



A REVIEW OF FORESTRY MANAGEMENT PRACTICES ON LANDS OWNED BY THE S.C. DEPARTMENT OF NATURAL RESOURCES

BACKGROUND

Effective July 1, 1994, the S.C. Department of Natural Resources was formed when the S.C. Restructuring Act combined the S.C. Wildlife and Marine Resources Commission, the Water Resources Commission (less the regulatory division), the S.C. Migratory Waterfowl Commission, the State Land Resources Conservation Commission (less the regulatory division), and the Geological Survey of the Research and Statistical Services Division of the Budget and Control Board (including the State Geologist). The agency is governed by a seven-member board appointed by the Governor, with one member representing each of the state's six Congressional Districts and one at-large member.

SCOPE AND METHODOLOGY

The period of this review was generally from 2001 through 2011, with consideration of earlier or more recent periods when relevant. Information used as evidence in this report was obtained from a variety of sources including:

- State and federal laws and regulations.
- DNR records of timber sales.
- DNR records of acreage owned by the agency.
- Federal audits of DNR's use of funds.
- Interviews with S.C. Department of Natural Resources staff.
- Interviews and documentation from five Southeastern states' wildlife department staff.

AUDIT OBJECTIVES

Members of the S.C. General Assembly requested the Legislative Audit Council (LAC) to review the S.C. Department of Natural Resources' (DNR) forestry management practices conducted on lands owned by the agency. Our objectives for this review were to:

- Report the amount of land owned by the Department of Natural Resources, in terms of acreage.
- Determine if DNR can provide an estimate of the fair market value of the timber on these lands in terms of acreage and stumpage value.
- Report the volume of timber sold each year for the past ten years, along with revenue realized by DNR from the sale of timber.
- Determine whether lands not considered to be an archaeological site or a highly-sensitive plant or animal community are being managed for sustainable multiple-use forestry production.

SUMMARY

As of October 2011, the S.C. Department of Natural Resources owned 280,025.44 acres of land across the state. According to DNR staff, the agency manages these properties for wildlife habitat first and timber harvesting is part of that process. From 2001 through 2010, DNR realized approximately \$4.6 million in revenue from the harvesting of timber. All timber revenue must be retained by DNR and is used to fund the Wildlife and Freshwater Fisheries Division.

Prior to 2006, each sale of timber was presented individually to the DNR Board for its approval. The agency developed a timber management schedule for 2006 – 2010 with all proposed actions on these properties for the DNR Board's approval. On October 5, 2011, the DNR board approved the 2011 – 2015 schedule.

DNR does not have an agency policy regarding timber management; however, each property owned by DNR has a management plan. DNR staff reported that it cannot provide an estimate of the fair market value of timber on its properties because the timber is not cruised (a process to estimate timber volume to establish the value) until it is ready to be sold. According to DNR staff, to cruise all the timber would be cost prohibitive and DNR does not employ dedicated forestry staff.

We contacted other Southeastern states and found that while most of these states do cruise or inventory their timber, the primary reason is to manage the lands for wildlife habitats. Although some of these states employ forestry management staff, only one state had an estimated value of its timber available. In each state contacted, revenue from timber harvesting is used to support the agency's program.

AMOUNT OF LAND OWNED BY DNR

As of October 2011, a DNR property list showed it owned over 280,025 acres of land in 40 South Carolina counties. Of these lands, 254,390 acres were wildlife management areas and natural area heritage preserves. These lands have a variety of uses including:

Wildlife Management Area (WMA) – Properties managed for wildlife.

Heritage Preserve – §51-17-10 of the S.C. Code of Laws defines natural areas and features considered when determining if a property should be dedicated under the law as a Heritage site. These properties usually contain relatively undisturbed ecosystems, landforms, threatened, endangered, or unique plant life or animal habitats, or other unusual or outstanding characteristics. Some of these lands are also managed as Wildlife Management Areas.

Administrative – DNR offices.

State Lake – Primarily open water used for providing public fishing opportunities.

Well Site – Used by DNR’s hydrology section to check ground water.

Boat Ramp – Small acreage used to provide access for boating.

PROCESS FOR TIMBER SALES

S.C. Code §50-3-510 through §50-3-550 outline the procedures for cutting timber on lands held by DNR. If a sale of timber is recommended by DNR, it must be approved by the DNR Board and recommended by the State Forester. DNR must publicly advertise for bids for the timber at least three weeks before the closing of the bidding. All sales are for cash. In cases where there is an ecological or silviculture (forest management) emergency that necessitates the immediate harvest of timber, DNR, with the approval of the State Forester, may immediately negotiate contracts for the harvest and sale of the timber. DNR has an inter-agency contract agreement with the Forestry Commission to perform forestry services. The current contract is in effect until October 31, 2014. All contracts for timber sales must be executed by the DNR director. Unless otherwise provided in law, the proceeds of the sale must be deposited with the State Treasurer to the credit of the Fish and Wildlife Protection Fund.

DNR does not cruise or inventory timber on its lands until it is determined that the timber from a specific property will be harvested. According to DNR staff, DNR does not cruise the timber because the process is labor intensive and can be costly. The Forestry Commission currently charges DNR \$250 per day per person to cruise the timber, with an additional charge if specific trees are to be marked. DNR coordinates with the Forestry Commission, in part, because it does not employ any forestry management staff.

REVENUE FROM TIMBER SALES

DNR reported \$4,603,093 in revenue from harvesting timber for years 2001 – 2010. This revenue is primarily from thinning timber on various properties owned by DNR. DNR thinned 7,978 acres and clearcut another 91 acres over that same time period. Harvests included sawtimber, pine pulpwood, and hardwood pulp.

REVENUE REALIZED BY DNR FROM TIMBER SALES (2001 2010)	
YEAR	REVENUE
2001	\$308,735
2002	80,474
2003	88,336
2004	161,237
2005	343,386
2006	360,549
2007	487,858
2008	738,266
2009	601,343
2010	1,432,909
TOTAL	\$4,603,093

Source: DNR.

The DNR board approved a proposed timber management schedule for 2011 – 2015 at its October 2011 meeting. According to staff, this is a list of properties staff is estimating will have a harvest need in the next five years. This schedule lists 21 properties which are being considered primarily for thinning of various trees. According to an agency official, most of the future timber harvests will occur in pine habitats, which total approximately 35,500 acres of DNR-owned land.

The revenue from timber sales is retained by DNR and used to fund the Wildlife & Freshwater Fisheries Division. These lands are also managed using federal Pittman-Robertson Wildlife Restoration funds. South Carolina receives these federal funds because it has assented to federal legislation requiring, in part, that revenue from timber sales be used only to support wildlife programs administered by DNR.

This division is responsible for the management of most DNR lands and the division does not receive state-appropriated funding, but does retain revenues from sales of hunting licenses, tags, permits, and timber harvests. In 2011, DNR received approximately \$3.6 million in federal funds, down from the \$4.4 million it received in 2010.

MANAGEMENT OF LANDS

DNR has a policy regarding the recreational use of DNR properties; however, it does not have an agency-wide written policy or procedures regarding the overall management of properties.

To address how the state-owned land will be managed, the agency has developed a management plan for each property which includes:

- Objectives** – There is an explanation of why the land should be protected. These objectives are described within the document. These may be endangered plants, rich woods, or some historical value.
- Physical Description** – The specific location of the land is noted along with boundaries and types of soil found on the land.
- History and Origin of the Property** – There is a description of how the land was acquired by DNR.
- Wildlife Species, Outstanding Features, Habitats, and Management** – There is a detailed explanation of each protected feature of the property.
- Desired Future Condition** – This section includes how DNR plans to manage the land, including maintenance of ponds, stabilization of roads, and preserving certain habitats. This section, however, does not normally include timber harvest plans.
- Forest Management** – Information about the timber on the property and types and amounts of various species of trees is noted here.
- Exotic, Invasive, and Nuisance Species** – Predictable issues which may affect the land and how DNR will handle them are addressed. This may include introducing exotic species as management tools to control or eradicate other exotic species that may harm native species.
- Cultural Resources** – This section identifies archaeological sites, structures, landscapes, and objects of some importance to a culture or community for scientific, traditional, religious, or other reasons.
- Public Visitation and Use** – This section includes a list of activities, such as fishing, hiking, hunting, and environmental education, which the public may participate in on the land.
- Physical Facilities** – There is information about roads, gates, signage, and parking areas on the property.

The property management plans may also include location maps and information such as soils, types of trees, locations of wells and ditches, and the appropriate uses of the properties.

We requested a random sample of management plans to determine if DNR had completed plans on all properties. DNR provided copies of all requested plans. According to DNR staff, the agency’s goal is to update each management plan every five years. Management plans are required for Heritage Preserve properties, but the agency has decided to have management plans for all properties. DNR officials stated that these lands are managed primarily for wildlife habitats. Timber harvesting is part of managing the land, but not a primary focus of the agency.

PRACTICES OF OTHER STATES

We contacted five other Southeastern states (Arkansas, Georgia, Louisiana, North Carolina, and Tennessee) to obtain information about their forestry management practices and to determine if they maintain information about the value of timber on state-owned lands. We found that while the other five Southeastern states in our sample inventory their state-owned lands on a regular basis, only Louisiana could provide an estimate of the value of its timber. Staff at these other agencies include foresters, wildlife biologists, and habitat biologists; however, staff classified as foresters in North Carolina actually have wildlife degrees instead of forestry degrees. The habitat biologists in Arkansas are either graduate foresters or degreed wildlife biologists.

In many cases, it is difficult to determine the actual acreage of actively-managed land for the purposes of this review, so approximations are given. Wildlife agencies in the various states manage the state-owned lands for differing reasons, only one of which is timber harvesting. All of the state officials stated that wildlife habitats and wildlife management objectives were the primary reasons the lands were managed. Information from each of the states contacted follows:

ARKANSAS

According to an official with the Arkansas Game and Fish Commission, this agency owns approximately 400,000 acres. Revenue from timber harvesting varies from \$200,000 to \$700,000 per year. There are currently eight positions that oversee forest habitat management. The official stated that Arkansas manipulates its forested resources for sustainability; however, its focus is wildlife habitat, recreation for the public, and wildlife education. Arkansas conducts a resource inventory process every 15 to 20 years and it inventories specific stands which will be harvested. All of the agency’s state money comes from license fees and the timber revenues go into the agency’s game protection fund.

GEORGIA

The Georgia Department of Natural Resources owns 432,000 acres, with approximately 72,000 acres in state parks. The agency employs seven foresters and two forestry technicians. In the past ten years, Georgia has generated \$19,953,982 from harvesting timber from 360,000 acres managed by the Wildlife Resources Division. The agency has an inventory on specific stands of timber and obtains cruise data for individual stands to develop contracts to be put out on bid. The agency does not manage its property specifically for timber production. All of its properties are managed for wildlife habitats. Since the agency does not inventory hardwoods, it does not have an estimated value of all its timber. The agency does not receive any state appropriations for forest management efforts, and is 100% funded by timber revenue.

LOUISIANA

According to an official with the Louisiana Department of Wildlife and Fisheries, it owns approximately 1.1 million acres of land, leases another .4 million acres, and manages forestry on 429,000 acres. The remainder of the state-owned land is predominantly marsh or swamp lands. The agency has nine staff, foresters and wildlife biologists, in the forestry program. The department has generated an average of \$344,000 annually from harvesting timber in the past 10 years. The agency manages all of its lands for sustainability of wildlife. Louisiana inventories one to five WMAs (approximately 45,000 – 60,000 acres annually) to review habitat components and is able to obtain information about the volume of timber. Based on past timber sales and these inventories, Louisiana estimates the fair market value of the timber owned by its agency to be \$186.6 million as of November 2011. All timber revenue remains with the agency.

NORTH CAROLINA

A North Carolina Wildlife Resources Commission official stated that the agency owns 478,276 acres, but unrestricted forest management occurs on only 147,873 acres. From FY 01-02 through FY 10-11, timber receipts totaled

\$16.6 million. The agency employs six wildlife foresters, three assistant foresters, and one forestry technician. According to staff, timber management is prescribed and implemented with wildlife management objectives as the priority consideration. North Carolina conducts comprehensive inventories on a continual basis, although some are outdated. As a result of a recent legislative change, the agency does receive state appropriations. It also retains all revenue generated from timber harvesting.

TENNESSEE

A Tennessee Wildlife Resources Agency official stated that his department owns 445,000 acres of land with approximately 90,000 – 100,000 acres with active forest management. The agency employs eight foresters and four wildlife technicians. Tennessee manages its lands primarily for wildlife habitat improvement. Forestry actions are done to create, improve, or maintain habitats for a variety of game and non-game wildlife species. From 2001 through 2009, the agency generated \$3,284,341 in timber revenue, which goes into the agency's general fund. Managed WMAs are divided into compartments of 600 to 1,000 acres and each compartment is inventoried every 10 years. The timber is cruised prior to sales. The official stated that the agency has never determined the fair market value of its timber.

SOUTHEASTERN STATES' FORESTRY MANAGEMENT PRACTICES ON STATE-OWNED LANDS 2001 2010							
	ACRES OF WILDLIFE AGENCY STATE-OWNED LAND	ACTIVELY MANAGED ACRES	ESTIMATED VALUE OF TIMBER	METHOD OF DETERMINING TIMBER VALUE	NUMBER OF DEDICATED FORESTRY STAFF	LAND MANAGED PRIMARILY FOR:	APPROXIMATE REVENUE FROM TIMBER SALES
Arkansas	400,000	300,000 (approximately)	N/A	Inventory	8 (7 Habitat biologists & 1 habitat coordinator)	Wildlife Habitats*	\$200,000 – \$700,000 (range per year)
Georgia	432,000	360,000	N/A	Inventory and Cruise	9 (7 foresters & 2 forestry technicians)	Wildlife Habitats	\$20 million
Louisiana	1.1 million + 0.4 million in free leases	429,000	\$186.6 million	Inventory (1-5 WMAs each year)	9 (Foresters and Wildlife Biologists)	Wildlife Sustainability Objectives	\$344,000 (average per year)
North Carolina	478,276	147,873**	N/A	Inventory and Cruise (continual basis)	10 (6 wildlife foresters***; 3 asst. foresters; 1 forestry tech)	Wildlife Management Objectives	\$16.6 million
South Carolina	280,025	254,390	N/A	Cruise at time of sale	0 ****	Wildlife Habitats	\$4.6 million
Tennessee	445,000	90,000 – 100,000	N/A	Inventory and Cruise	12 (8 foresters & 4 wildlife technicians)	Wildlife Habitat Improvement	\$3.3 million (through 2009)

* Also managed for recreation for the public and wildlife education.

** Unrestricted forest management.

N/A = not available.

*** Most forestry staff in North Carolina have wildlife degrees.

**** South Carolina has wildlife biologists, but no foresters on staff.

Source: Southeastern states' wildlife officials.

The S. C. Department of Natural Resources was provided a draft of the report and had no comments.