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# Model Forest Policy Program

## Forestry BMPs and Water Quality

*[www.mfpp.org](http://www.mfpp.org)*

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# Forestry BMPs and Water Quality

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“Best Management Practices (BMPs) are the cornerstone of the forestry community’s approach to protecting water resources during and after forest treatments, commonly referred to as management activities. Design and testing of effective BMPs requires an understanding of basic watershed functions, erosion and sedimentation processes, and interactions between these processes and aquatic resources. Implementation of effective BMPs, once designed, requires continuous education of an ever-changing population of forestry practitioners and landowners.” (*Southern Forest Resource Assessment 2002*)

# Today's Agenda

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(Bud Watson, MFPP) Overview of MFPP

Evolution and Development of Forestry BMPs

Elements of forest practice legislation (mandatory v. voluntary programs)

Forestry BMP programs of the Southeastern states

(Clint Trammel, Pioneer Forest) Using Forestry BMPs in the private forestland single tree selection sustainable forestry context

What to look for in logging jobs in your watershed

Questions and Answers

# Objective



The mission of the Model Forest Policy Program is to research, develop, and disseminate progressive policy . . .

. . . for protection of privately owned forested land. In addition, we build the capacity of local, state and regional groups to enact that policy.

# The Model Forest Policy Program

- Northwestern legislative study
- Transitional period
- Current watershed emphasis

*Figure 2. State comprehensive forest practice regulatory laws, by state, statutory citation, and date of enactment and amendments.*

State	Date of enactment	Statutory citation
Alaska	1978; amended 1990	Alaska Forest Resources and Practices Act <i>Alaska Stat. ch. 17 sec. 41.17.010-41.17.950</i>
California	1973; many amendments	Z'berg-Nejedly Forest Practices Act of 1973 <i>Calif. Public Resources Code ch. 8; div. 8, sec. 4511-4628</i>
Connecticut	1991	Connecticut Forest Practices Act <i>Public Act 91-335</i> (rules yet to be adopted)
Idaho	1974; last amended 1990	Idaho Forest Practices Act <i>Idaho Code sec. 38-1301 to 38-1311</i>
Maine	1989	Maine Forest Practice Act <i>Various amendments to Chapters 12, 14, and 36, Maine Revised Statutes Annotated</i>
Massachusetts	1983	Massachusetts Cutting Practices Act <i>Mass. Gen. Laws ch. 132, sec. 40 to 46</i>
Nevada	1955; amended 1971, 1973, 1979	Nevada Forest Practice Act of 1955 <i>Nev. Rev. Stat. sec. 528.010-528.120</i>
New Mexico	1978	New Mexico Forest Conservation Act <i>N.M. Rev. Stat. 68-2-1 to 68-2-27</i>
Oregon	1971; last amended 1991	Oregon Forest Practice Act <i>Ore. Rev. Stat. 527.610-527.739 and 527.990</i>
Washington	1974; last amended 1992	Washington Forest Practice Act <i>Rev. Code of Wash. 76.09.010-76.09.935</i>

Source: State statutes, administrative codes and rules, and related public documents.

# MFPP's Approach to Sustainable Forestry

## *Preference for Natural Forests over Plantations*

- Plantations appropriate on abandoned farmland
- Natural “working” forests have both economic and environmental benefits



*Photos courtesy of Richard Weisser and SmokyPhotos.com*

# Evolution of Forestry BMPs

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## *1956-2000*

- 1956-57 -- Research at Coweeta Hydrologic Laboratory - “operational standards”
- 1977 -- Clean Water Act - begins to emphasize nonpoint source (NPS) pollution
- 1978 -- States respond to CWA - develop and continue to revise “best management practices” (BMPs)
- 1987 -- Water Quality Act - increased emphasis on NPS and BMPs
- 1990s - Revisions and “fine tuning”

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**Where are we with  
regard to BMP  
implementation in the  
Southeast today?**

**voluntary v. mandatory  
programs?**

# Forestry BMPs in the Southeastern States

	<u>Revised</u>	<u>Type</u>	<u>Estimated Compliance</u>
• Alabama	(1990)	Voluntary	93% (80%SMZ)
• Florida	(1991)	<u>Voluntary</u>	95% overall
• Georgia	(1999)	Voluntary	79% overall, <u>60% stream crossing</u>
• Kentucky	(1997)	<u>Mandatory</u>	35% " <u>effective</u> "
• Mississippi	(2004)	Voluntary	87% " <u>estimated</u> "
• N Carolina	(1989)	Voluntary	90% industry, <u>76% private</u>
• S Carolina	(1992)	Voluntary	87% private "effective"
• Tennessee	(2003)	Voluntary	63% "overall"
• Virginia	(2002)	Voluntary	7% " <u>completely compliant</u> "

Southeast Forest Resource Assessment

## Summary

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“Implementation of effective BMPs, once designed, requires continuous education of an ever-changing population of forestry practitioners and landowners”

— Southern Forest Resource Assessment

MFPP believes watershed groups can play a significant role in this process in the context of their existing programs.

# **Pioneer Forest LLC**

**Owned by the L-A-D Foundation**

**A for-profit business enterprise of about 160,000 acres.**

**A unique forest management philosophy in the world of today.**

**A high standard of environmental ethic based on sustainable forestry.**

**Natural area and habitat protection**

**Founded by Leo A. Drey in 1951**

**Donated to the L-A-D Foundation in 2004.**







**When it is done right...**

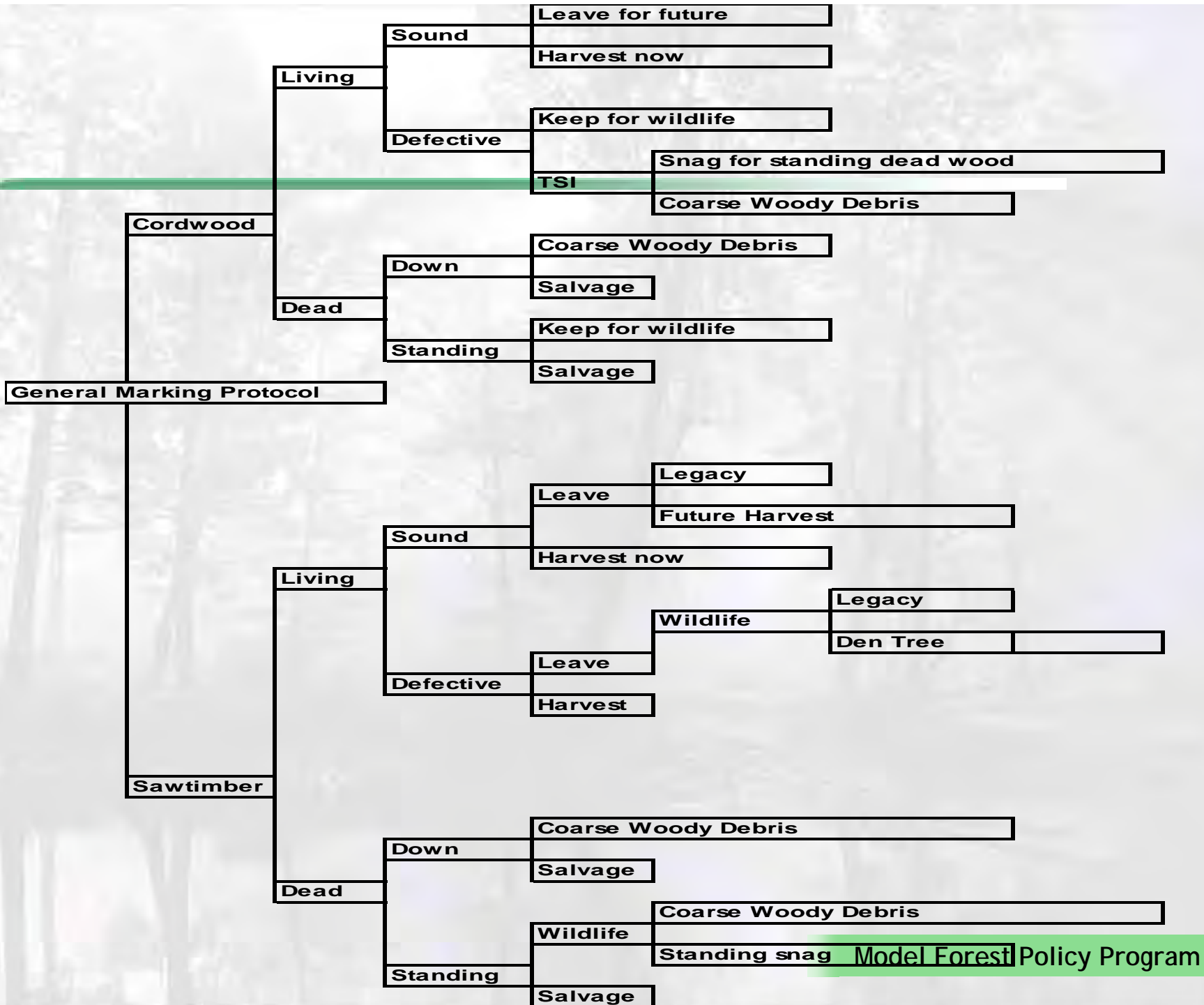
**Third harvest**

**15 trees removed.**

**No damage to residual stand.**

**3871 board feet per acre left**

**2166 board feet per acre harvested**



*“My estimates of canopy turnover due to single-tree selection harvest is between 189 to 228 years. This calculated turnover time is longer than the 60 to 120 years for most clear-cut stands. The long amount of time required for Pioneer Forest to harvest all canopy trees allows for the existence of many microhabitats below the canopy over a long period of time. When only small portions of the forest canopy are opened at one time, the effects that a disturbance has on light penetration, changes in microclimate, and species replacement are limited.”*

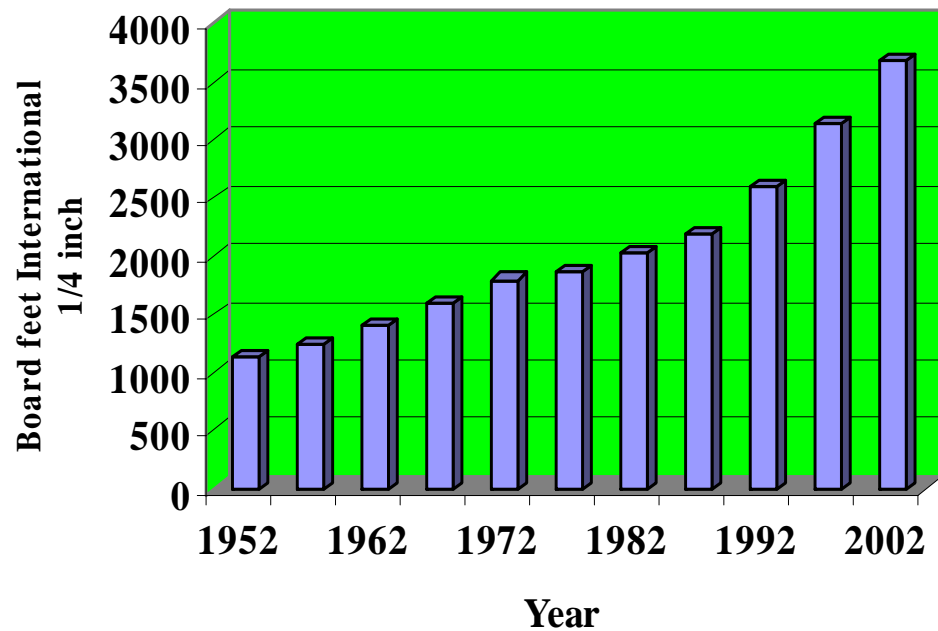
*Elena M. LaVigne*

*Heterogeneity within and among selectively harvested forest stands in the Missouri Ozark mountains*

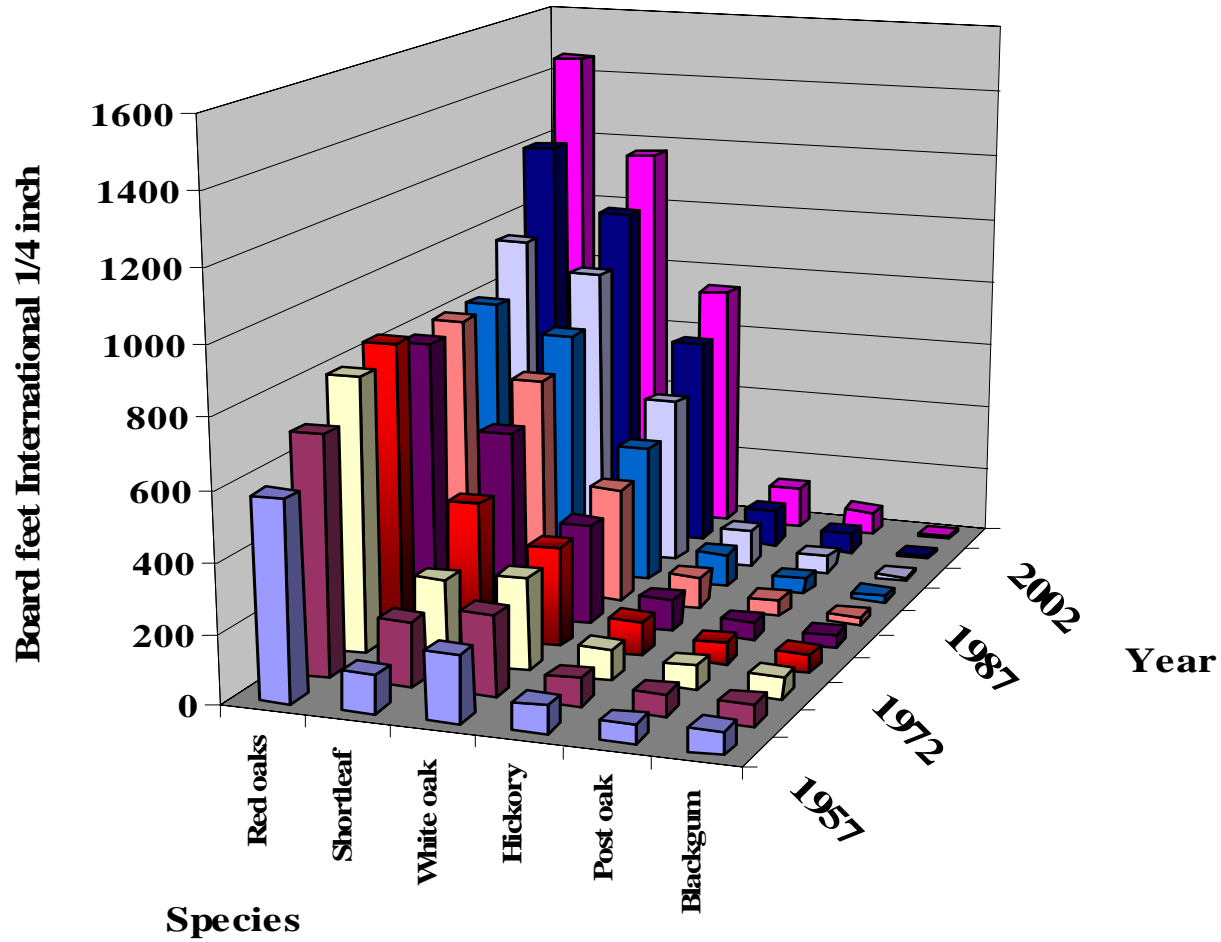
*MS, 2002, Saint Louis University*

Volume per acre	
Board feet, International 1/4	
1952	1128
1957	1236
1962	1409
1967	1595
1972	1797
1977	1855
1982	2024
1987	2199
1992	2588
1997	3133
2002	3680

**Pioneer Forest  
Board feet per acre  
2002 CFI**



**Pioneer Forest  
2002  
Sawlog volume per acre**



**Hillside in background was logged 6 months ago.**

**Note retained cover and intact forest.**



**15 miles of stream through Pioneer Forest and three days  
After a 5-inch rainfall.**



**Buffer zones along streams help reduce sedimentation in streams. Buffer width varies with topography with increasing width with increasing steepness.**



**Perpetual ground cover.**

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**Logging slash left in place  
will serve to slow the speed  
of runoff.**



**Missouri has no mandatory BMPs and this is often the result**



**This is the same landing the following summer.**





**Even simple efforts are often enough to significantly reduce erosion, sedimentation in streams and slow runoff.**

**On this gentle slope a skidder was used to put in five water bars from the top of the ridge to the road below.**





**Or the structures can be more elaborate.**

**Mandatory BMPs on Pioneer Forest put in place on every timber sale. This landing repair took about 20 minutes of the loggers time. will recover naturally.**





Rocky Hollow

Clifty Creek

Hickory Canyons

Dillard Mill State Park

Ball Mill Resurgence

Dripping Springs

The Narrows

Cave Spring

Horseshoe Bend

Current River Natural Area

Pioneer Natural Area

Virgin Pine

Scenic Easements

Grand Gulf State Park