

Arkansas Forestry Commission



U of A
Cooperative
Extension Service
September 21-22,
2011

2011 NPS 319(h) Project Review



Arkansas Silvicultural NPS Project

Project # 08-700

- AFC BMP Guideline Books and Materials

BMP Guideline Book & Materials



RECOMMENDED MANAGEMENT PRACTICES FOR THE PROTECTION OF THE KARST LANDSCAPE

The Ozarks is a region of karst that includes distinctive geological features and topography, where the subsurface is composed of porous and soluble limestone. The presence results in unique surface and subsurface features including sinkholes, losing streams, springs, caves, and complex underground drainage systems.

Surface waters are commonly transported through underground conduits contributing to the groundwater base. Surface water enters groundwater systems rapidly by passing through permeable soil and fractured bedrock and groundwater in karst can travel as quickly as a few thousand feet in one or two days. The surface water is contaminated from groundwater and creates habitats impaired. These and other characteristics of karst management create unique challenges between the surface and groundwater environment that require specialized management techniques.

The following management practices are recommended for implementation during best management activities in the Ozarks to protect groundwater resources in karst areas of karst KARST CONSERVATION PRACTICES

UNDERDETERMINED KARST SENSITIVITY

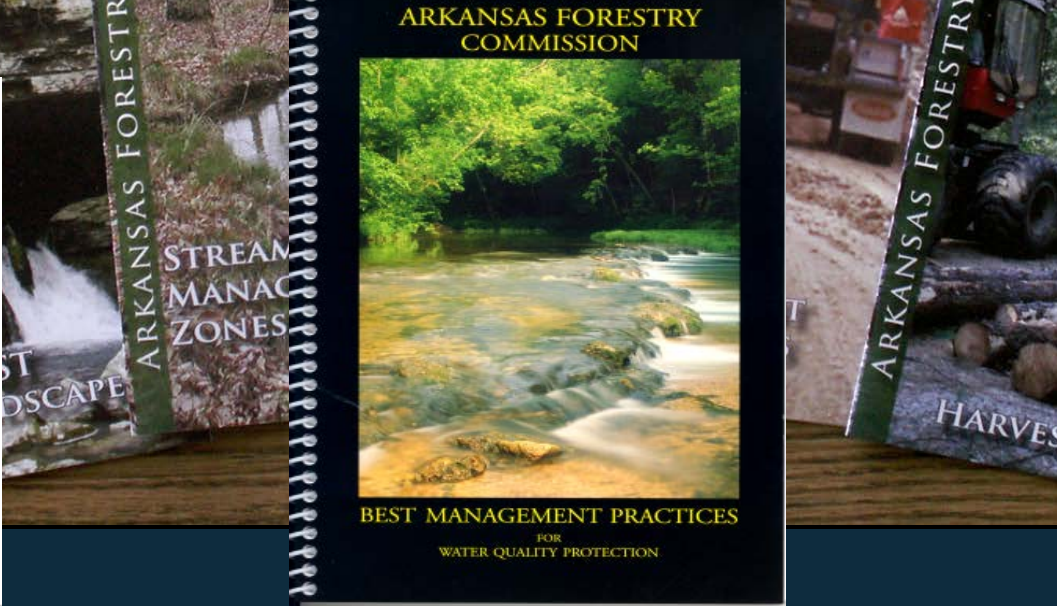
Where a karst spring, sinkhole, or an aquifer losing stream exist in an area without a determined karst susceptibility or karst region, apply the existing Arkansas Best Management Practices (BMP) for karst management zones. In addition, areas with karst susceptibility or karst region, areas are best managed by a combination of 100% area adjacent to a karst spring, sinkhole or an aquifer losing stream.

- Use karsting techniques that maintain an abundance of karst forest floor and exposure of mineral soil.



- Long ledges and associated equipment, fuel, and chemical storage should be at least 100 feet beyond the SMZ.
- Heavy chains should not be broadcast within the SMZ, individual trees require appropriate following chains at labels.
- Logging debris should not be placed in creeks, springs, sinkholes, or losing streams.
- Roads within SMZ should be minimized and follow Arkansas BMP guidelines.
- No mechanical site preparation should occur within the SMZ.
- When conducting prescribed fire activities, which should be conducted so that smoke disperses from lowest cone entrance.
- All use of BMPs for water quality protection should be followed as outlined in the Arkansas Forestry Commission BMP manual.

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ARKANSAS FORESTRY COMMISSION

BEST MANAGEMENT PRACTICES FOR WATER QUALITY PROTECTION



FOREST FACTS

Firebreaks (Fire Lines)

Purpose: Firebreaks are also referred to as fire lines and the line is a narrow strip of ground or a combination of trees that prevent the spread of the fire. Firebreaks are also available across to the property and nearby utilities.

FOR MORE INFORMATION:
www.arkforestry.org
<http://ark.arkforestry.org>



Typical firebreaks may be 10-20 feet wide, depending on forest type. Island firebreaks and grass firebreaks.

Spacing Table for Water Bars

Grade or Slope (%)	Distance Between (feet)
0	275
1	150
2	100
3	75
4	60
5	45
6	30

Water Bar Installation



Water Diversion: Diversion lines are used to divert water away from a stream or spring. Purpose of diversion lines is to divert water away from a stream or spring. Purpose of diversion lines is to divert water away from a stream or spring. Purpose of diversion lines is to divert water away from a stream or spring.



FOREST FACTS

Streamside Management Zones (SMZs)

Streamside Management Zone (SMZ) is the area of land adjacent to a stream that is managed to protect water quality. SMZs are established to protect water quality and to provide a buffer between the stream and the surrounding forest.

FOR MORE INFORMATION:
www.arkforestry.org
<http://ark.arkforestry.org>

The Arkansas Forestry Commission (AFC) provides information on the Streamside Management Zones (SMZs) and how they are established. The AFC provides information on the Streamside Management Zones (SMZs) and how they are established.

SMZs provide the following:

- Protect stream banks from erosion.
- Reduce sediment input to streams.
- Provide a buffer between the stream and the surrounding forest.
- Provide a habitat for wildlife.
- Provide a buffer between the stream and the surrounding forest.

SMZs are established in the following ways:

- 100% riparian forest (SMZs are established in the riparian forest).
- 50% riparian forest (SMZs are established in the riparian forest).
- 25% riparian forest (SMZs are established in the riparian forest).



BEST MANAGEMENT PRACTICES COST SHARE ASSISTANCE

The Arkansas Forestry Commission (AFC) provides information on the Best Management Practices (BMP) Cost Share Assistance program. The program provides financial assistance to landowners who implement BMPs on their land.

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Arkansas Silvicultural NPS Project

Project # 08-700

- AFC BMP Guideline Books and Materials
- Technical & Non-Technical BMP Training

Technical and Non-Technical Training

Technical BMP Training

- Loggers and Foresters
- 27 Workshops with 809 Trainees



Technical and Non-Technical Training

Non-Technical BMP Training

- Increase Landowner Awareness
- 6 Workshops with 318 Landowners Attending



Arkansas Silvicultural NPS Project

Project # 08-700

- AFC BMP Guideline Books and Materials
- Technical & Non-Technical BMP Training
- Courtesy Exams

Courtesy Exams

Program Taking Root

- Site Specific Training
- 12 Sessions with 81 Foresters, Loggers and Landowners



Arkansas Silvicultural NPS Project

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- Technical & Non-Technical BMP Training
- Courtesy Exams
- Logger/Landowner Forestry Conference

Forest Products Exposition/Conference

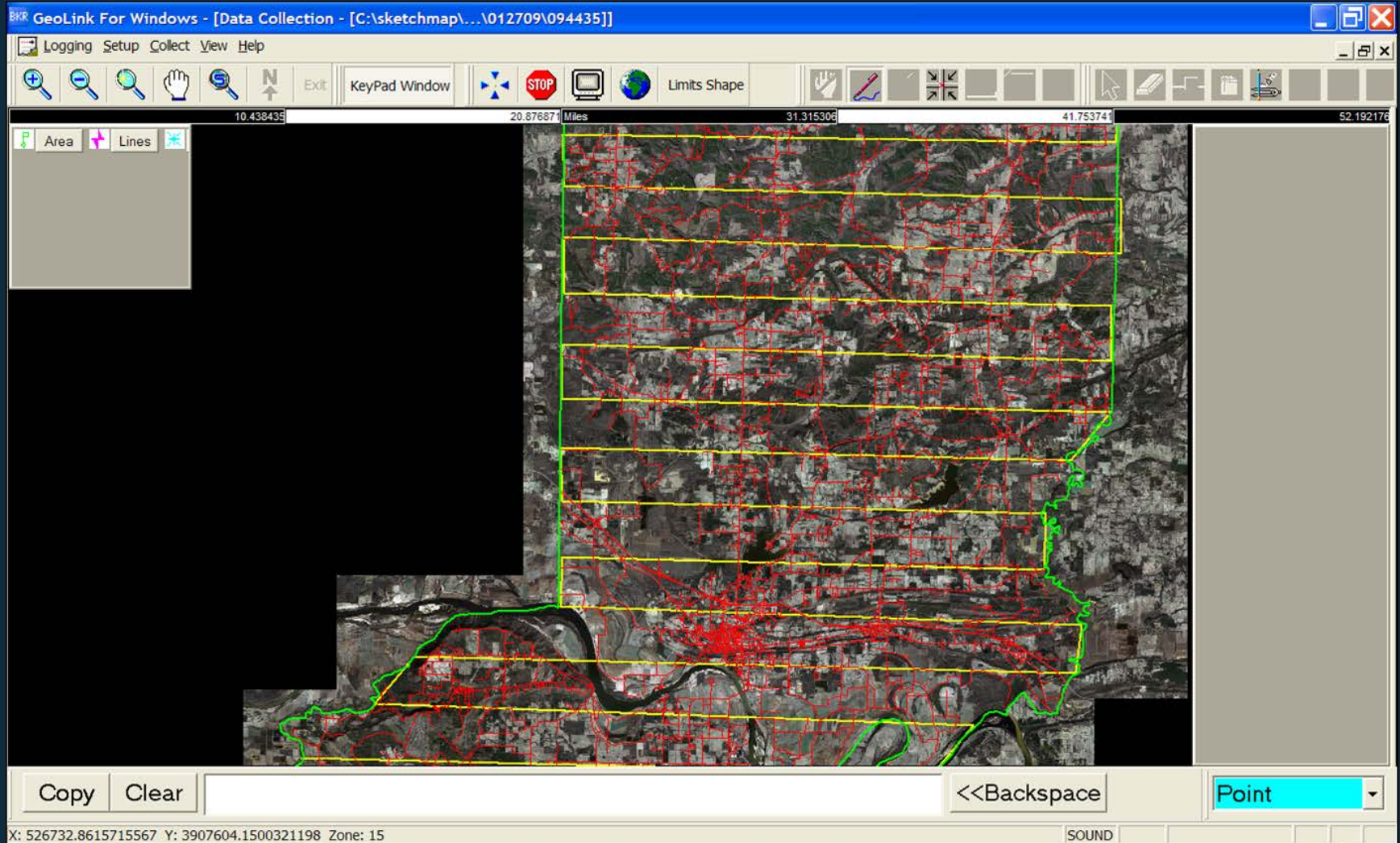


Arkansas Silvicultural NPS Project

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- Technical & Non-Technical BMP Training
- Courtesy Exams
- Logger/Landowner Forestry Conference
- AFC Silviculture 7th BMP Assessment

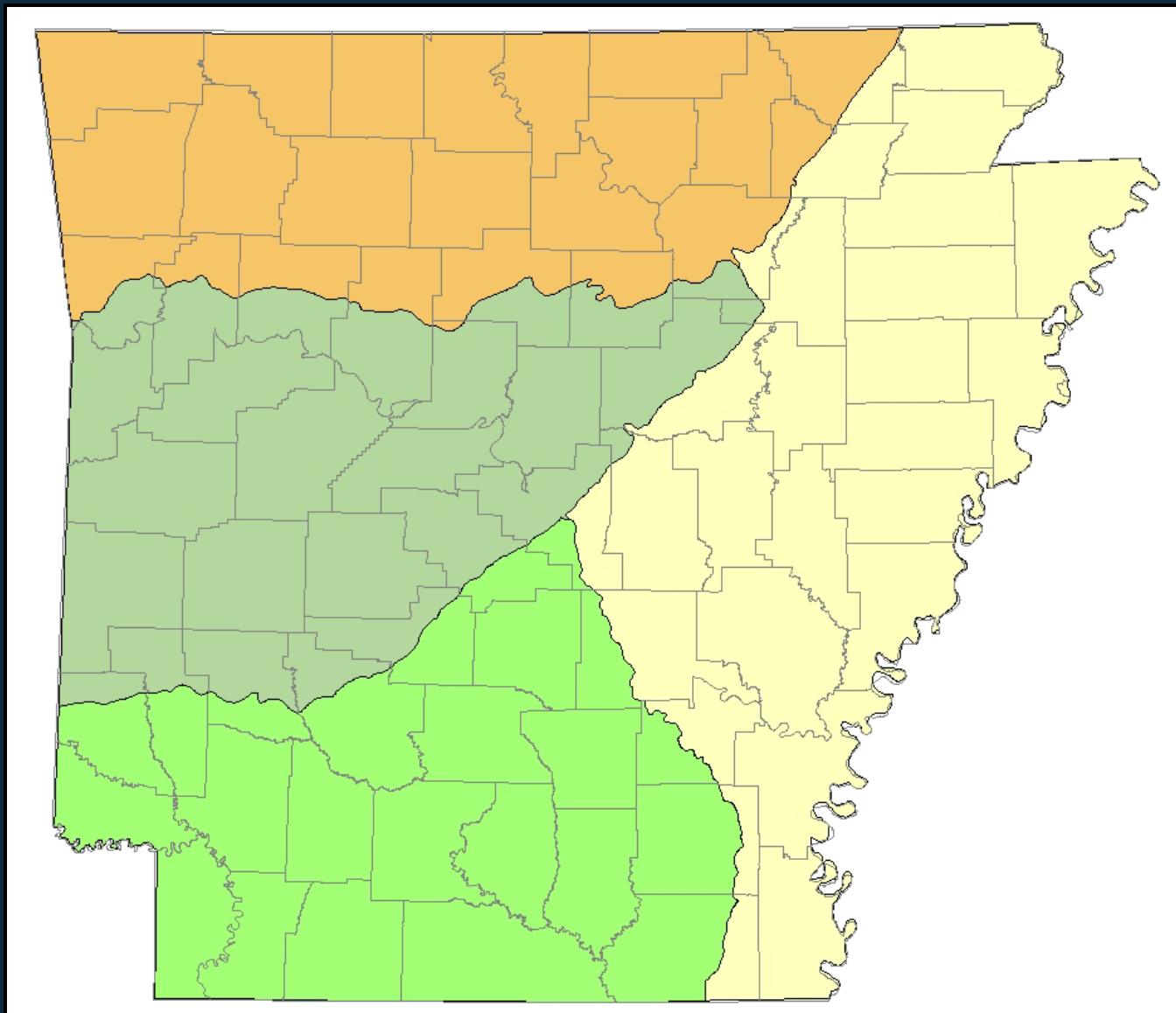
Silviculture BMP Assessment



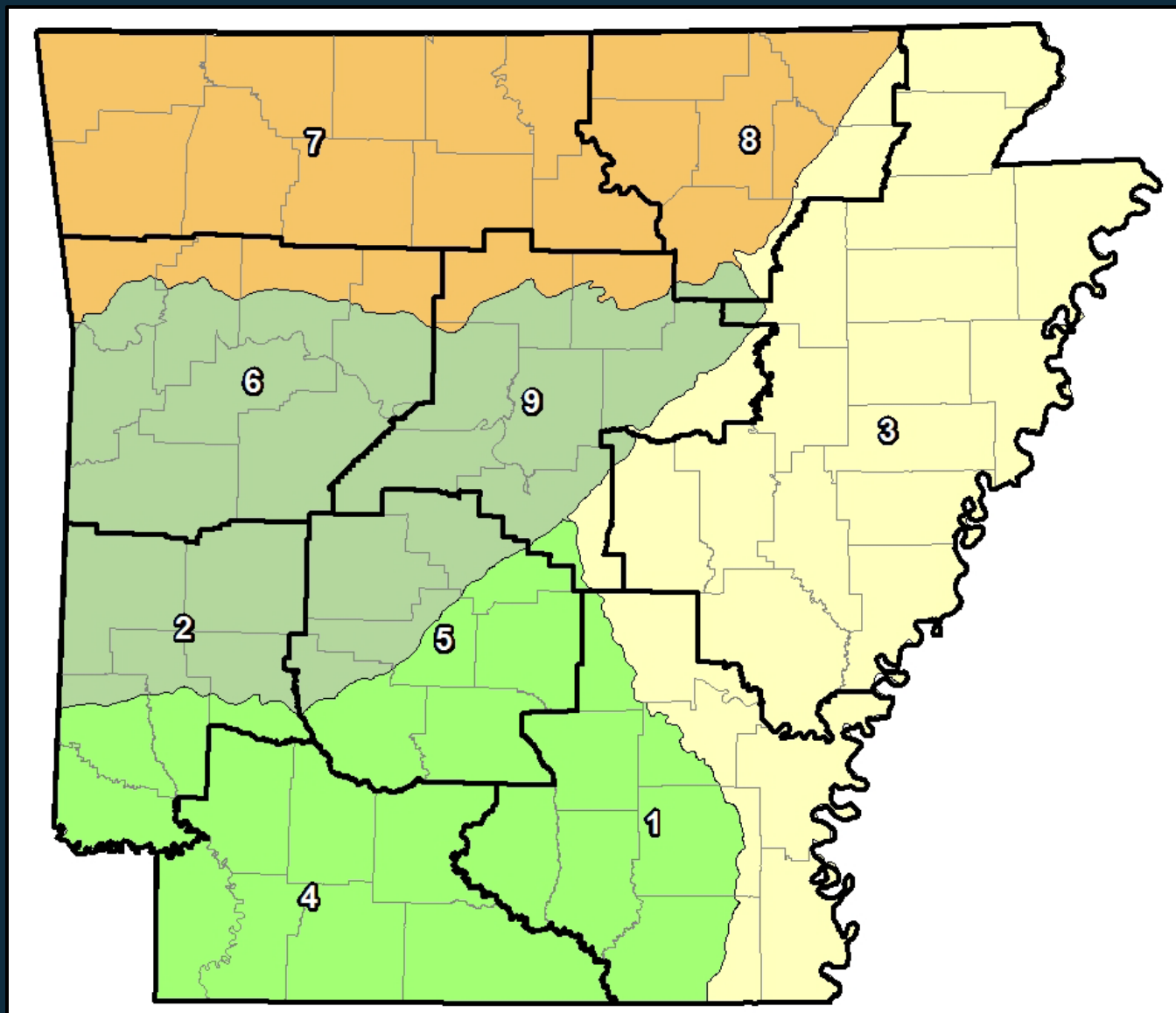
Silviculture BMP Assessment



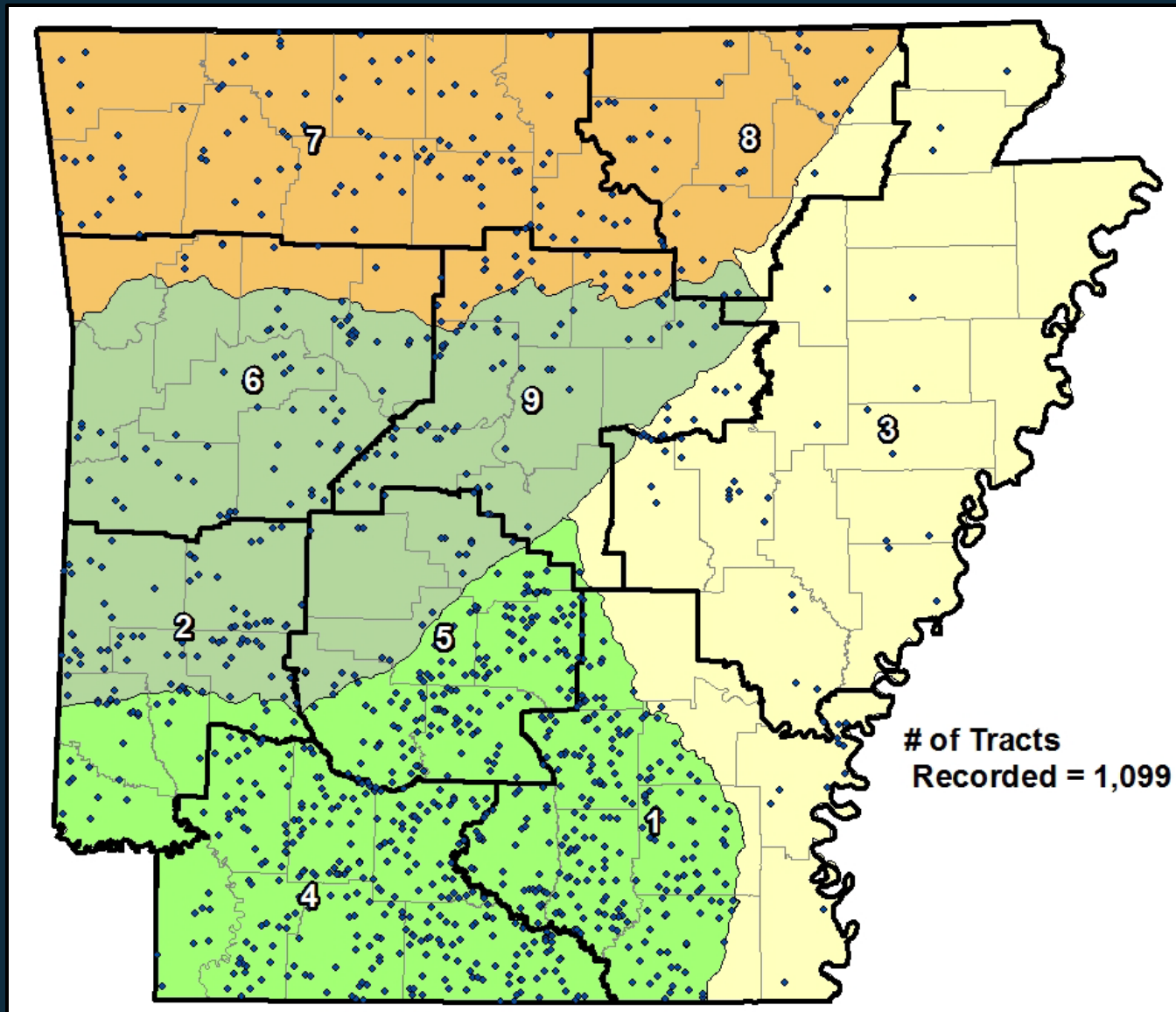
Silviculture BMP Assessment



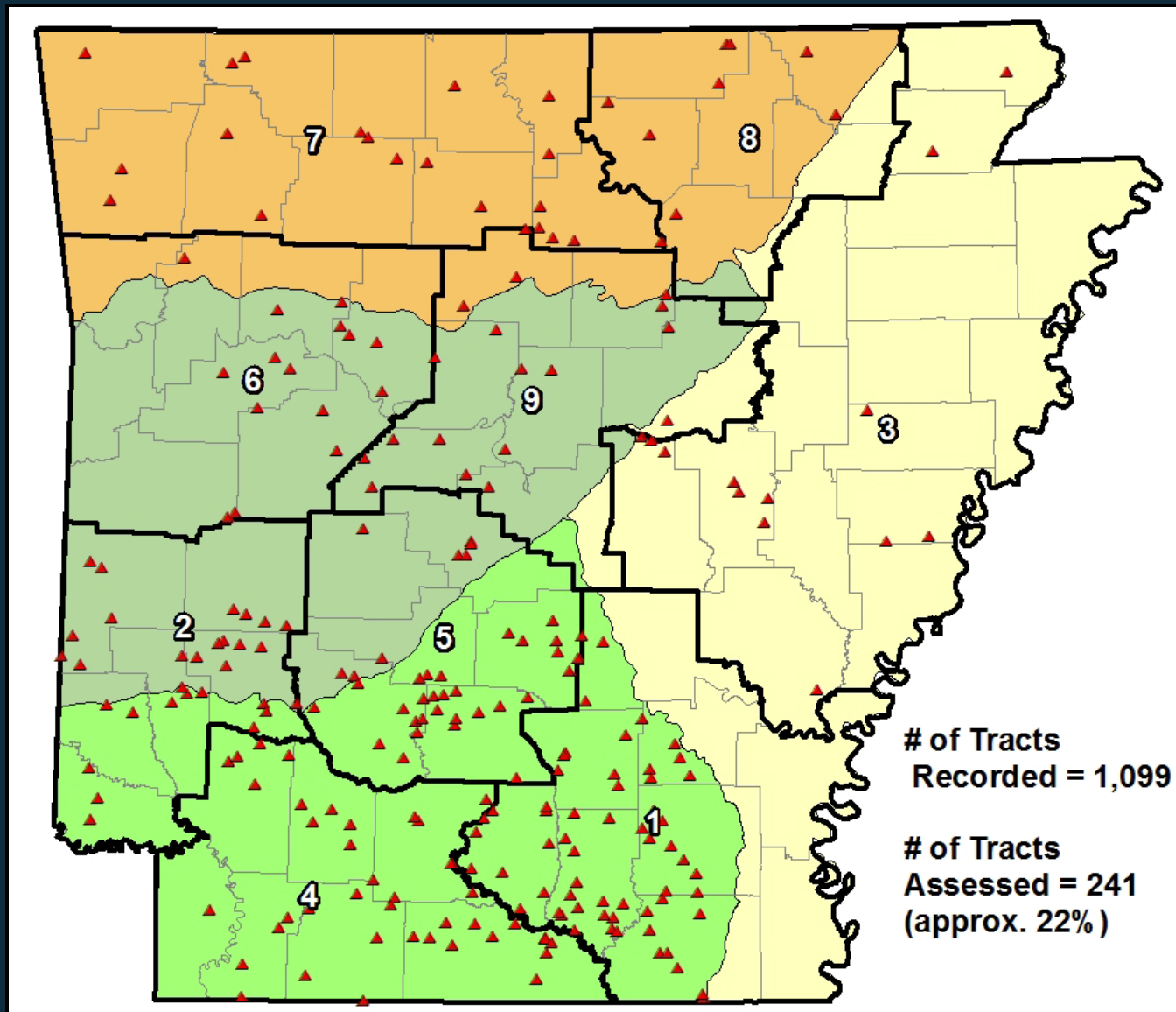
Silviculture BMP Assessment



Silviculture BMP Assessment



Silviculture BMP Assessment



Silviculture BMP Assessment

Previous BMP Implementation Averages

- 2005-2006: 88%
- 2007-2008: 86%

2010 – 2011: 89%



Silviculture BMP Assessment

Implementation by BMP Category

Category	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
Streamside Management Zones (SMZ)	182	82.1	3.58	c
Roads	175	85.7	2.38	b
Harvesting	241	95.2	1.16	a
Regeneration	57	95.2	2.58	a

* Implementation percents having a different significance letter are significantly different at the 5 percent probability level.

Silviculture BMP Assessment

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Silviculture BMP Assessment

Implementation by Physiographic Region

Region	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
Delta	14	85.8	5.42	a
Ouachita	42	90.3	3.43	a
Ozark	33	88.6	2.88	a
Southwest	152	88.5	2.01	a

* Implementation percents having a different significance letter are significantly different at the 5 percent probability level.

Silviculture BMP Assessment

Implementation by AFC District

AFC District	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
1	59	87.5	3.47	a
2	30	90.9	4.92	a
3	13	86.4	5.73	a
4	40	87.3	3.62	a
5	38	90.3	3.67	a
6	15	90.5	6.49	a
7	20	89.2	3.67	a
8	8	83.0	5.27	a
9	18	90.6	3.01	a

* Implementation percents having a different significance letter are significantly different at the 5 percent probability level.

Silviculture BMP Assessment

Implementation by AFC District

AFC District	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
1	59	87.5	3.47	a
2	30	90.9	4.92	a
3	13	86.4	5.73	a
4	40	87.3 (+7%)	3.62	a
5	38	90.3	3.67	a
6	15	90.5	6.49	a
7	20	89.2	3.67	a
8	8	83.0	5.27	a
9	18	90.6 (+14%)	3.01	a

* Implementation percents having a different significance letter are significantly different at the 5 percent probability level.

Silviculture BMP Assessment

Implementation by Ownership Class

Ownership Class	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
Federal	10	97.2	2.07	a
State	4	87.2	12.87	abc
Industry	75	94.6	1.33	a
Corporate	51	89.8	2.95	b
PNIFLO	101	83.0	2.58	c

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Silviculture BMP Assessment

Implementation by Ownership Class

Ownership Class	No. of Sites	Implementation Percent	Margin of Error	Statistical Difference*
Federal	10	97.2	2.07	a
State	4	87.2	12.87	abc
Industry	75	94.6	1.33	a
Corporate	51	89.8	2.95	b
PNIFLO	101	83.0	2.58	c

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Moving Forward

Find new ways to reach PNIFLOs

- Target Consulting Foresters and Timber Buyers
- Establish BMP Demonstration Areas

Improve BMP assessment methodology

- Incorporate Landsat Imagery

Re-evaluate training programs

Acknowledgements



Arkansas Natural Resource Commission



Environmental Protection Agency,
Region 6



Arkansas Timber Producers Association



Arkansas Forestry Association



School of Forest Resources

Arkansas Forestry Commission



Questions?

www.arkansasforestry.org

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