

# GEORGIA'S SILVICULTURAL BEST MANAGEMENT PRACTICES 2002 COMPLIANCE SURVEY REPORT

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*AUTHOR:* Staff Forester, Georgia Forestry Commission, P.O. Box 819, Macon, Georgia 31202.

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**Abstract.** Scientific studies have shown that when properly applied, silvicultural Best Management Practices (BMPs) provide adequate water quality protection. In order to determine the proper installation and effectiveness of BMPs, the Georgia Forestry Commission (GFC) conducts statewide BMP Implementation and Compliance Surveys. During the summer and fall of 2002, the GFC examined 420 sites statewide from a stratified random sample across all ownerships and regions of Georgia. These sites had to have been silviculturally treated within the past 2 years, preferably within the past 6 months. By ownership, 278 sites occurred on the non-industrial private forest landowner (NIPF), 111 sites on forest industry land, and 31 sites on public land. By Region, 30 sites were in the Mountains, 155 sites in the Piedmont, 82 sites in the Upper Coastal Plain, and 153 sites in the Lower Coastal Plain. The results show an 86% overall statewide BMP Implementation rate with 99.1% of those acres in compliance with BMPs. By ownership, BMP implementation was 90.7% on forest industry lands, 86.9% on Public lands, and 83.8% on NIPF lands. With public attention focusing on the protection of riparian areas or streamside management zones (SMZs), a statewide BMP Implementation rate of 87.1% with 96.6 % of those acres in compliance with BMPs, forest operators are doing an excellent job of protecting these sensitive areas.

## INTRODUCTION

Upon passage of the federal Clean Water Act (CWA) Amendments of 1987, the Environmental Protection Agency (EPA) issued guidance on the relationship of nonpoint source controls and water quality standards as part of the Water Quality Standards Handbook. The guidance states: "It is recognized that Best Management Practices (BMPs), designed in accordance with a state approved process, are the primary mechanism to enable the achievement of water quality standards". It goes on to state: "It is intended

that proper installation of state approved BMPs will achieve water quality standards and will normally constitute compliance with the CWA. **BMPs developed under a state approved process may be used as performance standards for proposed actions**".

The purpose and objectives of the BMP Survey were to determine the: rates of BMP implementation; acres in BMP compliance; effectiveness of BMPs for any needed modifications; actual miles of streams that may have forestry water quality impairments; and ownerships and regions to target for future training.

## BACKGROUND

By designation from the Georgia Environmental Protection Division (GAEPD), the Georgia Forestry Commission (GFC) is the lead agency for statewide development, education, implementation, and monitoring of forestry Best Management Practices (BMPs). During the summer of 2002, the GFC completed the fourth statewide forestry BMP Implementation and Compliance Survey. **This survey is the first to evaluate the revised BMPs that went into effect in January 1999.**

The protocol and scoring methodology for this fourth survey was consistent with the Southern Group of State Foresters (SGSF) BMP Monitoring Task Force revised recommendations made and adopted in June 2002. The SGSF Task Force is composed of hydrologist and water specialists from state forestry agencies, US Forest Service, forest industry, and the National Council of the Paper Industry for Air and Stream Improvement (NCASI) in consultation with EPA Region IV nonpoint source specialists.

## METHODS

### Site Selection

The number of sites to evaluate in each of Georgia's 159 counties was based on the amount of timber

harvested in each county as determined using the US Forest Service’s, “Forest Statistics for Georgia, 1997” report, Table 35 - Average Annual Removals of Growing Stock on Timberland by County and Species Group. The following criteria was used:

Thousand Cords	or	Million Cubic Feet	Target Sites per County
< 50		< 3.715	1
50 – 100		3.715 – 7.430	2
101 – 200		7.431 – 14.860	3
201 – 300		14.861 – 22.290	4
>301		> 22.290	5

This method resulted in approximately 420 sites being targeted to survey. The next step was to target the sample to reflect ownerships where the practices occurred. This was determined also using the US Forest Service’s, “Forest Statistics for Georgia, 1997” report, Table 47 - Area of Timberland Treated or Disturbed Annually and Retained in Timberland by Treatment or Disturbance and Ownership Class. The ownership classes are categorized into non-industrial private forest (NIPF) land, forest industry (FI), and Public lands, which includes federal, state, county or city ownership. Of the total annual acres silviculturally treated by county, the percentage for each ownership category was determined and multiplied by the number of sites to sample in each county. Of the 420 sites targeted, 278 sites (66%) would be on NIPF, 111 sites (26%) would be on FI, and 31 sites (8%) would be on Public lands resulting in a stratified sample.

In order to randomize the stratified sample, GFC personnel went to the county tax office and used the Georgia Department of Revenue’s PT 283-T “Report of Timber Harvest” notification forms on record. Only landowner information from “lump sum” sales or “owner harvests” during the past 2 years and preferably during the last 6 months was used to compile a list of potential random selection sites. The forms were separated by ownership category and the appropriate number of sites was drawn randomly. Information from “unit sales” is confidential and therefore unavailable for target sites.

### Site Evaluation

After being selected and verified in the field by County Foresters or Chief Rangers that the practice had indeed taken place, attempts to contact all landowners were made to obtain permission prior to the site being

evaluated. All evaluations were conducted by trained District Water Quality Foresters to provide accuracy, consistency, and quality control using the BMP Compliance Survey Form. Each site was identified by county, district, physiographic region, ownership, river basin and sub-basin, forest types before treatment, terrain class, soil erodibility class, hydric soil limitation class, type waterbodies within the practice area, and miles of stream evaluated within the practice area. Soils and stream data were determined using NRCS county soil survey maps, where available, and/or USGS Topographical maps. Data could be extracted by each of these fields of information.

Each site was then evaluated for BMP implementation and compliance by observing as much of the treated area as possible and answering the 108 specific, YES / NO answer type questions directly related to BMP implementation. Scoring occurred at three levels on each site: (1) individual BMP; (2) category of practice; and (3) overall site implementation.

For a level 1, individual BMP, implementation was recorded as either a *NOT APPLICABLE*, *YES*, or *NO*. For simplification, each question was worded so that a positive answer was recorded as a “*YES*” while a negative answer, indicating a significant departure from BMP recommendations, was answered with a “*NO*”. If an individual BMP, that was applicable and needed, was not fully implemented over the entire area, it received a *NO*. The “all or none principle” as recommended by the SGSF framework applied.

For level 2, categories of practice, and level 3, overall site implementation, the score was expressed as a percent of all applicable BMPs implemented against all applicable BMPs in the category of practice and overall site. Therefore, each category of practice and overall site could score between 0% and 100%. The categories of practices evaluated were as follows:

- Streamside Management Zones (SMZs)
- Stream Crossings
- Main Haul Roads
- Timber Harvesting outside SMZs
- Mechanical Site Preparation outside SMZs
- Chemical Site Preparation outside SMZs
- Control Burning outside SMZs
- Artificial Regeneration outside SMZs
- Forest Fertilization outside SMZs
- Equipment Servicing outside SMZs
- Special Management Areas

In addition, each BMP was further evaluated in terms of “significant water quality risk”. Significant risk is defined as “ a situation or set of conditions that has resulted, or may result, in the measurable and significant degradation of physical, chemical, or biological integrity of water quality standards or laws. Documenting the occurrence of significant risk serves a number of useful and practical purposes. First, risk assessment lends much credibility and integrity to the BMP monitoring process by recognizing that high-risk conditions can occur and that prevention and or restoration is a high priority for state forestry agencies. Second, routine documentation of significant risk will determine whether such instances are the exception rather than the rule and the lack of BMPs during a silviculture operation may not necessarily equate to or result in a water quality problem. Third, finally providing forest landowners with an objective risk assessment is a valuable public service that not only protects the environment, but can also protect the landowner and/or operator from what might otherwise result in enforcement proceedings or other personal liability.

BMP Compliance was also determined for each category of practice and overall site where the units of measure were the same. This allowed for comparison with previous surveys in determining trends. Streamside Management Zones (SMZs), harvesting, mechanical site preparation, chemical applications, control burning, and artificial regeneration all used *acres* as the unit of measure. Stream crossing was the *actual number* present. Main haul roads and streams used *miles*. Scores were expressed as a percent of units of measure in BMP compliance against the total units of measure evaluated. Documenting compliance with the units of measure is important in that it allows forest managers, landowners, and regulators to see the holistic picture of forestry operations and our effects on the landscape. As in the implementation evaluation, the lack of BMP implementation may not necessarily equate to large-scale areas being out of compliance. For those areas out of compliance it provides a better picture of where attention should be focused to make improvements.

## RESULTS

The 2002 Statewide Forestry BMP Survey evaluated 420 sites comprising 40,159 acres. Because multiple practices occurred on these same areas, approximately 49,622 acres, 541 stream crossings, 358.46 miles of main haul roads, and 225.93 stream miles were

evaluated. By practice or category, statewide BMP Implementation and Compliance are as follows:

Practice or Category:	% BMP Implementation	% BMP Compliance
• SMZs:	87.1	96.6 (acres)
• Stream Crossings:	77.3	38.1 (# crossings)
• Main Haul Roads:	82.7	84.3 (miles)
• Timber Harvesting:	91.4	99.1 (acres)
• Mechanical Site Preparation:	94.6	99.9 (acres)
• Chemical Site Preparation:	97.8	100 (acres)
• Control Burning:	73.4	99.7 (acres)
• Artificial Regen.:	95.4	98.8 (acres)
• Forest Fertilization:	83.3	100 (acres)
• Equipment Servicing:	94.4	
• Special Management Areas	79.7	
Overall:	85.9	99.1 (acres)

Of the 225.93 miles of stream evaluated on 287 sites, 212.81 miles or 94.2% were observed to have no impacts or impairment from the forestry practices. The total number of water quality risks checked was 362. Landowners having potential water quality problems were advised by letter with recommendations for remediation.

A more detailed report is forthcoming which will provide a summary of the distribution of the sites and results by region and ownership.

## DISCUSSION

The results show an 86% overall statewide BMP Implementation rate with 99.1% of those acres in compliance with BMPs. With public attention focusing on the protection of riparian areas or streamside management zones (SMZs), a BMP Implementation rate of 87.1% with 96.6 % of those acres in compliance with BMPs, forest operators are doing an excellent job of protecting these sensitive areas.

There is however, room for improvement in certain categories. As with the previous survey, the category of stream crossings is one where improvement is needed. It should be noted that many roads and crossings, that did not meet BMPs, existed prior to the

forestry practice being conducted and were not necessarily associated with the forestry operation evaluated. Therefore, this survey attempted to differentiate existing forest roads and stream crossings from newly constructed forest roads and crossings.

Approximately 541 crossings were evaluated on 192 sites. There were 216 pre-existing crossings with 130 or 60% being in 100% full compliance with BMPs. There were 325 new crossings where only 76 or 23% were in 100% full compliance. Added together, only 206 or 38.1% were in full compliance with BMPs. This is a 20% increase from the 1998 survey.

Most noted problems were that of the 541 total crossings, 232 or 43% were associated with skidder fords or debris type crossings. These automatically count as non-compliant since the BMPs do not recommend their use. Just eliminating these type crossings offers the greatest potential to increase compliance.

Through the American Forest and Paper Association's Sustainable Forestry Initiative, The Georgia Forestry Association, The University of Georgia, the Georgia Forestry Commission, and the Southeastern Wood Producers Association are concentrating on the deficiencies found by these surveys and providing training for the logging community on the BMPs. The GFC will continue to monitor the implementation of BMPs through biennial statewide surveys and through a new monthly examination program.

The current BMPs represent the best collective science, experience, and effort to establish sound, responsible, guiding principles for silvicultural operations in the State of Georgia. They will help forestry meet the objective of protecting the physical, chemical, and biological integrity of "waters of the state". They will also help meet the issue of Total Maximum Daily Loads (TMDL), River Basin Planning, and Growth Planning Act concerns.