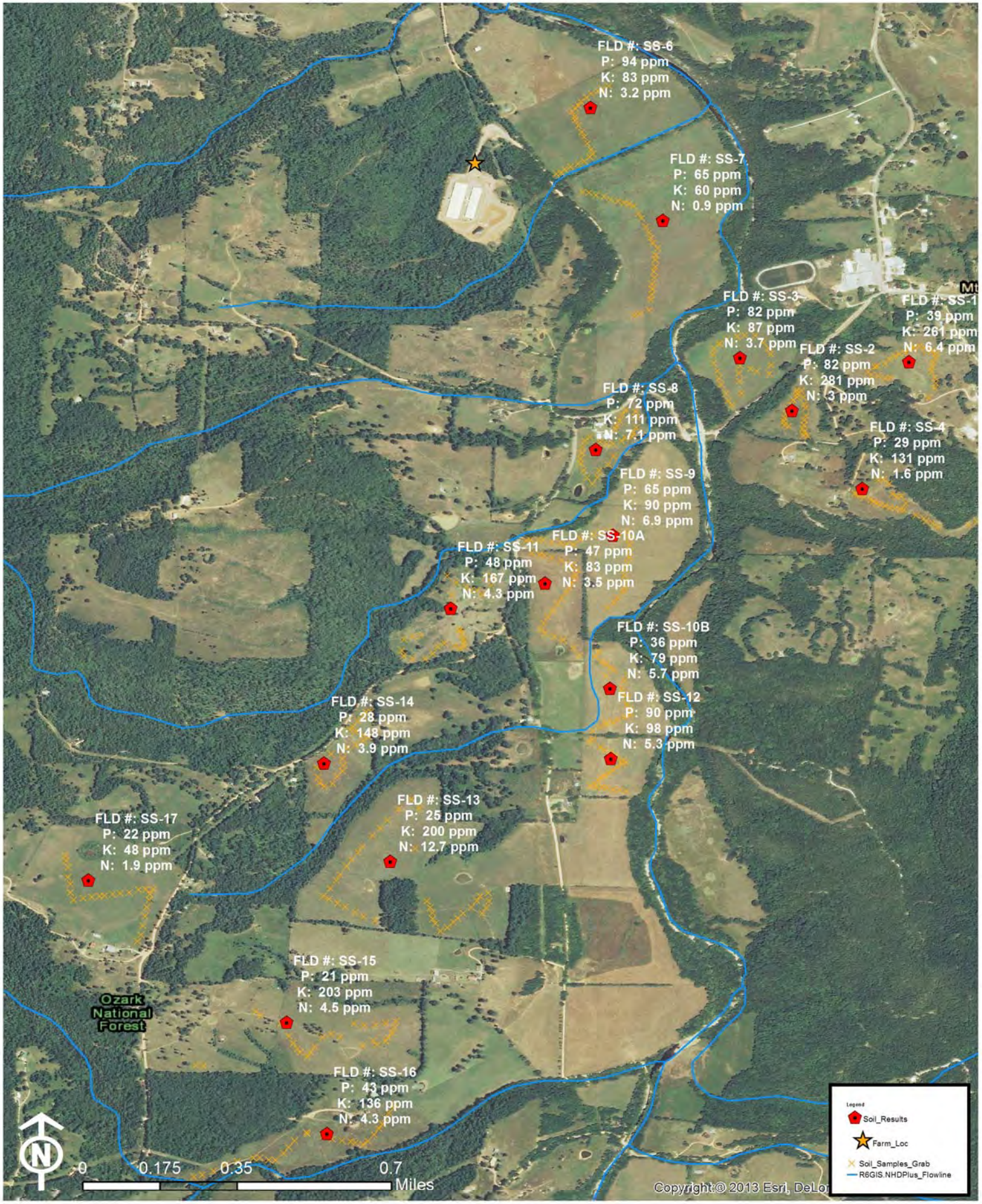
Service Summary / Packing List

.2mS), read 47.6 mS/cm, and checked linearity at 1.412 mS/cm (± .15 mS), read 1.406 mS/cm and checked linearity at .100 mS/cm (± .005 mS) and read .103 mS/cm. Verified the ION tips calibrations. All are in specifications. All sensors passed performance log test. Bench verified communication with customer's surveyor with service cable. Please reference, attached test sheet for calibration and linearity test specifications check. All hardware and firmware are up to date. Performed all updates complete along with P T & E.

313121582

21199249

Appendix 3
Soil Sample Results



C & H Hog Farm - Mount Judea, AR

AGRICULTURE DIAGNOSTIC LABORATORY
UNIVERSITY OF ARKANSAS, FAYETTEVILLE
DIAGNOSTIC SOIL SAMPLES

NAME: CARL WILLS / EPA REGION 6 ADDRESS: 1445 ROSS AVE. ARRIVED: 04-17-14
EMAIL: wills.carl@epa.gov; lister.chris@epa.gov DALLAS, TX 75202-2733 OUT: 05-05-14
PHONE: 212-665-7276
STUDY: NEWTON CO. ARKANSAS

PROCEDURES : pH,EC (1:2 soil/water ratio); Mehlich 3 (1:10 ratio) ANALYSIS BY SPECTRO ARCOS ICP;
Inorganic N by KCl extraction, Skalar autoanalyzer using cadmium reduction color method.
To convert results from mg/Kg to lbs/A for a 6" depth sample, multiply mg/Kg * 2

				umhos/cm	mg/kg										mg/kg	**Calculated values from analysis resutls *** cmolc/Kg	Estimated Base Saturation %				
	LAB #	ID	pH	EC	P	K	Ca	Mg	S	Na	Fe	Mn	Zn	Cu	B	NO_3-N+NO_2-N	ECEC	Ca	Mg	K	Na	Total
S	4119	SS-6	6.0	72	94	83	1088	77	12	7.3	189	291	8.2	3.2	0.2	3.2	9	58.4	6.8	2.3	0.3	67.8
	dup				93	83	1127	80	12	7.2	186	294	8.4	3.2	0.2	2.8	10	56.1	6.6	2.1	0.3	65.1
S	4120	SS-7	5.5	46	65	60	576	57	11	5.6	195	256	4.3	1.3	0.1	0.9	8	35.9	5.9	1.9	0.3	44.0
S	4121	SS-9	6.8	110	65	90	2712	75	10	7.3	140	114	2.8	1.7	0.3	6.9	17	80.0	3.7	1.4	0.2	85.2
S	4122	SS-10A	5.6	69	47	83	1505	99	12	8.8	261	163	3.4	1.9	0.2	3.5	13	57.5	6.2	1.6	0.3	65.6
S	4123	SS-10B	6.0	64	36	79	1324	70	9	6.1	137	171	1.7	1.2	0.2	5.7	11	60.6	5.3	1.9	0.2	68.0
S	4124	SS-12	5.9	71	90	98	1212	71	11	5.9	152	196	2.1	1.3	0.2	5.3	10	58.1	5.6	2.4	0.2	66.4
S	4125	SS-16	5.7	62	43	136	992	90	11	4.4	131	197	2.6	1.0	0.1	4.3	10	49.2	7.4	3.5	0.2	60.3
S	4126	SS-15	6.1	95	21	203	870	96	11	13.1	92	374	2.4	0.7	0.2	4.5	9	49.9	9.1	6.0	0.7	65.6
S	4127	SS-17	6.9	89	22	48	1884	43	11	10.3	94	215	1.6	1.0	0.2	1.9	12	75.7	2.8	1.0	0.4	79.9
S	4128	SS-13	7.0	125	25	200	1562	68	11	9.8	87	469	2.5	0.7	0.3	12.7	11	71.5	5.1	4.7	0.4	81.7
S	4129	SS-1	6.7	136	39	261	1656	98	16	5.7	94	348	3.2	0.7	0.3	6.4	13	64.8	6.3	5.2	0.2	76.5
S	4130	SS-4	5.7	62	29	131	1846	115	11	7.0	146	79	2.9	0.5	0.1	1.6	16	59.4	6.1	2.2	0.2	67.8
S	4131	SS-2	6.4	114	82	281	1225	110	16	4.2	118	273	3.1	0.7	0.2	3.0	11	56.9	8.4	6.7	0.2	72.1
S	4132	SS-8	6.7	105	72	111	1975	61	9	5.1	153	212	2.8	0.7	0.3	7.1	14	72.2	3.7	2.1	0.2	78.1
S	4133	SS-3	6.9	84	82	87	2030	48	8	10.7	153	222	2.6	1.3	0.3	3.7	13	76.2	3.0	1.7	0.3	81.2
S	4134	SS-11	5.7	77	48	167	711	94	11	9.0	111	214	6.2	1.5	0.1	4.3	9	40.8	7.9	4.9	0.4	54.1
S	4135	SS-14	6.1	95	28	148	841	87	14	10.2	103	413	3.6	2.1	0.2	3.9	8	50.4	8.6	4.5	0.5	64.0

Reference for methods of analysis :
Soil Test Methods from the Southeastern United States Southern Cooperative Series Bulletin No. 419 SBN# 1-58161-419-5 January 2014
Southern Extension and Research Activity Information Exchange Group -6
Edited by: F.J. Sikora

available at following link: http://www.clemson.edu/sera6/MethodsManualFinalSERA6.pdf

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME					NO. OF CON-TAINERS		REMARKS
	C&H Hog Farm - Mount Judea, AR							
SAMPLERS: (Signature)								
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION			
1	4/15/14	12:22 pm	✓		SS-6	1	✓	
2	4/15/14	12:54 pm	✓		SS-7	1	✓	
3	4/15/14	1:27 pm	✓		SS-9	1	✓	
4	4/15/14	1:52 pm	✓		SS-10A	1	✓	
5	4/15/14	2:12 pm	✓		SS-10B	1	✓	
6	4/15/14	2:34 pm	✓		SS-12	1	✓	
7	4/15/14	3:22 pm	✓		SS-16	1	✓	
8	4/15/14	4:45 pm	✓		SS-15	1	✓	
9	4/15/14	5:17 pm	✓		SS-17	1	✓	
10	4/15/14	6:02 pm	✓		SS-13	1	✓	
11	4/16/14	1:54 pm	✓		SS-1	1	✓	
12	4/16/14	2:27 pm	✓		SS-4	1	✓	
13	4/16/14	2:54 pm	✓		SS-2	1	✓	
14	4/16/14	3:26 pm	✓		SS-8	1	✓	
15	4/16/14	4:06 pm	✓		SS-3	1	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Chris A. Lister	4/17/14 4:40 pm	[redacted]			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) Nancy Wolf	Date / Time 4/17/14 4:40pm	Remarks	
Shipped by:		Airbill Number:			

Remarks: Custody Seals Intact? [redacted]
NW Samples Intact?
Samples less than or equal 4 deg C (water)

Distribution: White Accompanies Shipment; Pink to Coordinator Field Files; Green to Report; Yellow Returns with Warrant

EPA 7500-53
(11/96)

R6 - 0855

ENVIRONMENTAL PROTECTION AGENCY

OFFICIAL CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS		REMARKS
	C+H Hoss Farm - Mount Judea, AR			

SAMPLERS: (Signature) [signature] / Chris A. Lesko

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS								REMARKS
							1							
16	4/16/14	5:02 p.m.	✓		SS-11	1	✓							
17	4/16/14	5:34 p.m.	✓		SS-14	1	✓							

No Further Entries Ckt

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4/17/14 4:40 p.m.				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) [signature]	Date / Time 4/17/14 4:40 pm	Remarks	
Shipped by:		Airbill Number			

Remarks
- ____ Custody Seals Intact?
- NW Samples Intact?
- ____ Samples less than or equal 4 deg C (water)

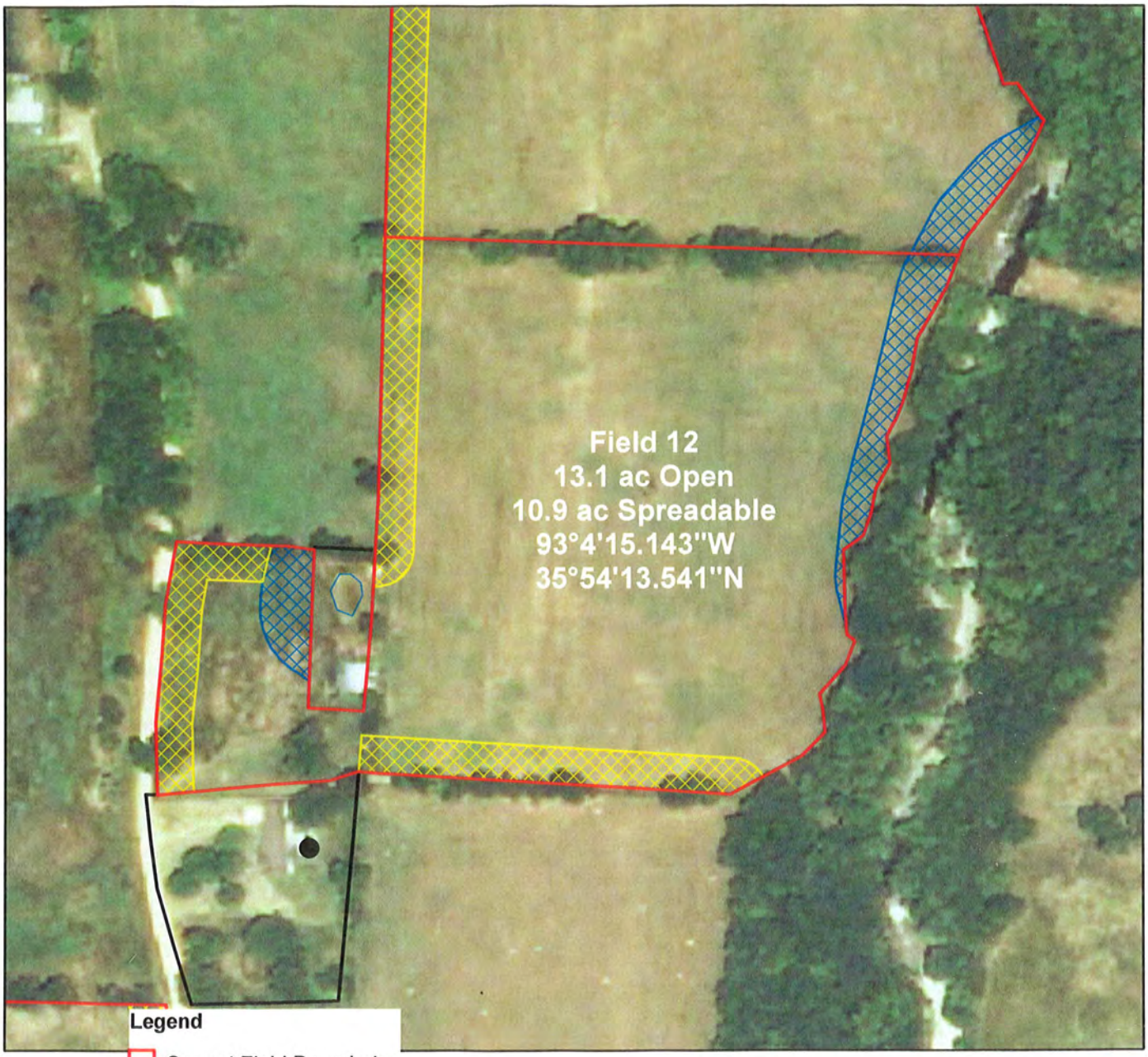
Distribution: White Accompanies Shipment; Pink to Coordinator Field Files; Green to Report; Yellow Returns with Warrant

EPA 7500-53
(11/96)

R6 - 0864

DATE	FIELD	TEMP	WIND/DIR	HOUR	GAL	CROP	METHOD	TOTAL ACR	CONDIT	EQUIPME	POND LINER
12/27/2013	15	45	E AT 4	1	3,000	MIXED	HONEYW	1	DRY	GOOD	GOOD
12/30/2013	15	40	SW AT 7	2	6,000	MIXED	HONEYW	2	DRY	GOOD	GOOD
12/31/2013	15	52	S AT 4	6	24,000	MIXED	HONEYW	9	DRY	GOOD	GOOD
1/16/2014	15	51	NW 16	5	18,000	MIXED	HONEYW	7	DRY	GOOD	GOOD
1/16/2014	17	51	NW 16	2	6,000	MIXED	HONEYW	2	Fair	GOOD	GOOD
1/19/2014	3	59	SSW 8	4	18,000	MIXED	HONEYW	6	DRY	GOOD	GOOD
1/20/2014	15	66	NNW 6	6	36,000	MIXED	HONEYW	13	DRY	GOOD	GOOD
1/25/2014	3	55	NNW 2	5	38,500	MIXED	HONEYW	6	DRY	GOOD	GOOD
11-Mar	13	73	SE 10 to 15	4	33,000	MIXED	HONEYW	11	DRY	GOOD	GOOD
14-Mar	13	75	sww 10	10	57,500	MIXED	HONEYW	19	DRY	GOOD	GOOD
21-Mar	13	70	SSW7	11	87,000	MIXED	HONEYW	29	DRY	GOOD	GOOD
22-Mar	14	59	ssw9	6	45,000	MIXED	HONEYW	15	DRY	GOOD	GOOD
24-Mar	11	56	E AT 4	7	51,000	MIXED	HONEYW	17	DRY	GOOD	GOOD
31-Mar	15	70	s se 13	5	42,000	MIXED	HONEYW	14	DRY	GOOD	GOOD
1-Apr	15	72	s 10	5	45,000	MIXED	HONEYW	15	DRY	GOOD	GOOD
1-Apr	17	72	s 10	5	30,000	MIXED	HONEYW	10	DRY	GOOD	GOOD
1-Apr	1	72	s 10	3	18000	MIXED	HONEYW	6	DRY	GOOD	GOOD
1-Apr	4	72	s 10	1	3000	MIXED	HONEYW	1	DRY	GOOD	GOOD

Buffered Field Map
Field 12
T15N, R20W, S25
Mt. Judea Quad



Legend

- Correct Field Boundaries
- Unoccupied House
- Property Line
- Pond
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer

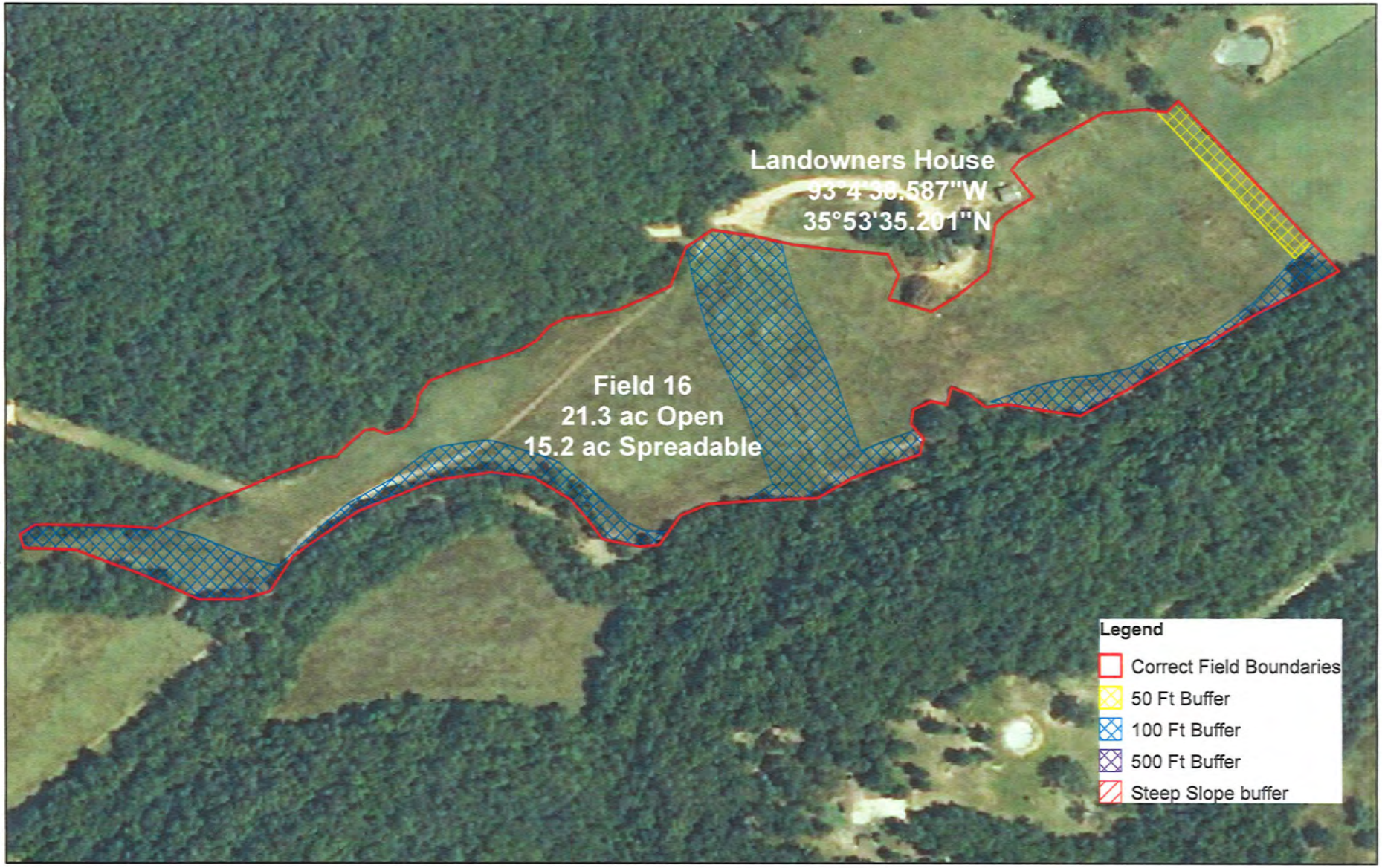
Latitude and Longitude taken at the entrance to the field

125 0 125 250 375 500 Feet

N

Buffered Field Map
Field 16
T14N, R20W, S2
Mt. Judea Quad

Latitude and Longitude taken at
the entrance of the field



Appendix C

Section 319 Success Stories Volume III:

The Successful Implementation of the Clean Water Act's Section 319 Nonpoint Source Pollution Program

Section 319 Success Stories Volume III:

The Successful Implementation of the Clean Water Act's Section 319 Nonpoint Source Pollution Program

For copies of this document, contact:

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United States Environmental Protection Agency
Office of Water
4503F
Washington, DC 20460
EPA 841-S-01-001
February 2002

Section 319 Success Stories Volume III:

The Successful Implementation of the Clean Water Act's Section 319 Nonpoint Source Pollution Program

United States Environmental Protection Agency
Office of Water
Washington, DC

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Contents (cont.)

Contents (cont.)

Contact:
Sandi Formica
Environmental Preservation Division
Arkansas Department of Environmental Quality
501-682-0020
formica@adeq.state.ar.us

Primary Sources of Pollution:
- agriculture (confined animal operations)

Primary NPS Pollutants:
- nitrogen
- phosphorus
- fecal coliform bacteria

Project Activities:
- revised storm water diversions and waste collection systems
- revised operational practices (changes in phosphorus application practices and on-site storage capacity)

Results:
- 90 percent decrease in nutrient concentrations

Buffalo National River Watershed Partnerships:
Partners Improve Swine Waste Management

Buffalo River Watershed, Arkansas

The Buffalo River watershed in north-central Arkansas covers 860,000 acres. From the headwaters in the Boston Mountains, the Buffalo River flows unobstructed for 150 miles eastward to the confluence with the White River. Because of the unique scenic and scientific features associated with the free-flowing river, Congress established the Buffalo National River Watershed in 1972 to preserve this national treasure for future generations. The federal and state governments own 40 percent of the watershed, primarily in the headwaters and along a narrow riparian corridor of the river. About 60 percent of the basin is privately owned, including most of the larger tributaries.

The Arkansas Department of Environmental Quality (ADEQ) has designated the Buffalo River an Extraordinary Resource Water and a Natural and Scenic Waterway, the highest water quality designation given by the state. Although the water quality in the Buffalo River at present is very good, several tributaries have been affected or threatened by agricultural activities. In 1992 there were 39 confined animal operations within the watershed, including 12 swine farrowing operations, one broiler operation, and 26 dairy facilities. All of the swine operations and 10 of the dairy facilities had Liquid Animal Waste Management Systems (LAWMS). At that time, the ADEQ Water Division received notice of intent from a watershed farmer to construct a 540-sow/pig farrowing operation adjacent to National Park property and less than a mile from the river. Manure land application sites for the proposed swine facility were as close as ¼ mile to the river. All of the existing watershed swine operations were located on the southern edge of the drainage basin in an area underlain by sandstone and shale. If the proposed swine facility was built, it would be the first swine operation located in such close proximity to the river and within a karst terrain.

Both citizens and resource agencies expressed concern over the construction and operation of a confined swine facility so close to the river. Personnel from the ADEQ Water and Environmental Preservation Divisions performed an investigation of confined animal operations within the watershed, visiting and evaluating 16 swine and dairy operations. Results of the watershed investigation showed that most LAWMS were not being operated and maintained in a manner that would eliminate or minimize the amount of waste leaving the farms. Subsequently, the ADEQ secured grant money to further study the problems revealed during the watershed investigation.

Project goals and methodology

The Buffalo River Swine Waste Demonstration Project was initiated in 1995 with the primary goal

of protecting the high-quality water in the Buffalo National River watershed by working with the local farmers and government agencies to identify and address the problems associated with the LAWMS. This 5-year, 319-funded project evaluated existing swine liquid waste management practices and demonstrated the benefits of new or improved best management practices (BMPs) in protecting water quality. The project objectives included evaluating the effectiveness of existing LAWMS BMPs (including design, training, and management aspects) by monitoring water quality and waste management practices at cooperating farms, improving existing BMPs or implementing new BMPs, and evaluating changes in the water quality and the operation of the LAWMS as a result of improved or new BMPs implemented at cooperating farms.

Other project goals included demonstrating to farmers and various government agencies the effectiveness of proper waste management at confined animal operations in protecting water quality. Nutrient loads in surface water were estimated before and after BMP implementation. Storm water runoff studies also were conducted to document nutrient loss from manure land application sites. In addition, waste management practices were documented before and after BMP implementation through frequent site visits and farm management surveys.

Waste management and water quality improvements

New or modified BMPs were implemented at the six cooperating farms based on site-specific problems and included the following:

- Storm water diversions were improved or installed.
- All-weather access to LAWMS was improved or installed.
- Storage capacity for liquid waste was increased.
- Waste collection systems were repaired.

New or modified BMPs associated with operational practices were also implemented and included decreasing fresh water usage; performing routine manure solids removal; and improving overall farm nutrient management by using a waste pumping service for solids handling, properly sampling manure holding structures to determine nutrient content, reducing phosphorus application rates, and increasing available acres for land application. In addition, 91 percent of the watershed's farmers had accumulated solids removed from the LAWMS, reestablishing the maximum available manure storage capacity at their facilities.

As a result of the new or modified BMPs, substantial improvements were documented in waste management practices. Free-board problems associated with waste storage ponds were reduced by 66 percent at cooperating farms. Overall, farmers began to manage the manure generated at their facilities for its fertilizer value, which reduced the time and expense associated with the LAWMS. Using water quality monitoring data collected on a stream (less than 1 square mile drainage area) adjacent to a poorly operated swine facility, preliminary estimates indicated that 3,000 pounds of total nitrogen and 400 pounds of total phosphorus were lost to the stream on an annual basis. Following BMP implementation, preliminary estimates indicated that nutrient loads in the stream were decreased by approximately 90 percent.

Partnerships to solve complex problems

This project involved building working relationships with watershed swine farmers, the swine industry, local Natural Resources Conservation Service staff, the Newton County Conservation

District, and the Environmental Preservation, Water, and Technical Services Divisions of ADEQ to improve LAWMS operation and swine manure management. All of the partners in the project cooperated to evaluate the data generated on LAWMS and to develop BMPs. New or improved BMPs were installed by extending cost-share programs and working one-on-one with individual farmers to ensure that all aspects of the waste system were understood. Emphasis was placed on finding economical solutions to waste management problems. Other groups, such as the Arkansas Soil and Water Conservation Commission, the Arkansas Pork Producers, and the University of Arkansas, contributed a considerable amount of time, resources, and technical expertise to help make this project a success.

Swine farmers in the Buffalo River watershed have successfully changed their waste management practices and are using the fertilizer benefit of the manure generated at their facilities while minimizing their impact on the environment. Information gained from this project has been presented at farmer training meetings and has helped swine producers statewide to improve their manure management practices. All of the partners participating in the project received an EPA Region 6 Partnerships for Environmental Excellence Award in 1998. The award acknowledged the contribution of each partner in cooperating to solve complex environmental problems.

www.state.ar.us/aswcc/NPS_Webpage/Mgmnt.html

Contact:
Sandi Formica
Environmental Preservation Division
Arkansas Department of Environmental Quality
501-682-0020
formica@adeq.state.ar.us

Primary Sources of Pollution:
- agriculture (dairy waste)

Primary NPS Pollutants:
- nutrients
- bacteria

Project Activities:
- dairy manure management practices
- manure clean-out service
- comprehensive nutrient management planning

Results:
- comprehensive local watershed assistance program

A Community Approach to Managing Manure in the Buffalo River Watershed:

Local Watershed Assistance Program Helps Dairy Farmers

Buffalo River Watershed, Arkansas

The Environmental Preservation Division of the Arkansas Department of Environmental Quality (ADEQ) was awarded a section 319 grant in 1997 to evaluate the effectiveness of "dairy manure management alternatives," designed for facilities with 100 cows or fewer, in minimizing nutrient and bacteria loads leaving farm sites. The dairy 319 project worked with dairy farmers and government agencies in the Buffalo River watershed, as well as with state and federal agencies, to develop and implement solutions to better manage manure in the watershed.

From the beginning of the dairy 319 project, the ADEQ project staff sought out cooperation with other agencies, the dairy cooperative, and dairy farmers in the Buffalo River watershed by forming a task force with representatives from all interested parties. Key relationships were devel-

oped between the ADEQ project staff and the Conservation District Boards, Natural Resources Conservation Service staff, and the dairy farmers in the watershed.

Most of the dairy farm owners in the Buffalo River watershed volunteered to participate in the dairy 319 project. The Buffalo Conservation District staff contacted farmers and requested individual meetings with them at their farms. During these meetings, the project staff explained the project to the farmers and requested their participation on a voluntary basis. In exchange for participation in the study, farmers hoped that the project would result in developing better information regarding the operation of manure management systems or finding a source of funding for improving their manure management systems.

Dairy operations and manure management

In 1994 there were 27 dairy facilities operating in the Buffalo River watershed. Recent financial difficulties have taken their toll on Arkansas dairy farmers, and today only 18 dairy facilities still operate in the watershed. Finding economic solutions to improve manure management at these small dairy facilities continues to be a challenge.

After an exhaustive investigation into the manure management practices of the dairy industry in the Buffalo River watershed, it became apparent that the 18 watershed farmers did not have the specialized equipment required to handle the different waste streams generated from the confinement of the cows at their farms. Although several individual problems were identified, such as ineffective fertilizer utilization and improper land application practices that increase the potential for contaminants to be transported in storm runoff, all of these problems originate from the lack of adequate manure handling equipment in the watershed. Therefore, the funding set aside for implementing best management practices (BMPs) in the watershed as part of the dairy 319 project was focused on solving identified manure handling problems.

Local watershed assistance program

To help accomplish the dairy 319 project goal of improving dairy manure management, partnerships were formed among the ADEQ, local NRCS, and the Buffalo Conservation District to develop a local watershed assistance program (LWAP). The program is administered through the Buffalo Conservation District office. It has been designed to provide a low-cost, effective solution to the manure handling problems identified throughout the watershed. In addition, the program will enable farmers to receive the maximum fertilizer benefits of their dairy manure while minimizing farm impacts on the environment. The LWAP includes the development of a local clean-out service, long-term clean-out scheduling, initial cost-share assistance, and comprehensive nutrient management planning.

As part of the LWAP, the Buffalo Conservation District provides a manure clean-out service for dairy farmers and an operator to maintain and operate the equipment. Easily transportable equipment for manure removal, including a side-discharge manure spreader, submersible pump, and pit agitator, will be purchased as part of the LWAP. This service provides dairy farmers in the Buffalo River watershed with a method to handle dairy manure without having to purchase and maintain specialized and seldom-used equipment. Additionally, by providing an operator, the program allows the dairy farmer more time to spend on milk production and other farm management responsibilities.

With the hope of increasing participation, up to 75 percent of the cost-share money will initially be available for watershed dairy farmers who use the program's manure handling service. To be

eligible for the program, the farmer is required to develop a long-term clean-out schedule for the dairy facility. ADEQ and NRCS staff will assist participating dairy facilities with the development of the 12-month clean-out schedules. This will ensure that solids are removed within the designed storage time for each manure management system.

Meetings were held to present the results of the dairy 319 project and introduce the LWAP, and they were attended by most of the dairy farmers in the watershed. Farmers in the Buffalo River watershed understand the importance of preserving water quality and were receptive to the LWAP. They realize that the program can help them economically manage and utilize dairy manure while protecting water quality in the watershed in which they live.

www.coastal.ca.gov/nps/npsndx.html

CALIFORNIA

Contacts:
Joe McGahan
Drainage Coordinator for the Grassland Area Farmers
559-582-9237
jmcgahan@summerseng.com
Joe Karkoski
Central Valley Regional Water Quality Control Board
916-255-3368

Primary Sources of Pollution:
- agricultural drainage

Primary NPS Pollutants:
- selenium

Project Activities:
- establishing selenium discharge caps
- instituting tradable loads program

Results:
- reductions in selenium load discharges

Grassland Bypass Project:
Economic Incentives Program Helps to Improve Water Quality

Grassland Drainage Area, California

Agricultural runoff is one of the primary sources of discharge to rivers and streams that do not meet water quality standards, affecting 70 percent of these impaired waters. This problem is particularly challenging in the western United States, where roughly 50 million acres of land are devoted to irrigated agriculture and where agricultural drainage and runoff provide a significant proportion of river flows during dry seasons.

The Grassland Drainage Area is an agricultural region on the west side of California's San Joaquin Valley. The agricultural land there is productive, but the soil contains a high level of selenium, a naturally occurring trace element. Selenium accumulates in the agricultural drainage water that collects in the tiles installed to drain excess water from the fields. In 1983 this problem received national attention when deaths and deformities in wildlife at the Kesterson Reservoir were attributed to selenium-contaminated drainage from outside the Grassland Drainage Area. In the early 1990s, selenium-laden drainage from the Grassland Drainage Area was still being discharged into other federal and state wildlife refuges, threatening important ecosystems and associated fish and wildlife.

An innovative tradable loads program

The Grassland Bypass Project is an innovative program designed to improve water quality in the channels used to deliver water to wetland areas. In 1996 several irrigation and drainage districts formed the "Grassland Area Farmers," a regional drainage entity that includes some 97,000 acres of irrigated farmland.

Appendix

Success Story Index and Sources

State	Success Story	Page	Source
Alabama	**Flint Creek Watershed Project: Multiagency Effort Results in Water Quality Improvements**	7	Submitted by Norm Blakely, Alabama Department of Environmental Management.
Alabama	**Tuscumbia-Fort Payne Aquifer Protection Program: Multiagency, Cooperative Approach Protects Aquifer**	8	Information for this success story was gleaned from "A Multi-Agency Cooperative Approach to Aquifer Protection: Program Completion," by Enid Probst, Ph.D., Alabama Department of Environmental Management. Submitted by Norm Blakey, Alabama Department of Environmental Management.
Alaska	**Restoration Work on the Kenai: Section 319 Funds Are Key to Youth Restoration Corps' Success**	10	Submitted by Kent Patrick-Riley, Alaska Department of Environmental Conservation.
Alaska	**Road and Stream Crossing Project in Tongass National Forest: New Data Help Identify Needed Fish Habitat Restoration**	11	Information for this success story was gleaned from Tongass Road Condition Survey Report (Technical Report No. 00-7) by Linda Shea Flanders and Jim Cariello, Alaska Department of Fish and Game, Habitat and Restoration Division, June 2000. Submitted by Kent Patrick-Riley, Alaska Department of Environmental Conservation.
American Samoa	**Nu'uuli Pala Lagoon Restoration Project: Efforts Spread to Other Island Villages**	12	Submitted by Carl Goldstein, EPA Region 9.
Arizona	**Restoration in Nutrioso Creek: Successful Results Beginning to Show**	13	Information for this success story was gleaned from Nutrioso Creek Turbidity TMDL, Arizona Department of Environmental Quality (July 2000), and James Crosswhite, EC Bar Ranch web site at www.ecbarranch.com. Submitted by Ephraim Leon-Guerrero, EPA Region 9.
Arizona	**Sediment Reduction at Hackberry Ranch: Reduction of 4 Tons Per Acre Realized**	16	Submitted by Kris Randall, Arizona Department of Environmental Quality.
Arkansas	**Buffalo National River Watershed Partnerships: Partners Improve Swine Waste Management**	17	Submitted by Sandi Formica, Arkansas Department of Environmental Quality. Project summary authors also include John Giese, Tim Kresse, Tony Morris, Matt Van Eps, and McRee Anderson of ADEQ and Dr. Tommy Daniel of the University of Arkansas.

Appendix (cont.)

State	Success Story	Page	Source
Arkansas	**A Community Approach to Managing Manure in the Buffalo River Watershed: Local Watershed Assistance Program Helps Dairy Farmers**	19	Submitted by Sandi Formica, Arkansas Department of Environmental Quality. Information for this success story was gleaned from Proceedings of Dairy Manure Systems, Equipment and Technology: A Conference for Producers and Their Advisors, by Sandi J. Formica, McRee Anderson, Matthew Van Eps, Tony Morris, and Puneet Srivastava; Rochester, New York, March 20–22, 2001.
California	**Grassland Bypass Project: Economic Incentives Program Helps to Improve Water Quality**	21	Information for this success story was gleaned from Grassland Bypass "Project Description and Update." Submitted by Katherine Domeny, California Environmental Protection Agency, and Joe McGahan, Drainage Coordinator for the Grassland Area Farmers.
California	**Turning History Around: Stream Restoration Reclaims a Meadow While Helping to Control Floods**	23	Submitted by Katherine Domeny, California State Water Resources Control Board.
Colorado	**Mining Remediation in the Chalk Creek Watershed: Project Demonstrates Exciting Possibilities**	25	Submitted by Laurie Fisher, Colorado Department of Public Health and Environment.
Colorado	**Rio Blanco Restoration: Adopted Rocks and Homemade Jelly Help Fund Demonstration Project**	27	Submitted by Laurie Fisher, Colorado Department of Public Health and Environment.
Connecticut	**Center Springs Pond Restoration Project: Skaters and Fish Return to Pond**	29	Submitted by Mel Cote, EPA Region 1.
Connecticut	**Lake Waramaug Watershed Agricultural Waste Management System: One Farm Can Make a Difference**	31	Submitted by Mel Cote, EPA Region 1.
Delaware	**Partners Upgrade Septic Systems in Coverdale Crossroads: Quality of Life Improved for Residents**	33	Information for this success story was gleaned from Delaware's Nonpoint Source Program Annual Report (January 1, 1999, to December 31, 1999).
District of Columbia	**Marsh Restoration and Island Enhancement Projects at Kingman Lake: Tidal Wetland Habitats Re-created**	34	Submitted by Sheila Besse, D.C. Department of Health.
District of Columbia	**The Watts Branch Initiative: Community Involvement Key to Success**	36	Submitted by Sheila Besse, D.C. Department of Health.

Appendix B

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULAR COMMISSION MEETING
9:30 a.m., Friday, January 22, 1999

Arkansas State Police Plaza
No. 1 State Police Plaza
Little Rock, Arkansas

Commissioners Attending: B. Bush, C. Coleman, J. Goodhart, D. Hanby, J. Mobley, J. Shannon, L. Sickel, S. Varnell, W. Wright and R. Young
Commissioner Absent: J. Hill, J. Pascale and T. Schueck

VISITORS: Randy Thurman, Arkansas Environmental Federation

Vice-Chairman Mobley called the meeting to order at approximately 9:30 a.m. Roll call was taken and a quorum was declared.

Approval of Minutes
The minutes of the December 4, 1998 meeting were approved.

Introduction of Guest(s)
Vice Chairman Mobley welcomed all guests.

Department's Reports
A. Director Randall Mathis' Report

Region VI Environmental Excellence Awards Presentation
Director Mathis stated he had the pleasure of presenting an EPA Region Six Excellence in Environmental Education Award to Mr. Robert Hunter, Customer Service Division. Mr. Hunter focused on the youth in schools education chairperson, made presentations throughout the state, served as Region VI on the environmental education program roundtable; worked with various environmental groups and other states; developed outreach programs; and developed curriculum for recycling and environmental awareness. He is leading a group of environmental educators to continue reaching the Arkansas public. Additionally, Mr. Hunter was recognized for Continuing Success in the Environmental Education Roundtable.

Director Mathis stated that an EPA award for contributions in partnership with others to improve animal waste management in the Buffalo National River Watershed was presented to the Department. He recognized the following Department personnel for this achievement: Sandy Formica, John Giese, Tim Kresse; Tony Morris, Matthew Van Eps, McRee Anderson, and Richard Thompson.

City of Huntsville - Regulation No. 2, Water Quality Standards
Director Mathis stated that the Department has worked with the City of Huntsville for compliance with the water quality standards. Specifically, the Department sought a solution to the city's problem of discharging waters into streams that flow into Beaver Lake. The solution was found with the help of Barbara Purdue of the Arkansas Economic Development Commission

Appendix A

Newsroom

News Releases from Region 6

Ceremony Set to Present Environmental Excellence Awards to Arkansas Winners

Release Date: 11/12/1998

Contact Information: For more information contact the Office of External Affairs at (214) 665-2200.

The U.S. Environmental Protection Agency (EPA) announced that Assistant Regional Administrator for Management Lynda Carroll will present 11 Environmental Excellence awards in a Little Rock ceremony. Arkansas Department of Pollution Control and Ecology Director Randall Mathis also will participate in the ceremony. Twenty-two recipients will receive plaques, Environmental Excellence flags and lapel pins.

WHEN: 10 a.m., Tuesday, November 17, 1998

WHERE: Governor's Conference Room, Room 250
Arkansas Capitol Building, Little Rock

WINNERS:

City of Fayetteville

North Little Rock Water Department

City of Stuttgart

City of Lonoke

SWEPCO - Flint Creek Power Plant

Eastman Chemical Company, Batesville

Green Bay Packaging Incorporated, Morrilton

Burgess C. Spencer, Lonoke

Environmental Education Roundtable, Arkansas Department of Pollution Control & Ecology

Animal Waste Management Partnership, Buffalo National River Watershed

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Recent additions

02/11/2014 EPA Administrator to Join San Antonio Mayor Julián Castro for Press Conference at Solar Farm and Water Treatment Facility

02/10/2014 EPA Withdraws Federal Plan and Approves Oklahoma's Air Plan for Public Service of Oklahoma

02/06/2014 Publicly Available Tool Reports On Different Types of Pollution

02/05/2014 Thursday: EPA Administrator Gina McCarthy and New Orleans Mayor Landrieu to Commemorate Completion of New Orleans Rain Garden Project

01/06/2014 EPA Funds LSU Study to Protect Bees from Pesticides