STEWARDSHIP INCENTIVE PLAN
FOR
BIOMASS FUEL PROCUREMENT

City of Gainesville
Regional Utilities Committee
And The
Ad Hoc Sustainable Biomass Procurement Committee
As Adopted April 2, 2009

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Table of Contents

Note: Appendices 3. & 4. were inserted into this document. Each include their original table of contents and associated page numbers.

BACKGROUND

Biomass has been selected to be the fuel for Gainesville Regional Utilities (GRU) next generating unit. The majority of the biomass fuel required is expected to be derived from the extensive forest industry surrounding Gainesville, mostly from logging residue, tree thinning, and a small percentage of pulpwood harvesting. Additional sources of biomass include urban vegetation management and land clearing and possibly some mill residues, which are not specifically addressed in this plan.

A significant aspect of the community dialog in Gainesville related to the selection of biomass as the fuel supply for electrical generation was forest stewardship. The concern expressed was to be sure that the manner in which biomass was procured would not only minimize any environmental harm, but transform the forestry industry to improve biodiversity in the region and assure sustainable supplies of renewable biomass energy. In particular, it has come to the City Commission's attention that there is a number of different accreditation programs designed to potentially allow growers to capture economic benefits from adopting forestry practices considered to be superior to normal practices in terms of protecting environmental resources.

In order to develop a plan to meet these objectives staff assembled an advisory committee of forest professionals and worked closely with the selected project developer's forester (see Appendix 5). Presentations were made during plan development to the Gainesville City Commission's Regional Utility Committee who provided insight and guidance.

OBJECTIVES AND PLAN OVERVIEW

Working together with local forestry experts and the selected project developer (Gainesville Renewable Energy Center, LLC), staff has designed a plan to assure responsible biomass fuel procurement. The plan has two primary objectives:

Objective 1: To assure sustainable forestry/natural resource management practices with the procurement of forest derived biomass.

Objective 2: To provide a financial incentive to those landowners who demonstrate forestry/natural resource management practices that are substantively better for resource sustainability than current prevailing practices.

The plan consists of four primary components:

1) Minimum standards applicable to all biomass procurement that will be enforced through GRU's contract with Gainesville Renewable Energy Center, LLC;

2) The adoption by reference of third party stewardship certification programs; and

3) A program of eligibility that will provide growers with a guaranteed price premium for having certified their forest plan through a qualified stewardship program.

4) A program of ongoing evaluation and adjustment of the plan to reflect the results obtained and changing market conditions, including an advisory committee of forestry professionals.

CURRENT PRACTICES AND CERTIFICATION PROGRAMS

Development of this plan required the balancing of tradeoffs between stringent standards and the availability of adequate fuel supplies at a reasonable price. The members of the advisory committee put together a set of guiding principles during the review of current practices and to guide the selection of Stewardship Certification programs to incorporate into the plan by reference (see Appendix 1).

Table 1 provides a summary of current Forestry standards and certification programs in Florida. The Division of Forestry Best Management Practices were developed in response to federal Clean Water Act requirements and are focused on protecting wetlands, streams and lakes through appropriate soil conservation, drainage, and forestry practices. The Division of Forestry Best Management Practices is not a certification program. The four other sets of standards are certification programs. They have not been widely adopted by growers.

TABLE 1
SUMMARY OF FORESTRY PRACTICES AND CERTIFICATION PROGRAMS IN FLORIDA

Forestry Practice	**Fla. Participation (acres)[1]**	**3rd Party Certi-fication**	**Program Objective**	**Assessment**
Division of Forestry Best Management Practices	Wide Spread	No	Protect Water Bodies and Wetlands	Voluntary
American Tree Farm System	800,000	Yes	Timber Production	Single Assessor 5 Yr Renewal
Sustainable Forestry Initiative	1,300,000	Yes	Market Demand for Green	Single Assessor Annual Review 5 Yr renewal
Division of Forestry Stewardship Program	675,000	Yes	Multiple Use Ethic	Team Assessors Forestry & Wildlife 5 Yr Renewal
Forest Stewardship Council	40	Yes	Multiple Use Ethic	Team Assessors Annual Review 5 Yr Renewal

1. Out of an estimated 14,500,000 acres of forest in Florida.

DEVELOPMENT OF MINIMUM STANDARDS

Although in wide spread use, the application of the Division of Forestry Best Management Practices is by no means universal. The consensus of the foresters and university research members of the advisory committee is that forestry under this set of practices is reasonably sustainable and certainly better than timber growth without any consideration of the Best Management Practices. Gainesville Renewable Energy Center, LLC is willing to limit its procurement activities to only those lands managed under the Division of Forestry Best Management Practices, the full text of which is available at:

http://www.fl-dof.com/forest_management/bmp/index.html

A set of additional minimum criteria were further developed in consideration of the guiding principles in Appendix 1, as well as a set of administrative and contractual requirements to enable verification and enforcement by GRU. The full text of the minimum standards and contract language may be found in Appendix 2.

ELIGIBLE CERTIFICATION PROGRAMS

Also listed in Table 1 are the third party verified, Stewardship Certification programs currently available in Florida. These programs are somewhat complex as they address the full life cycle of timber production, starting with preparation for planting, planting, management during growth, and harvesting. Furthermore, certification assessors require professional credentials. For this reason GRU does not recommend the in-house development of a certification, but instead recommends that certification under and existing program that has been adopted by reference under GRU's administrative guideline be employed to establish a land owner's eligibility for financial incentives. Selection of eligible certification standards has to keep in mind that the intent of the financial incentive is to encourage the adoption of practices that are substantively better than current prevailing practice, not reward previous behavior. After comparison to the guiding principles and discussion with the advisory committee, GRU recommends that the following two programs be selected to establish eligibility:

1. Florida Division of Forestry Stewardship Program
2. Forest Stewardship Council

While both of these certification programs meet the guiding principles, the Forest Stewardship Council program is considered to be significantly more stringent and certainly has much less market presence. On the other hand, the advisory committee suggests that the Division of Forestry program is much more attainable for small land owners. GRU staff addressed these differences in the design of its financial incentive.

FINANCIAL INCENTIVE DESIGN

GRU has had extensive experience in the delivery of financial incentives to influence behavior. The ongoing energy conservation rebate program is one example. The key criteria for effective program design are:

1. Targeting the decision maker;
2. Taking into account those who would have done it anyway ("free riders");
3. Sizing the incentive to be effective;
4. Reliability and simplicity for the decision maker.

Targeted Decision Maker. The biomass supply chain includes growers, harvesters, gleaners (for timber residues), processors, and truckers. The land owner is in control of the whole supply chain, either because of being vertically integrated (fairly unusual) or through the contracts let by the land owner to have each step of the process performed. For this reason staff is recommending that the targeted decision maker is the grower, and the eligibility for the incentive shall apply to specific parcels of land that have been certified under the third party program.

Managing "Free riders". The prior discussion of the level to which various programs have been adopted is the first key step in managing the issue. The second is to have a time certain start date for eligibility. Another is to segment the market, between industrial growers and private operators, for example. Finally, the setting of the level of the financial rebate can reflect the level of incentive required to affect change. For this reason, staff is recommending two levels of financial rebate.

Setting the Incentive Levels. Sizing the incentive is made difficult because the cost to gain and maintain certification is unknown and depends on parcel size and the state of ongoing land management practices. What is known is that the affordable market for harvest residues and tree thinnings may very well be less than 3 dollars per wet ton. In general, premiums of 10% to 20% have been shown to affect consumer behavior. Experience through time will indicate if these rebate levels need to be adjusted. If the program is successful and participation in certification programs becomes substantial, the rebate levels likely will be adjusted downward. Accordingly, staff is recommending the following initial premium levels:

1. Florida Division of Forestry Stewardship Program	$0.50/wt ton
2. Forest Stewardship Council	$1.00/wt ton

Reliability and Simplicity. The earlier in the production cycle that a land owner commits to a stewardship program, the more effective it would be. The commitment to a certification will not only result in initial expenses for the certification, but will affect planting densities, forest management, harvesting, and the expenses of ongoing inspections. This is a long term commitment, potentially up to 20 years in length. Furthermore, the property being certified is very likely to have different aged tree stands.

Staff believes that the best results will be achieved if a landowner knows what the financial premium will be over the life of the production cycle when the decision is

made to commit to a forest certification program. At the same time, the program needs to be adjusted to reflect the result achieved and changing market conditions.

Accordingly, the following administrative guidelines are proposed for the financial incentive portion of this plan.

1. Once the grower has certified specific properties, documentation will be provided that entitles the grower to a premium payment that will remain fixed as long as the continued participation in the certified program is verified.

a. If the level of financial incentives per ton associated with a specific stewardship program decreases through time, the grower will still be entitled to the level of incentive effective at the time they entered into the program.

b. If the level if incentive increases for a specific stewardship program, the grower will not be entitled to that increase.

c. A grower may opt to change to a different stewardship program but must be certified under that program and will only be eligible to receive the level of incentive available at the time the new certification is obtained.

2. Payments will be made based on delivered wet tonnage, provided the fuel specifications otherwise imposed by Gainesville Renewable Energy Center, LLC for the proper operation of the facility are met.

3. GRU staff will be responsible for verifying with the certifying program that the grower has complied with the program once loads from that property start being delivered. GRU will retain the right to make its own determination of continued verification if deemed necessary.

4. It should be noted that the opportunity of receiving the incentive payment from GRU is uncertain until such time as all permits and approvals for the proposed facilities are obtained and the notice to commence is issued.

Figure 1 contains a flow chart further detailing the process. Detailed administrative guidelines will be developed that will provide a process for letting the forestry industry know when incentives are to be changed and further detail the administrative procedures to be followed.

INITIAL BUDGET

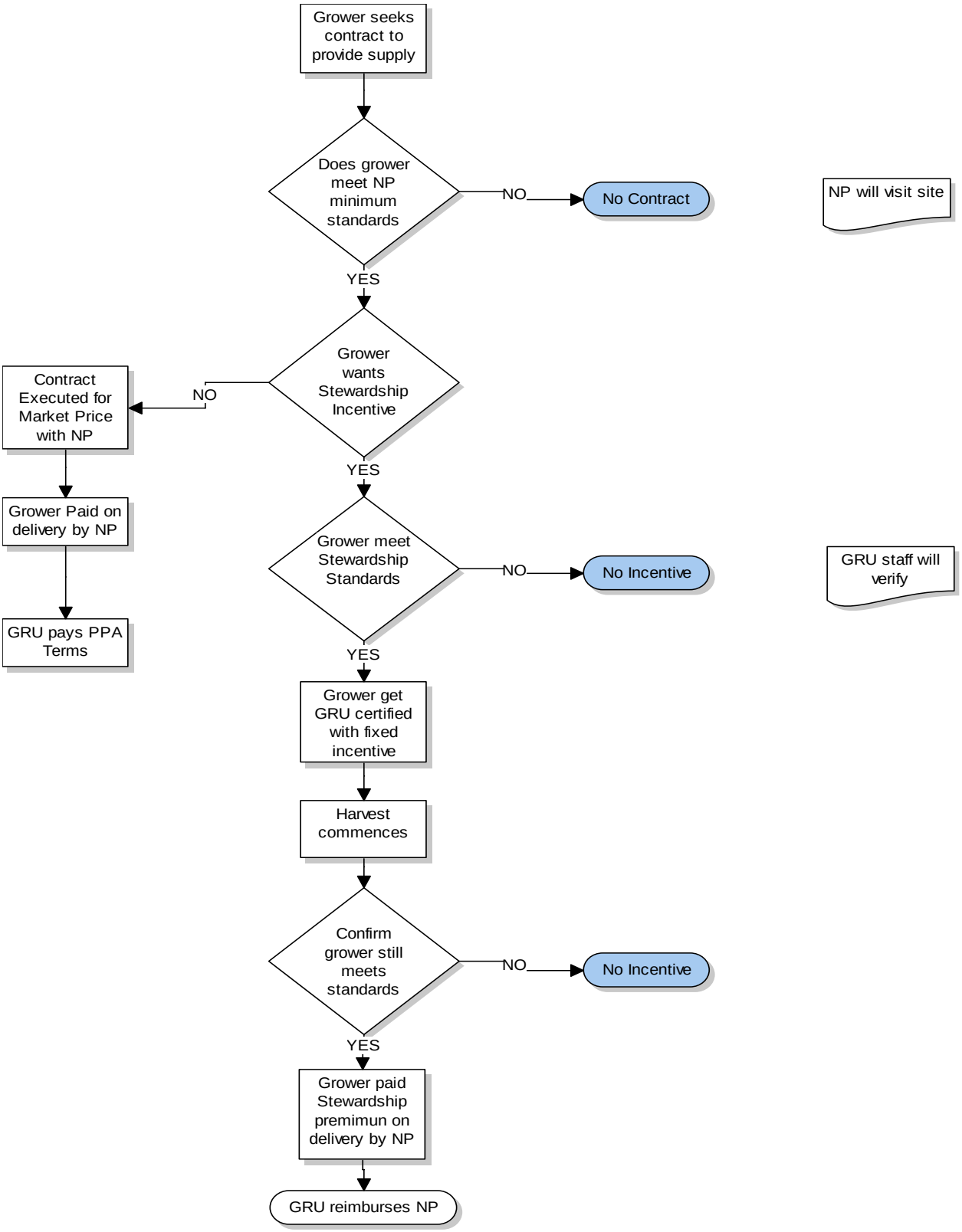
Gainesville Renewable Energy Center, LLC expects to require in excess of 1,200,000 wet tons of biomass per year to operate the proposed facility. Assuming that 80% is derived from forest products and that 100% of suppliers decide to commit to the Division of Forestry's certification program, this would be an annual liability of $480,000 per year over and above all other costs for the biomass power. This scenario is very unlikely, given the amount of time it would take to certify this much property, but a run-away participation in the forest certification programs could suggest that GRU ratepayers are paying more than they need to achieve market. A cap on commitments for the first year of implementation in case staff has radically misjudged the level of financial rebate would be prudent. Accordingly, a stop loss limit in the first twelve months of the program of committing to no more than what is estimated to be $100,000 per year is proposed. If this were to occur, staff, working with their advisory committee, would develop appropriate program changes.

FOREST ADVISORY COMMITTEE

The advisory committee of forest professionals (see Appendix 5) that have volunteered their time to developing this plan has been invaluable. Accordingly GRU staff would like to create a standing advisory committee of natural resource professionals to assist staff not only with the stewardship incentive program but with other issues that may emerge related to the operation of fairly large biomass generating facility.

FIGURE 1

INCENTIVE PROCESS FLOWCHART



APPENDIX 1
GUIDING PRINCIPLES
FOR THE LANDOWNER PROVIDING FOREST RELATED BIOMASS

GRU's objective is to promote sustainable forestry/natural resource management practices with the procurement of forest related biomass.

These standards/principles were developed specifically for the North Florida region with wood to energy production in mind. All principles promote forest health, ecosystem values and support diversity and sustainability issues.

These standards/principles voice community and Commissioner concerns. They also mirror principles in existing Forest Certification Programs and were used as items to consider while reviewing 3rd party Forest Certification standards.

1. Protection of natural forests

Don't convert natural stands to plantations for biomass supply purposes

Natural forests should not be converted to planted forests. Planted forests generally involve some sort of site preparation and either hand or machine planting of seedlings**.**

A natural stand is composed of species that would have been native to the site prior to the advent of European settlement. A natural forest can be young growth (seeding or sapling size trees) or old growth. It can be lightly stocked (<50 trees/acre) or so thick as to seem almost impenetrable, and it can be predominately pine or hardwood, or a mixed forest. For instance, it is allowed in fact encouraged to convert offsite laurel oak forests to native longleaf pine forest, where longleaf pine would have been the original, native species.

2. Don't grow high density, short rotation plantations

In plantations, maintain tree densities of 600 or less per acre by age 5. (Landowners should not over plant, or they will be required to thin their forests.)
In plantations, Maintain tree densities of 300 or less per acre by age 15. (Thinning will be required in most cases.)
No short rotations -- no clear cutting at 15 years of age or less.
Exceptions can be made for SRWC coppice plantations, particularly where they may be used for wastewater remediation.

3. Don't plant non-native species
Encourage the destruction of non-native invasive species.

4. Encourage nutrient return to the site
Harvest in such a manner that the preponderance of needles/leaves and twigs are left on site, preferably scattered throughout the harvest area. Whole tree harvesting is discouraged.

GRU intends to ensure long term sustainable soil fertility by encouraging that the maximum amount of leafy material be left at the site. Fuel derived from whole tree harvesting will not be permissible without prior approval of the harvesting plan by GRU.

There are exceptions where whole tree harvesting can be beneficial: removing offsite and/or competing species in native species restoration efforts. For instance, it is allowed in fact encouraged to convert offsite laurel oak forests to native longleaf pine forest, where longleaf pine would have been the original, native species**.**

5. Promote proper harvesting procedures
Use participants in Florida's Master Logger Program for timber harvesting operations. The program is designed to enhance the professionalism of loggers through training in safety, timber harvesting, business and environmental regulations.

High grading is not allowed. (High grading consists of harvesting the better trees and leaving a forest comprised of poor condition trees).
Protect archeological, historic, cultural, biological and geological sites of special interest.
Protect ephemeral wetlands.
Retain snags (existing dead trees) where practical.

6. Protection of native groundcover species
No broadcast plowing, harrowing, herbicide applications that would cause large scale, broadcast destruction of native groundcover. This standard does not apply to agronomic weeds. Bedding is allowed, if the inter-bed area (area between bedding rows) is left completely intact.

7. Compliance with laws

Suppliers must follow all applicable laws related to land management practices. Alachua County ordinances reference State of Florida Silvicultural BMP's, therefore giving BMP's the force of law in Alachua County.

8. Wetland protection

No more than 50% of wetlands acreage may be harvested on a landowner's property in a 20 year time period. In other words, once a landowner harvests half their wetlands, no more wetlands harvesting is allowed for 20 years, in order to give harvested areas time to regrow prior to any additional harvesting. Surprisingly, the best forest management for forested wetlands degraded by prior high grade harvesting is a nearly complete clear-cut harvest.

9. Reforestation

Reforest within 5 years of harvesting

Suppliers must reforest their land (planting or natural seeding) within 5 years of harvesting. Evidence of reforestation activities should be seen on a property inspection. If there is no evidence of reforestation activities the landowner should be contacted to determine it they have plans to reforest the property.

10. Limit the size of clear cuts

Clear cuts should be less than 50 contiguous acres.

Exception: Salvage harvesting of a forest killed by catastrophic event, such as fire, insects or hurricanes, may exceed 50 acres. Salvage harvesting is an appropriate source of biomass.

11. Promote forest health

The landowner should follow established or recommended control efforts for an insect or disease outbreak 2 acres or larger in size. (Ex: Southern Pine Beetle).

12. Limit the removal of stumps from the forest

Stumps will not be allowed unless obtained from urban land clearing operations.

APPENDIX 2
MINIMUM SUSTAINABILITY STANDARDS FOR FOREST-PRODUCED BIOMASS

These minimum standards will become an enforceable part of the wholesale power contract between the City of Gainesville, d/b/a Gainesville Regional Utilities (Purchaser) and Gainesville Renewable Energy Center, LLC (Seller). There will be two portions of the contract that implement the standards, the section addressing fuel procurement and an appendix which will list the minimum standards. Accordingly, the definitions applicable to these sections are required to help convey the context of the standards as presented here. GRU will retain the services of professional foresters to verify contract compliance by the Seller.

DEFINITIONS

Forest-Produced Biomass Fuels- biomass derived from forestry operations meeting the appropriate specifications for use by Seller to produce electricity in the facilities to be installed at the Deerhaven Power Plant site, as opposed to biomass derived from urban forestry and urban land clearing.

Seller- Gainesville Renewable Energy Center, LLC.

Supplier- Any entity with which the Seller enters into an agreement to purchase forest-produced biomass fuels.

MINIMUM STANDARDS

Appendix 8 of Contract
Minimum Sustainability Standards for Forest-Produced Biomass

1. Seller shall employ, or shall indirectly employ through contract, at least two professional foresters to manage the biomass fuel procurement for the Project.

2. Seller shall manage the biomass fuel procurement for the Project in accordance with the following general goals:

    a. Promote forest health.
    b. Provide for long-term forest productivity by integrating reforestation with harvesting.

c. Seek to protect forest resources from threats such as wildfire, pests and diseases.
d. Safeguard critical water, soil and habitat resources.
e. Apply an ecosystem perspective to preserve biological diversity.

3. Seller shall only utilize biomass fuel harvested in compliance with the Best Management Practices for Silviculture published by the Florida Department of Agriculture and Consumer Services, Division of Forestry ("BMP"). Presumption of BMP compliance shall be given to harvested properties covered by a Notice of Intent to Implement ("BMPNOI") in accordance with Rule 5I-6.004 FAC. Up to five percent of the harvest areas not covered by a BMPNOI shall be randomly inspected by Seller's foresters to ensure BMP compliance.

4. Seller shall not utilize biomass fuel harvested during the conversion of a natural forest to plantation forest. Natural forest shall be defined as either a virgin forest or a forest ecosystem that was naturally regenerated and with most of the key elements of native ecosystems, such as complexity, structure or diversity.

5. Seller shall not utilize biomass fuel harvested from a legally-designated conservation area unless specifically permitted in the applicable conservation easement or agreement. This does not preclude the use of biomass fuels harvested from publicly owned lands where such harvesting is compatible with the management goals and objectives as determined by the managing agency.

6. Seller shall not utilize stumps as biomass fuel except to the extent that such stumps are harvested according to a written contract accompanied by a written statement from a certified professional forester that the harvesting of the identified stumps is desired for ecological and environmental reasons.

7. Seller shall not utilize biomass fuel derived from non-native species identified as invasive by the Florida Department of Environmental Protection unless being harvested as a part of a forest or ecosystem restoration program.

8. Seller shall require landowners contracting to supply biomass fuel to replant harvested tracts within three years as a condition for renewing supply contracts from those tracts after harvest.

9. Seller shall require its biomass fuel suppliers to attend an annual sustainability and best practices seminar organized by Seller's procurement staff

10. Seller shall only utilize biomass fuel that is harvested in compliance with the Florida Endangered and Threatened Species Act (s. 379.2291), the Florida Endangered Species Protection Act (s. 379.411), the Preservation of Native Flora of Florida Act (s.581.185) and the federal Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544) as well as any other state's applicable endangered and threatened species regulations. Fuel obtained by forest harvests that result in damaging populations of endangered or threatened species as designated by the State of Florida is not eligible for purchase by the Seller. Any lack of eligibility for purchase based on this standard shall not necessarily extend to an entire parcel or other unit of property, but only the area necessary for maintenance of the endangered or threatened species. The Purchaser and the Seller shall collaborate to ensure compliance with this standard.

FUEL PROCUREMENT SECTION OF CONTRACT

Other items to be incorporated into the text of the power purchase agreement:

1. Seller shall hire an independent forestry consultant to conduct annual audits of Seller's compliance with these Minimum Sustainability Standards for Forest-Produced Biomass. The independent forestry consultant shall conduct inspections and visits to a randomly selected sample of harvesting sites no less than twice per year.

2. Seller shall institute a documentation policy to ensure that biomass fuel suppliers comply with biomass fuel supply contract terms:

    a. Supply contracts for forest-produced biomass fuel shall incorporate the Minimum Sustainability Standards for Forest-Produced Fuels and suppliers shall agree to compliance with these standards.
    b. Each supply contract must be signed by a professional forester representing the fuel supplier.
    c. Each delivered load of biomass fuel must be labeled by a unique identification number corresponding to the supplier ID, contract ID,

tract ID, crew, transport, date and time and be accompanied by a manifest signed by the harvesting foreman and driver listing such information. If possible, Gainesville Renewable Energy Center, LLC will seek to use electronic media to increase the accuracy of the information.

d. Project procurement staff will record the delivery identification information.
e. Project procurement staff will sample at least 10% of all delivered loads to assure compliance with the minimum standards of Appendix 8 of Contract.
f. Suppliers will keep on file harvesting contracts, cutting agreements, and other related documents for each harvested area and these files shall be available for inspection by Seller for a period of three years following harvest.
g. Project procurement staff will conduct semi-annual inspections of all suppliers to verify compliance with the Project record-keeping procedures and harvesting practices.

3. Seller shall reject non-complying deliveries of biomass fuel.

4. Seller shall suspend deliveries from a biomass fuel supplier for a period of no less than one year if the supplier is found to be in non-compliance in three separate instances within any one-year period.

APPENDIX 3

Florida Department of Agriculture and Consumer Services

Division of Forestry
Florida Fish & Wildlife Conservation Commission

FLORIDA FOREST STEWARDSHIP PROGRAM

4.1.1 FLORIDA FOREST STEWARDSHIP OPERATING PLAN

TABLE OF CONTENTS

Forest Stewardship is defined as the wise use and management of forest resources in a way that maintains and enhances the value of the forest for present and future generations. Landowners who manage their forestlands within the context of a long-term plan of objectives that are economically viable, conservative of natural resources, and are socially, environmentally and ecologically responsible are considered to be Forest Stewards.

The Florida Forest Stewardship Program is designed to encourage the state's ***private non-industrial forest landowners*** **(PNIF's)** to practice stewardship. Specifically, the program objectives are as follows:

1. Encourage non-industrial landowners to manage their properties according to the multiple-use concept.
2. Increase awareness among the general public of the important amenities that Florida's forestlands, particularly non-industrial private forestlands, provide to all citizens of the state.
3. Improve coordination among natural resource agencies and groups, both public and private, to better serve the state's landowners and achieve common goals.

These objectives are to be accomplished by the integrated efforts of the administering agencies and cooperating groups through a program of technical and financial assistance, recognition and public education.

There is a definite need for this program in the state of Florida. Florida's population growth and urban expansion will undoubtedly result in continued conversion of PNIF lands into other more intense land uses such as residential and commercial development. Dr. John E. Reynolds of the University of Florida, Institute of Food and Agricultural Sciences (IFAS), has published several articles exploring the competing land use pressures on rural Florida land. Based on his research published in Soils and Crop Sciences Society of Florida, Proceedings, Volume 59, September 22-24, 1999, Florida can expect to **lose nearly 1.3 million acres of land to urban conversion** in the next ten years.

Wildlife habitat alterations and losses have also accompanied this loss of forestlands. Fragmentation of what used to be large, contiguous forested areas has been particularly damaging to populations of various wildlife species. Those that require a large home range, such as the Florida panther, have been significantly impacted by this fragmentation of their habitat.

Other adverse impacts which have resulted include severe reductions of unique vegetation communities and individual plant species, drainage and conversion of wetlands, degradation of water quality and reduced access to open space for many of Florida's residents. Lack of active management on remaining **PNIF** forestlands has also reduced the supply and condition of the state's forest resources.

active management on remaining **PNIF** forestlands has also reduced the supply and condition of the state's forest resources.

Statewide populations increase of approximately 900 new residents per day further compounds this problem. These new residents create additional demands for wood products, outdoor recreational opportunities and grazing forage for livestock. This, in turn, places considerable stress on Florida's remaining wildlife, timber, soil and water, and aesthetic resources.

The increased demand for forest amenities, combined with a shrinking land base accentuates the need for all forest landowners to actively manage their forested properties. A number of opportunities exist for improved resource management.

PNIF landowners, who hold almost half of the state's forestlands, present the greatest opportunity for making these improvements to the supply and condition of the state's forest resources. These landowners are a heterogeneous group who are motivated by various environmental, economic and intrinsic goals. Unfortunately, they also tend to have limited knowledge of the possible management alternatives and the technical assistance available to them for meeting their forestland objectives.

Participating resource professionals make a deliberate effort to contact this group of forest landowners to assess their personal objectives and generate interest in stewardship management. Landowners targeted for contact are prioritized as follows:

1. Those that have performed little or no management of their forestlands.
2. Those who have managed exclusively for one resource and wish to diversify their activities.
3. Those that presently manage their properties according to the stewardship concept and deserve recognition for their efforts.

Most landowners who fall into the latter group are eligible to immediately receive **Stewardship Forest** certification under the program, since their properties already meet program standards in most cases. Although these are not the landowners on whom the program focuses, their efforts serve as examples for other landowners to follow. They also help to generate recognition and publicity for the program However, a Stewardship management plan must be completed prior to certification.

Most of Florida's new residents come from urban areas in other parts of the country where they have not been exposed to intensive forest management practices. Consequently, misunderstandings often occur when they first encounter smoke from a controlled burn or witness a stand of timber being harvested. To an uninformed individual, these activities can be

areas where there is more interface between forestlands and recently developed areas. Consequently, education is also an essential component of this program, and is primarily directed at new forest landowners, resource professionals, community leaders, and the general public.

Additional efforts must be made to create a positive public image for private non-industrial landowners and resource professionals in order to reverse this trend. Otherwise, excessive regulations will discourage retention of PNIF ownership or carrying out beneficial management activities. For these efforts to be successful, educational programs that focus on inactive landowners, enrich the knowledge of resource specialists and provide information to the general public are an essential component of the Florida Forest Stewardship Program.

INTERAGENCY COORDINATION

1. STATE LEVEL

A. Coordinating Committee

The Florida Forest Stewardship Coordinating Committee shall provide direction for this program. Their responsibility is *to provide technical, procedural and logistical guidance to the State Forester who is responsible for the administration of the Forest Stewardship Program.*

Objectives

- To update program policies, procedures and standards contained in the State Forest Stewardship Operating Plan as necessary.
- To develop strategies that can enhance the success of the program.
- To assist the administering agencies in meeting program goals and objectives and to monitor accomplishment of those goals.
- To provide input to the administering agencies from a wide variety of natural resource-related interests.
- To facilitate the coordination of efforts among the administering agencies.
- To incorporate private natural resource concerns in program implementation.
- To coordinate program activities so as to complement those of existing programs, such as Tree Farm, Partners for Fish and Wildlife, Landowner Incentive Program, and Farm Bill Programs.
- To generate widespread support for the program from forest landowners, concerned groups and the general public.

Membership

The Division of Forestry State Forester serves as chairman (or his designee) with the Stewardship Coordinator serving as facilitator. Individuals from each of the following agencies or groups shall serve on the coordinating committee:

FL. Division of Forestry
FL. Fish and Wildlife Conservation Commission
USDA Natural Resources Conservation Service
USDA Farm Service Agency
USDA Forest Service
USDI Fish and Wildlife Service
University of Florida – IFAS
Florida Association of Conservation Districts
Private, Non-industrial Forest Landowners
Association of Consulting Foresters
Wildlife Management Consultants
Florida Forestry Association
Forest Industry
Private Conservation Organization
Private Forestland Trust Organization
Private Environmental Organization
Local Government

Agencies and groups shall choose their own representatives. The State Forester shall nominate representatives from the other categories mentioned above for three-year terms, which can be extended by mutual agreement.

Schedule of Meetings

The committee will meet twice a year, at a location to be decided in advance. The Division of Forestry shall schedule meetings, notify members, make logistical arrangements, and develop an agenda.

Decision Making Authority

A quorum will consist of representatives from at least **eleven** of the members. Decisions shall be made by consensus, wherever possible. The State Forester shall evaluate group decisions to ensure that they are consistent with the goals of the program.

Implementation

Group decisions shall be implemented as soon as it becomes feasible, depending upon the situation.

B. Technical Subcommittee

Representatives from each of the administering agencies shall comprise the technical subcommittee.

Florida Division of Forestry
Florida Fish and Wildlife Conservation Commission
USDA Natural Resources Conservation Service
University of Florida -- IFAS

Their responsibilities involve providing direction for implementation of the program in the field. This includes technical assistance, educational programs and publicity efforts. The Division of Forestry Stewardship Coordinator shall serve as facilitator for this group. All decisions are subject to review by the full committee.

C. Agency Responsibilities

Division of Forestry (DOF)

1. Overall program administration.
2. Coordination of interagency landowner technical assistance efforts and management plan preparation, as well as accomplishment reporting in conjunction with the FWC.

3. Landowner management strategies for timber, recreation and aesthetic resources.
4. Review of properties for potential "Stewardship Forest" certification.
5. Informational and educational materials development in conjunction with IFAS.

Fish and Wildlife Conservation Commission (FWC)

1. Landowner management strategies for fish and wildlife habitat, and endangered species.
2. Coordination of landowner technical assistance, management plan preparation and accomplishment reporting, in conjunction with the DOF.
3. Wetlands wildlife habitat improvement strategies, in conjunction with NRCS.
4. Educational initiatives for wildlife management, in conjunction with IFAS.
5. Review of properties for potential "Stewardship Forest" certification.

Natural Resources Conservation Service (NRCS)

1. Landowner management strategies to correct soil erosion problems, restore or enhance wetland systems, and manage forest-grazing systems.
2. Identification of endangered flora and fauna which may occur in various locations and vegetation types, in conjunction with the FWC.
3. Other resource management information, as requested.

University of Florida – (IFAS)

1. Development and implementation of an overall educational strategy for various target audiences.
2. Program direction and informational materials for the various resource areas.
3. Contributions to landowner forest stewardship management plans, as appropriate.
4. Program publicity and support on a local and statewide basis.

2. COUNTY LEVEL

Within each county, representatives from the administering agencies will publicize the program, enlist program participants, develop landowner forest stewardship management plans, and **nominate participating landowners** for certification. They will attest to the landowners' commitment to stewardship, as evidenced by their past activities and certify that they have followed written management recommendations.

TECHNICAL ASSISTANCE STRATEGY

1. ELIGIBILITY

PNIF landowners who own a minimum of 20 forested acres and have a desire to manage their ownerships according to the program standards may participate in the Forest Stewardship Program. Adjacent landowners may combine their holdings to meet this acreage requirement if their management objectives are compatible. Public lands which have no statutory mandate to manage for multiple-use (for example, municipally owned lands, college properties, etc.) may also participate in the program as "demonstration areas."

Landowners who are interested in the Forest Stewardship program must enroll their entire contiguous property into the program; however open pasture, cropland, or water body acreage that exceeds 20% of the total acreage will not be eligible for plan preparation cost share assistance.

2. PROGRAM ENROLLMENT

Landowners who are interested in the Stewardship Program should visit their local DOF Forester, a participating natural resource consultant, or the local representative from one of the other participating agencies to learn more about the program. It is the responsibility of the agency representative and/or consultant to carefully explain to each landowner the benefits of the program and the procedures involved in the development of their Forest Stewardship plan. Landowners who are not interested in multiple-use management or not willing to wait for the stewardship plan to be completed, should be discouraged from participating in the program.

The natural resource professional who made first contact with the landowner should ensure that a follow up letter highlighting the benefits of the Program is sent to the landowner. A copy of the Forest Stewardship Program brochure and an application should be included with the letter.

Landowners should also understand that the purpose of the program is to encourage *active forestland management.* This includes measures to increase timber growth, ***but not necessarily the harvest of timber;*** improvement of wildlife habitat, ***but not necessarily for hunting***; and opportunities for recreational pursuits, ***but not necessarily public access for recreation.***

The next step is for landowners to complete a Landowner Application (Form 4.1.1.1, is found on the DOF web page at http://www.fl-dof.com/forest_management/cfa_steward_index.html), and send it to the appropriate DOF forester or to the Stewardship Coordinator in Tallahassee. If the DOF forester receives the application, he/she shall make copies of this document for their files, and forward copies to the FWC biologist, Scientific Services Regional Coordinator, and to the designated natural resource consultant, if one is involved.

The original is sent to the Stewardship Program Coordinator in Tallahassee. In all cases, the application must be available to all resource professionals prior to the initial reconnaissance visit.

3. INVOLVEMENT OF PRIVATE NATURAL RESOURCE CONSULTANTS

Landowners who wish to have a state approved natural resource consultant write their plan must co-sign an **Agreement** (Form 4.1.1.2 or found on the DOF web page at http://www.fl-dof.com/forest_management/cfa_steward_index.html) with the consultant, and be approved by the Stewardship Coordinator prior to the initial reconnaissance visit to the property. This will qualify the natural resource consultant for payment by the State for the consultant's fee. Consultants will be paid based on the established plan preparation payment schedule identified on the agreement. Consultants will not be paid for pasture, open water or non-forested acres that exceed 20% of the total acreage of the landowner's property.

In order for natural resource consultants to prepare Forest Stewardship Plans they must have at least a Bachelor of Science degree in forestry, natural resource conservation or wildlife from an accredited university and are listed on the Division of Forestry's approved Stewardship Consultant List.

Additionally, natural resource consultants who do not meet the above requirements but are registered foresters in an adjacent state or a certified wildlife biologist by the Wildlife Society may be approved for placement on the Division's Stewardship Consultant List.

DOF foresters should provide landowners with the approved Stewardship Consultant List to choose from. Landowners will be required to hire consultants with particular education **or expertise in the resource that they have identified as their primary objective**. All landowners who have **more than 160 acres** will be encouraged to use natural resource consultants to prepare their plans, unless:

- Technical services funds are not available.
- No consultants are available within the landowner's immediate area to prepare their plan.
- The landowner does not want to use the services of a private natural resource consultant. (If this is the case, the landowner must send a signed letter to the DOF forester requesting that state agency personnel develop their management plan. This letter will be submitted prior to the recon and retained in the landowners DOF case record folder.)

A. FUNDING FOR PLANS PREPARED BY CONSULTANTS

Grant funding is available to pay for the preparation of Forest Stewardship Plans written by approved Stewardship Consultants for the purpose of improving or maintaining forest

health with the intent of enhancing pine timber production, wildlife habitat and/or recreation opportunities in pine ecosystems. However, consultants will not be eligible for plan preparation payment if they own a principle interest in the property in which they are developing the plan. Consultants may still write the plan for the property, without payment, as long as they follow the established Forest Stewardship preparation procedures for plan preparation.

Specifically, forestry consultants are advised to include one or more of the following recommendations in plans for non-industrial private forest landowners with existing pine stands:

- Pre-commercial thinnings to reduce pine competition and increase residual pine resistance to SPB attacks.
- Prescribed burns to reduce understory competition and increase residual pine resistance to SPB attacks.
- Mechanical treatments or other timber stand improvements intended to reduce hardwood or understory competition and increase residual pine resistance to SPB attacks.
- Restoration of pine stands killed by SPB. Recommendations should include removal of SPB-killed pines, plus site preparation and/or regeneration of site-appropriate species, with low-density plantings encouraged.

B. CONSULTANT PLAN APPROVAL PROCEDURE

1. The landowner completes the Stewardship application (Form 4.1.1.1) and sends it to the Division of Forestry and then contacts an approved natural resource consultant to prepare a Stewardship plan for their property.
2. The landowner and consultant sign the Forest Stewardship Program Agreement – Consultant Management Plan Preparation (Form 4.1.1.2) and send it to the Stewardship Program Coordinator at 3125 Conner Blvd., Tallahassee, FL 32399-1650.
3. The Stewardship Coordinator checks the application to ensure that the consultant is on the approved list, that there is an existing pine component on the landowner's property, and that there is sufficient funding to approve the agreement.
4. If the agreement is approved, a letter will be sent to the landowner, consultant, and DOF forester informing them of the approval. If the agreement is not approved, a letter will also be sent to all parties informing them that the agreement wasn't approved. ***(Any time spent by the consultant on the plan prior to receiving the approval letter may be at the landowner's or consultant's expense if the agreement is not approved)***
5. The consultant will have up to six (6) months to complete the plan from the date of the initial reconnaissance visit. **If the consultant does not complete the plan within this six (6) month period, this agreement will be canceled, and the consultant will forfeit any plan preparation payment.** Consultants may request, in writing, a one time extension from the Stewardship Program

Coordinator if circumstances beyond his/her control occur that delay plan completion. The request must be made prior to the end of the six month due date.

6. The consultant invoice (Form 4.1.1.5) must contain: the landowner's name, the county and location of the property, the total billable acreage of the plan, the consultant's address and phone number, and the consultant's **Federal Identification number or his/her Social Security number.**

PLAN PREPARATION PROCEDURES

1. INITIAL RECONNAISSANCE

The consultant (if involved), Stewardship technician, or the primary plan author arranges a meeting at the landowner's property, where the landowner, or designated agent, meets with the **Stewardship plan preparation team**.

If a consultant ***is*** involved in the plan preparation process, the reconnaissance and preparation team shall consist of the consultant, DOF forester, and other professionals necessary to address the property needs and landowner's objectives. The FWC biologist will only attend a consultant led reconnaissance if wildlife management is the landowner's primary objective, or the landowner requests their participation.

If a consultant ***is not*** involved in the plan preparation process, the reconnaissance and preparation team shall consist of the DOF forester, FWC biologist, and other professionals necessary to address the property needs and landowner objectives.

Other professionals who may assist in plan preparation include the following:

Natural Resource and Conservation Service Representative (NRCS): If an *erosion problem or a potential erosion problem exists* that is to be corrected, or the landowner wishes to conduct a practice *in an area designated as a wetland.*

Water Management District Representative (WMD): If a management activity requires some type of (WMD) permit, and the respective District indicates their willingness to be involved in order to help expedite the permitting process.

County Extension Agent (IFAS): If *woodland grazing* is to be a part of the management plan, or the landowner wishes to pursue a unique management practice, such as growing shiitake mushrooms, where the county agent may have some specialized knowledge or information.

Other Specialists: Examples may include a fisheries specialist from the FWC, who can contribute specialized information to the plan. USDI Fish and Wildlife Service representatives that may be able to provide funding for installing recommended

practices may also be included. (i.e. Partners for Fish and Wildlife program.)

The other specialists do not have to be present during the initial visit. The primary author can arrange for them to visit the site at a future date.

This initial reconnaissance visit provides landowners with an opportunity to explain their goals, as well as identifying their specific practices and concerns. The resource professionals exchange ideas with the landowner and make observations about the property to determine how and where to carry out the practices identified by the landowner. **Before leaving the property, everyone involved should agree upon the primary objective desired by the landowner.**

Before the reconnaissance visit, the primary author will collect the following information and distribute it to the appropriate coordinating agency personnel on the day of the reconnaissance visit.

- Stewardship application
- Aerial photo with the property boundaries identified
- Soils information and map, if possible
- Other pertinent landowner information, if necessary

2. PLAN PREPARATION IF CONSULTANT IS NOT INVOLVED

The DOF forester will take lead responsibility for preparing the plan if the landowner's primary objective is anything other than wildlife management. The FWC biologist will take lead responsibility for writing the plan if wildlife is the primary objective, or if a wildlife supplement to an existing timber management plan is needed.

If the Stewardship plan involves a multi-county ownership, the DOF forester with the majority of the property falling in his/her county, will coordinate the plan preparation process. If a DOF forester position is vacant, or the forester is unable to develop the plan due to other circumstances, a DOF forester from an adjoining county will be allowed to prepare the plan upon receiving approval from his/her Forest Area Supervisor.

3. TIME SCHEDULE FOR PLAN COMPLETION

a. State office receives **original** completed application signed by landowner, where the landowner's information is entered into the Stewardship database.
b. State office mails a copy of the landowners application to the field staff-both FWC and DOF.
c. The primary author is selected by landowner's choice of management objectives. The lead plan writer will make contact with the landowner and other Agencies to schedule a

reconnaissance (recon) of the landowner's property.

Within a 6 month time period starting on the date of the recon, the following activities will be accomplished:

d. The recon date should be noted in the DOF monthly report to their CFA Coordinator. The State office will note the recon date in the database. FWC will continue to note recon dates in the database **when they are the lead plan writer.**
e. After the recon, the reconnaissance and preparation team will provide the primary author with written management recommendations and appendix material, or the primary author will submit the first draft of the plan plus maps to the team members for their review and additions. The agency professionals shall use the checklist (Form 4.1.1.3) included in the Stewardship Operating Plan as a guide for the reviewing these plans.
f. The primary author then incorporates all information from the team members into a second written draft and is circulated with the signature page (Form 4.1.1.4) for appropriate signatures. Always make a copy of both the signature page and the complete plan prior to mailing.
g. He/she then attaches the **original** signature page and appropriate maps, and forwards the draft to the landowner.
h. The landowner reviews the draft plan, and if satisfied, signs, and returns the original signature page to the primary author. Once the primary author receives the original signature page from the landowner he/she routes copies of the final plan to the team members with a copy of the signature page and sends the final plan to the landowner. The author makes a copy of the completed signature page, places that copy and copy of final plan in the landowner's case file, then sends the **original** signature page to the state office, and an **electronic** copy of the plan sent to the state office.
i. If the landowner fails to return or does not sign the signature page within **two (2) weeks**, a letter (Form 4.1.1.9) will be sent along with a **final** copy of the plan by the primary author to the landowner stating that the plan is considered complete. A copy of that letter with the copy of the signature page signed by all team members must be sent to the state office in order for the plan to be considered complete. An **electronic** copy of the plan should be sent to the state office instead of a hard copy.
j. The state office will note plan completion date in the database, but should be included in the DOF monthly report to their respective CFA Coordinator. The date of the landowner's signature will be used as the official completion date or in the case of the landowner fails to sign the signature page, the date of the aforementioned letter will be used as the official completion date.

The Final Draft of the Forest Stewardship Management Plan will be completed and sent to the landowner within 6 months of the initial team reconnaissance visit of the property. Consultants who fail to complete the plan within this time frame will forfeit any claim to the State for plan preparation expenses. The DOF Chief of Field Operations will be notified in writing if a DOF forester does not meet the 6 month deadline, so that corrective action can be taken.

THE COUNTY FORESTER IS THE RESPONSIBLE PERSON TO REVIEW AND CONDUCT QUALITY CONTROL FOR ALL PLANS PREPARED IN HIS/HER RESPECTIVE PROJECT AREA.

4. FOLLOW-UP ADMINISTRATIVE PROCEDURES

The agency primary author must submit an electronic copy of the final plan and the original signature page (Form 4.1.1.4) to the Stewardship Program Coordinator in Tallahassee. Agency personnel will not receive credit for plan completion unless the completed original signature page is sent to the Stewardship Program Coordinator.

If a consultant is involved, the consultant will submit their invoice, an electronic or hard copy of the plan, and the original signature page to the Stewardship Program Coordinator in order to initiate payment.

If the Stewardship Program Coordinator, or designated representative, finds significant deficiencies in the plan, he/she will advise the primary author so that the situation does not recur. If these deficiencies persist in future plans, the Stewardship Program Coordinator, or designee, will review draft plans from that particular primary author until the situation improves.

IF NEW FORESTERS/CONSULTANTS ARE INVOLVED

New DOF foresters and natural resource consultants must include the Stewardship Program Coordinator, or designated representative, in the review and approval process for all plans. The Stewardship Program Coordinator, or designated representative, will review all **first drafts before being submitted to the landowner** until the preparers show proficiency in plan preparation. The Stewardship Program Coordinator, or designee, will notify the new DOF foresters and consultants when they are no longer required to send draft plans to the Stewardship Program Coordinator.

5. PROGRAM ACCOMPLISHMENT REPORTING

If the above time schedule has not been adhered to by a consultant on a regular basis, and future cooperation can not be secured, the consultant will be removed from the list of approved plan preparers. Where consultants are not involved in the preparation of a plan, the Stewardship Program Coordinator will secure cooperation from the appropriate District Manager to ensure that county foresters adhere to these same time constraints.

6. AFTER THE PLAN IS COMPLETED

The primary author will contact and confer with each landowner to help them decide which of the recommended practices they would like to begin first. They will also direct them to

potential sources of financial assistance such as the ***Forest Land Enhancement Program (FLEP), Landowner Incentive Program (LIP), Partners for Fish and Wildlife Program (PFW), Wildlife Habitat Incentives Programs (WHIP,) Environmental Quality Incentives Program (EQIP), or the Conservation Reserve Program (CRP)*** should funding be available. If necessary, they shall return to the site to provide additional technical assistance. They can also help landowners find contractors to perform the work or materials and supplies to do the work themselves.

7. FUTURE PLAN REVISION OR ADDENDUMS

Landowners can request a revision or addendum to their Forest Stewardship Plan under the following circumstances: five years following its original completion date, and/or after a change in ownership or additional acreage has been added to the original parcel. When funding is available, natural resource consultants will be paid to prepare plan revisions at the rates set forth on the Consultant Plan Preparation Agreement (Rev. 06/05).

ADDENDEM

Traditionally used where a landowner has increased his/her acreage and a simple stand description, management prescription, and map modification is all that is needed.

A plan addendum shall consist of:

- At least a one to two page narrative plus a revised stand map (if necessary) summarizing the changes to the plan.
- Changes to management objectives, if they have changed.
- Changes to stand descriptions where appropriate, and management recommendations for all stands for the next five years. The amount of detail included depends on the detail already included in the original plan.
- A timeline for completing these activities.

REVISION

When doing revisions, landowners must fill out a new application (Form 4.1.1.1) so that we can enter their history into the data base. If the landowner is in the data base, verify the current address and phone number and also get an e-mail address if they have one.

A revision shall consist of a new plan for the landowner and his/her property. The preparer should follow the guideline as to preparing the plan-under PLAN PREPARATION PROCEDURES.

Both the DOF forester and FWC biologist shall sign off on these revisions using the standard

signature page format and the DOF forester shall send an electronic copy of the revision and the original signature page to the Stewardship Coordinator after reviewing them with the landowner. Revisions must be indicated on a new application form (Form 4.1.1.1) and original signature page (Form 4.1.1.4). Recertifications must be indicated on the certification checklist (Form 4.1.16). Plan revisions and recertifications shall count towards the CFA forester's annual FSP accomplishment goals.

Plan revisions should continue to be completed on those properties whose landowner requests a revision. Also, be aware of active landowners that you know have an outdated plan. Ask them if they are interested in having a revision. Use your best judgment about whether or not a new plan is needed or if a revision as outlined in the Operating Guidelines is needed. Priority should be given to properties where certification has expired (5 years from the original certification) and recertification will require a plan revision.

PLAN PREPARATION FORMAT AND CONTENTS

A forest stewardship management plan is a multiple-use document which contains integrated strategies for managing each of the major resource components on the landowner's property over a five-year period. Resource specialists from the administering agencies and the private sector contribute to the plan. All forested property, plus any improved land which is scheduled for treatment in the immediate future, is included. (A sample plan is attached.)

If the landowner already has a plan which has been developed by a natural resource professional, the stewardship plan can serve as a supplement which contains recommendations for the additional resource elements.

The landowner shall rank their first three objectives for the property as a whole, while providing for each of the other objectives in a compatible manner. With the landowner's objectives known, the natural resource professional can refer to the appropriate minimum standards and basic guidelines when developing the plan. The following components constitute the minimum information that should be included in all plans; a Forest Stewardship Management Plan Review Checklist (Form 4.1.1.3) is provided to assist in assuring all the minimum information is included

1. SIGNATURE PAGE (Form 4.1.1.4)

Once the plan is completed, this page will include the original signatures of the ***landowner(s), DOF forester, wildlife biologist (if involved), consultant (if involved) and other resource specialists*** that contribute to the plan. A plan is considered complete only when the original signature page is sent to the Stewardship Program Coordinator. The landowner's signature date will be considered the plan's completion date.

2. LOCATION

This includes the landowner's name, size of the property, its section, township and range, (STR), latitude and longitude of the property, and reference to the closest town and major highways.

3. SUMMARY OF MANAGEMENT OBJECTIVES

The landowner's primary objectives, along with the other resource objectives of the plan, are identified in one paragraph.

4. MANAGEMENT RECOMMENDATION SUMMARIES

They should contain no more than 1-2 paragraphs which briefly state (**not** describe or explain) what practices will be performed to achieve the landowner's goals and "Stewardship Forest" certification standards. This section should not duplicate detailed information contained in the stand recommendations. Examples are as follows:

Timber -- Identify target cutting schedule and opportunities for reforestation, improving timber growth and harvest, considering the overall objectives.

Wildlife -- Identify featured species, presence of listed species according to the screening procedure, desirable habitat types present, and opportunities for improving desirable habitat, considering the overall objectives. Reference to any threatened and endangered species lists for the particular county that is included in the appendix.

Soil and Water Conservation

1) Identify areas that have existing erosion problems and areas requiring special consideration and monitoring (highly erodible areas, wetlands, riparian zones, sinkholes etc.).
2) Note applicable BMP considerations and provide supplemental BMP information in the appendix if needed. Provide a general (one paragraph) description of BMP legislation and its importance to water quality and natural resource protection in Florida.
3) If a wetland is present on the property, document the importance of contacting the proper Water Management District office before conducting any activities that would take place in, or near a wetland. Include in the appendix a 1-2 page document that provides general information about wetland legislation/permitting requirements, and contact information of permitting agencies.
4) Existing soils information should be listed in a chart, as follows:

Soil Type	Vegetative Community	Slope	Drainage	Depth to Water Table	Productivity (Site Index)
Rutledge	Swamp Hardwoods	minimal	poor		not worth the effort

If possible, a soils map should be generated for the property and placed in the appendix.

Recreation -- Identification of existing recreational facilities, present and potential uses and general strategies for enhancing the landowner's desired uses.

Aesthetics -- Identification of areas which are unique from a scenic, vegetative, geological or historical standpoint, plus smoke-sensitive areas. Also, should include strategies and goals for enhancing these amenities.

Grazing -- Target and potential level of use, present forage conditions, opportunities for conserving forage, maintaining environmental values and increasing production, and general strategies and goals, considering the overall objectives.

Cultural and Historical Resources -- If artifacts are found or the landowner has a particular interest, known locations of archaeological sites can be obtained from the Department of State Division of Historical Resources. NRCS has some data, too. Landowners should know that a toll-free number exists at the Florida Department of State where they can call if they find any potential artifacts.

5. STAND MANAGEMENT DESCRIPTIONS AND RECOMMENDATIONS

A) General Considerations:

Stand management recommendations should **integrate** the various resource activities which are to be performed over the following five-year period. These activities should be designed to correspond with the landowner's objectives. They should describe in site specific detail ***what, where, when, why and how*** to perform practices, supplemented with appendix material where appropriate. For example, reforestation activities should list treatments for site preparation, why they are being recommended, the season when they should be performed, the season for tree planting, tree species, density, planting spacing or configuration, and follow-up cultural treatments. Recommendations should be described in chronological order.

B) Stand Management

These shall be completed as follows:

- Stands can be grouped according to the "Natural Communities of Florida" publication (published by FNAI) unless they happen to be planted pine or cleared areas.
- Acreage identified for each stand.
- The number of stands should be kept to a minimum. Areas of similar vegetation type and age which occur in different parts of the property should be considered as one stand. If one area of the stand is to receive special consideration, it can be referred to by an identifier label (example, Stand 3a or 3*).

- Age classes of the same tree species or community type can be grouped into similar stands as follows:
  i. Pre-merchantable (age 0-10)
  ii. Intermediate sized (ages 10-20)
  iii. Merchantable (ages 20-30)
  iv. Mature (ages 30 and up)
- Vegetation in each stand should be described in a qualitative manner. This includes community type, specific overstory and understory species present, age, density, evidence of fire or pest damage, previous management and other information which can be discerned by visual inspection and by talking to the landowner.
- **Stands targeted for active timber management** should also include approximate basal area, size class and site index or site quality.
- Stands or areas that have been designated as wetlands should include similar descriptive information as listed above.
- If wetland or riparian area enhancement has been identified as the primary management objective, the following information should also be included in the stand description: Signs of hydrological alterations (culverts, ditching, stream channelization, etc.), location and type of water control structures, presence or absence of standing water, directional flow of surface water/drainage patterns, buffer condition (width, surrounding land use, plant community structure and composition, etc.), presence of exotic plant species, potential sources of nutrient input, and presence or absence of fencing (if livestock are present).
- Specifically, forestry consultants are advised to include one or more of the following recommendations in plans for non-industrial private forest landowners with existing pine stands:
  - Pre-commercial thinnings to reduce pine competition and increase residual pine resistance to SPB attacks.
  - Prescribed burns to reduce understory competition and increase residual pine resistance to SPB attacks.
  - Mechanical treatments or other timber stand improvements intended to reduce hardwood or understory competition and increase residual pine resistance to SPB attacks.
  - Restoration of pine stands killed by SPB. Recommendations should include removal of SPB-killed pines, plus site preparation and/or regeneration of site-appropriate species, with low-density plantings encouraged.

C) <u>Soil and Water Conservation Considerations:</u>

BMP recommendations should specifically describe what needs to be done to protect the particular site. For example, if timber harvesting is scheduled to occur adjacent to a stream, a wetland with a well defined stream, or a lake, the size and location of

primary and secondary Special Management Zones (SMZ) should be documented. The following supplemental information should also be included in the appendix and referenced in the recommendation:

- BMP information the resource professional determines should apply to the tract or project (e.g. timber harvesting BMP's, wetland BMP's, etc.) and a
- Document that provides general information about permitting requirements and contact information of permitting agencies.

Opportunities for landowners to use the services of the private sector should be clearly identified. These include timber appraisals, marketing, controlled burning and vendor services. Absentee landowners, particularly those who own large tracts should be encouraged to use consultants.

6. TIMELINE OF RECOMMENDATIONS

This information for the next five years should be presented in table form as follows:

Season/ Year	Stand	Recommended Practice	Estimated Total Cost
Summer, 1996	1	Chemical Site Prep	$90/Acre

7. APPENDIX

Standard materials which describe common management practices should be included in all plans where they apply, for example, lists of common wildlife plantings with their suitable soil types and the season of year to plant them.

8. STAND MAP

The stand map(s) should be computer generated, **not** hand drawn or superimposed over an aerial photograph. Cropland, improved pastures and improved facilities should be included on this map. Two maps, depicting property location on one and stand boundaries on the other, are permitted.

The stand map(s) shall include the following:

a. North arrow.
b. Property boundaries.
c. Closest section corner(s), if corners can be practically placed on the map without adversely affecting the scale.
d. Access roads leading into the property, with direction and distance to the nearest town.
e. Roads or trails within the property.
f. Proposed firelines and wildlife openings.
g. Fixed improvements within the property.
h. Bodies of water within or adjacent to the property.
i. The landowner's name, preparer's name and date prepared.
j. The scale of the map, which is to be no less than 1":1320'.
k. Clearly defined stand boundaries.

STEWARDSHIP FOREST CERTIFICATION CRITERIA

1. ELIGIBILITY

To be eligible for certification as a "Stewardship Forest," properties must be actively managed with a truly multiple-use forest management approach based upon the landowner's priorities and objectives. This involves performing management activities which enhance the following resource areas:

Timber Growth	Aesthetics
Wildlife Habitat	Soil and Water Conservation
Recreation	

Woodland livestock grazing may also be included as one of a landowner's management objectives if a portion of the property is used for that purpose.

It is important to note that multiple use benefits do not have to be obtained on every acre. Some areas may provide only one benefit, while other areas may provide many uses. When the property is considered as a whole, however, the landowner must demonstrate active management for each of the above mentioned resources. In addition to active management, passive management within forested wetlands and streamside management zones (SMZ) will be viewed as good overall management and worth recognizing during the certification process.

Stewardship certification is a subjective decision made by the local agency representatives, or the Stewardship Program Coordinator. As a rule of thumb, landowners who have practiced no previous active management before entering the program may need one to three years to bring

their properties up to program standards. However, landowners should not have to wait for certification until they have performed all practices described in their Forest Stewardship Management Plans.

2. INSPECTION PROCEDURE

Agency representatives, landowners, or consultants may request a certification inspection for a participating property by contacting the State Stewardship Program Coordinator. The inspection team will consist of at least one representative for the DOF and FWC. Representatives from the NRCS or Cooperative Extension Service may also be invited if a significant portion of the landowner's management program involves correcting soil erosion or water quality problems, woodland grazing, or some alternative resource. Natural resource consultants who have clients nominated for Forest Steward certification are encouraged to accompany the team and provide supporting information on the client's forest management activities. The landowner should also be present, if possible.

3. MINIMUM STANDARDS

The following standards have been developed for each resource area to help management professionals define "active management." Landowner forest stewardship management plans should address these standards, and the landowners must follow them to achieve certification.

A. Timber

As a primary objective, where the landowner's management strategy **emphasizes** the growth of merchantable wood while providing for the properties other natural resources.

- Implementing measures to reduce the wildfire hazard, including prescribed burning.
- Salvaging damaged timber which threatens the value and health of the surrounding stand in a timely manner.
- Managing timber stands to encourage vigorous growth and minimize the likelihood of damage from the agents previously described.
- Regeneration planned in advance of timber harvest and measures taken to complete it within three years after final harvest unless there is to be a land-use change. Cost-effective treatments which minimize site disturbance and destruction of wildlife habitat should be encouraged.
- Tree species favored and managed that are best adapted to specific sites.
- Proper stocking levels established at the time of regeneration.
- Competing vegetation controlled to maintain vigorous growth, in a compatible manner with other objectives.

- Stands thinned as needed to maintain vigor.
- Timber harvested before biological maturity of the stand but with provisions made for species dependent on mature timber and/or cavity trees.
- Size and shape of harvested areas compatible with other objectives.

As a secondary objective, where the landowner's management strategy emphasizes resources other than timber but still provides for the growth of potentially merchantable stands of trees.

- Creation or enhancement of potentially merchantable stands of trees, using treatments consistent with above items to encourage timber growth.
- Measures to protect timber from the agents referred to above, to where the situation is controlled within the landowner's property boundaries.
- Timber harvests conducted in a manner that enhances other resources.

B. Wildlife

As a primary objective, where the landowner's management strategy **emphasizes** practices designed primarily to optimize the diversity and abundance of wildlife species while providing for each of the other resources.

- Featured species or groups of species identified and wildlife management recommendations followed to encourage adequate populations.
- Enough suitable habitat deliberately created, maintained and improved to support sustainable populations of desired species.
- Manage game species populations in a manner compatible with the health and well-being of the species and the available habitat.
- Natural diversity and abundance of non-game wildlife species achieved and maintained.
- Other resources managed to enhance the habitat of featured wildlife species or species groups.
- Prescribed fire applied **according to recommendations contained in the management plan** in fire-dependent communities.
- Habitat managed to not adversely affect listed species of flora or fauna with a high probability of occurring on the property.
- Provisions made on some part of the property for species dependent on mature timber and/or cavity tree.

As a secondary objective, where the landowner's management strategy emphasizes resources other than wildlife but still provides suitable habitat for both game and non-game species.

- Desired species identified and wildlife management recommendations to encourage adequate populations are followed.
- Some provision made on some part of the property for species dependent on mature timber and/or cavity trees.
- Habitat managed to not adversely affect listed species of flora or fauna with a high probability of occurring on the property.
- Prescribed fire applied, within the past three years in fire-dependent communities.

C. Soil and Water Conservation

As a primary objective, where site-sensitive areas are managed to minimize wind and water erosion, maintain wetland areas, riparian zones, significant ground-water recharge areas, and control potential off-site effects of nutrients and pesticides. The understory is managed to use water efficiently for timber production, wildlife food and cover and grazing forage production. Practices include, but are not limited to:

- Limiting pesticide use and nutrient additions to the amounts and types necessary to protect water quality and the integrity of all forestland resources.
- Minimizing off-site effects from pesticides and nutrients applied on the landowner's property.
- Rehabilitating critically eroding areas, converted or degraded wetlands and riparian areas, and applying measures that protect these areas from further damage or degradation.
- Following practices listed under the secondary objective section.

As a secondary objective, where the landowner's management strategy emphasizes other resources but still provides for soil and water conservation and the protection of wetlands, riparian zones, and significant ground water recharge areas.

- Maintaining adequate cover to minimize soil particle detachment and transport.
- Protecting areas prone to erosion from destructive silvicultural operations that would damage the ground cover and treating areas which have sustained previous damage.
- Applying nutrients or pesticides according to official recommendations.
- **Harvesting pine straw should be done in conjunction with monitoring nutrient levels through foliar sampling and fertilizing when necessary.**
- Following appropriate conservation practices on the landowner's agricultural lands.
- Following Silvicultural Best Management Practices on forestlands to maintain water quality and minimize soil erosion.

- Constructing firebreaks and access roads so as to minimize soil erosion.
- Encouraging practices such as prescribed burning which control undesirable vegetation and encourage the growth of erosion-reducing, herbaceous plants.
- Maintaining wetland areas in accordance with the Farm Bill, which discourages converting wetland areas to other types of land use.
- Protecting water bodies (streams, impoundments, etc.), wetlands and significant ground water recharge areas from chemical contamination, nitrification, and sedimentation.

D. Recreation Enhancement

As a primary objective, where most management activities are designed to enhance the quality of recreational opportunities on the property. Recreational uses identified and management recommendations followed.

- Recreational facilities such as picnic areas, campsites, walking trails, boat docks, nature study areas, quiet areas, etc., created and actively maintained.
- Property actually used for some form of active or passive recreation.
- Environmental impact of recreational activities minimized.
- Areas with hunting identified as a recreational use should include some visible efforts to improve the area for that purpose. Examples may include wildlife plantings, a prescribed burn, increased ecotone, camping areas, etc. Nature study areas may also have improved facilities to encourage the pursuit of such activities.

As a secondary objective, where the management strategies emphasize other resources but some provisions are made for recreational opportunities.

- Recreational uses compatible with the primary objective.
- Environmental impact of recreational activities minimized.
- Management recommendations for recreational improvement followed, **to where the property *could* be used for recreation.**

E. Aesthetic Enhancement

As a primary objective, usually where the property consists mainly of unique ecological communities, or where its location limits management options for the other resources. Accomplishments must be demonstrated toward maintaining or enhancing environmental and aesthetic qualities. Examples include but are not limited to the following:

- Maintaining or restoring areas of special value that add to the biodiversity of the property, such as areas of diverse ground cover, and virtually any small area that stands

out as different from the rest of the property or the surrounding area.

- Retaining large attractive specimen trees and trees with good fall colors.
- Planting or maintaining native flowering trees, shrubs and wildflowers that are best adapted to specific sites.
- Identifying and maintaining scenic areas and unique geological features such as rock outcrops, sinkholes, small ponds, etc.
- Identifying and protecting unique archeological or historical sites.
- Contributing to the overall aesthetic appearance of the surrounding landscape as a whole.

As a secondary objective, where the landowner's management strategy emphasizes resources other than aesthetic enhancement but still provides toward maintaining or enhancing environmental and aesthetic qualities. Significant activities designed to enhance environmental and aesthetic qualities must be shown in all management plans.

F. Woodland Livestock Grazing

As a primary objective, where timber stocking and understory vegetation are managed to optimize production of native forage over most of the property.

- Use of the property for grazing by livestock is planned and actually takes place.
- Management recommendations identify and take into account the class of grazing animals, seasons of use and key grazing plant species.
- Animal units are adjusted (considering canopy cover) so that half of the current year's growth on all grazing plants (including key species) will be left at the end of each grazing season. At least 90 percent of the grazed area must comply with this provision.
- Supplemental feeding troughs/mineral feeders and water developments are located away from newly planted areas.
- Competing vegetation is controlled unless incompatible with other objectives.
- All domestic livestock is to be excluded from planting or naturally reproduced stands of pine seedlings until they have been established through at least three growing season or until sufficient forage becomes available for livestock.
- Adverse environmental impacts as well as impacts upon other resources are minimized.

As a secondary objective, where areas of native range are managed for livestock but other resources are emphasized in the management strategy. Grazing conducted so as not to have an adverse effect on any of the previously mentioned resources.

G. Non-objective Accomplishments

- Cooperation with state agencies responsible for the prevention and control of illegal hunting or fishing and other detrimental practices or influences.

- Unique plant communities protected and maintained. This includes periodic prescribed burning of fire-dependent vegetation communities and use of native plants favored over non-natives.
- Litter controlled, unsightly areas eliminated, and steps taken to neutralize any hazardous materials which may be present on the site.

Once the inspection team ascertains that the landowner is practicing *active multiple-use management*, as defined by the minimum standards, the landowner's property is awarded Certification as a Stewardship Forest (See Stewardship Forest Certification Checklist, Form 4.1.1.6).

4. CERTIFICATION AND AWARD PRESENTATION

The Stewardship Program Coordinator will provide the DOF forester or FWC biologist with a "Stewardship Forest" sign for the landowner's property, and provisions for ordering a stewardship plaque. Landowners with more than one tract of land included in the program may receive a sign for each tract. Landowners with larger tracts may receive one sign for every 500 acres contained in the tract. The sign(s) should be erected on the property in areas visible to the public.

The DOF forester will award the plaque at a public gathering if possible, and arrange for publicity of the certification, depending on the desires of the landowner. Activities may include a news article, presentation of the sign and certification at a public event, or a separate ceremony to commemorate the event.

5. REINSPECTION PROVISION

Each property shall be re-certified every five years. The Stewardship Program Coordinator, or designated representative, shall supply each DOF Forester with a list of re-inspections to be completed in their county during the state fiscal year. The DOF forester shall coordinate the re-inspections and recertifications for all properties. Properties that maintain the "Stewardship Forest" standards will be recertified and may continue to display their sign. Landowners that fail to maintain standards shall be given one year to correct management deficiencies on their properties or lose their certification. If requested by the landowner, an update of the management plan can also be performed during this time period.

If property ownership changes and the new landowner agree. to follow the existing plan, the property may continue as a Stewardship Forest. However, if the new landowner has significantly different management objectives, the certification will be terminated and the new landowner may apply for a new Forest Stewardship plan. <u>This applies even if landowners deed their property to their heirs.</u>

PUBLICITY AND EDUCATION STRATEGY

Specific educational efforts shall be designed to address the needs of resource professionals and forest landowners, as well as to inform the general public of the vital role of non-industrial forest landowners in providing the various forest resource amenities to all citizens. Publications,

broadcast media productions, informational seminars and face-to-face interactions will be used to enhance the effectiveness of our State's Stewardship efforts.

Specific activities, which shall be conducted by the Cooperative Extension Service **with assistance from the other cooperating agencies,** include the following:

Forest Stewardship Extension Coordinator
This person will help to develop and coordinate the proposed educational programs including workshops, publications, newsletters and a mailing list database. This person will also serve as liaison between the University of Florida Cooperative Extension Service and the other administering agencies.

Workshops and Stewardship Tours
For those landowners in the program, those interested in joining, and resource professionals.
Purpose:

(1) To enhance communication and sharing among Forest Stewards,
(2) To present technical information, this will improve management on stewardship lands.

Newsletter
The purpose of this newsletter is to share multi-resource management information and to improve communications among agency personnel in the program. It is sent to enrolled stewardship landowners, landowners on the extension mailing list and resource professionals in the administering agencies.

Publications
These will provide landowners with technical information concerning a number of resource-related topics, financial assistance and tax provisions, and the Forest Stewardship Program itself.

Displays
Portable "pop-up" displays with program materials will be available for agency representatives who wish to conduct informational and educational programs concerning the Stewardship Program or publicize the program at public events. The Stewardship Coordinator will take responsibility for lending these displays, ensuring their timely return, and coordinating the maintenance or upgrade of the display materials.

COORDINATION WITH OTHER COOPERATIVE PROGRAMS

A number of other cooperative programs now exist that are intended to enhance natural resource conditions, including forest conditions. The Forest Stewardship Program can complement and enhance the efforts of these programs, since they encourage landowners to practice multiple-use management, which includes timber management in several cases. The Stewardship Program is

designed in part to appeal to landowners who in the past have focused their management activities on resources other than timber. Stewardship management plans for these landowners will incorporate silvicultural treatments to improve the resource values that the landowners consider most important. In this way, the program will engender a more positive attitude among these landowners toward timber management and increase future timber supplies in the state.

Landowners involved in the Stewardship Program will be informed of the additional benefits available through these other programs. Likewise, the coordinating agencies from the other programs will encourage participating landowners to seek additional assistance through the Stewardship Program if appropriate.

Resource professionals who are involved in each of these programs will work toward achieving the same common goal, which is increasing the number of landowners who practice active forest management, without impairing the effectiveness or image of the other programs.

FLORIDA STEWARDSHIP PROGRAM GOALS

Program emphasis will be placed on maximizing the number of landowners who become familiar with the stewardship concept, receive technical assistance through a stewardship plan and are encouraged through succeeding contacts to work toward stewardship certification.

The overall statewide goal is to **complete 200 Landowner Forest Stewardship Management Plans which includes Revisions and to certify or re-certify 70 new *Stewardship Forests* each year for the next five years**. These include plans developed by agency personnel **and private natural resources consultants.**

Florida Department of Agriculture and Consumer Services
Division of Forestry

CHARLES H BRONSON
COMMISSIONER

FLORIDA FOREST STEWARDSHIP APPLICATION

☐ NEW APPLICATION ☐ REVISION

PLEASE RETURN TO:
Forest Stewardship Coordinator
Florida Division of Forestry
3125 Conner Boulevard
Tallahassee, Florida 32399-1650

The Florida Forest Stewardship Program has been established to provide services that will meet the needs of the forest landowners. To participate in this voluntary program, forest landowners are encouraged to implement conservation practices as they are able, based on their objectives. The information on this application will help the Resource Professional develop a management plan that meets your objectives.

PLEASE PRINT

Last Name: _____ First Name: _____ Middle Initial: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Telephone - Home: _____ Telephone - Work: _____

E-mail Address: _____

TRACT INFORMATION

1. County: _____ 2. Total Tract Acres: _____
3. Total Pine Acres: _____ 4. Total Forested Acres: _____
5. Tract Location: _____

6. Is this tract your primary residence? YES ☐ NO ☐

   If no, how many days/year are spent on the tract? _____

7. How long have you owned this property? ☐ 1 Yr. ☐ 1-5 Yrs. ☐ 5-15 Yrs. ☐ 15 or more Yrs.

8. Have you ever harvested timber from this tract? YES ☐ NO ☐

9. Have you ever received technical advice about managing your property? YES ☐ NO ☐

   If yes, from whom? (Please check all that apply)

   - ☐ Private resource professional
   - ☐ Division of Forestry
   - ☐ Fish & Wildlife Conservation Commission
   - ☐ Industrial Landowner Assistance Program
   - ☐ Other (specify) _____

10. What type of technical assistance did you receive? (Please check all reasons that apply.)

    - ☐ Preparing a forest management plan
    - ☐ Timber sales or harvesting (timber marketing, sales assistance, timber valuation, etc.)
    - ☐ Forest stand management (thinning, prescribed burn, pruning, herbicide application, etc.)
    - ☐ Reforestation and planting
    - ☐ Wildlife management
    - ☐ Other (specify) _____

11. With the understanding that this is a multiple resource management program, please rank the three most important objectives you want addressed in your Stewardship Management Plan. Number **1** indicates most important and number **3** is relatively less important.

_____	Timber Management	_____	Wildlife Management
_____	Recreation	_____	Aesthetics
_____	Grazing	_____	Soil & Water Conservation
_____	Other (specify) _____		

12. Regarding wildlife, please check the species you are most interested in.

❑	Deer/Turkey	❑	Rabbits
❑	Squirrel	❑	Bobwhite Quail
❑	Fish	❑	Water Fowl
❑	Songbirds	❑	Rare, threatened or endangered species
❑	Other (specify) _____		

FOREST STEWARDSHIP LANDOWNER'S CREED

I BELIEVE the right to own land carries the responsibility for stewardship of the natural resources in my care.

I BELIEVE that good stewardship of this country's precious natural resources is necessary to the strength and well being of our great state and nation.

I BELIEVE that good stewardship of my forestlands will help provide this State's needs for forest products, for clean air and water, for healthy and thriving populations of fish and wildlife, and for forest-based recreation.

I BELIEVE that good stewardship of my forestlands will contribute to the natural beauty of Florida and will guard against soil erosion and the depletion of soil productivity.

I BELIEVE further that good stewardship also involves protecting my forestlands from insects, diseases, wildfires, and overgrazing.

THEREFORE, I will work to implement conservation practices to produce a variety of benefits which may include scenic beauty, outdoor recreation, wildlife habitat, clean water, timber products and protection of the environmental and historical/cultural values for current and future generations.

_____ _____

Signature of Landowner Date

***Landowners who own over 160 acres of forestland are encouraged to hire a Private Resource Professional.**

THE FOREST STEWARDSHIP MANAGEMENT PLAN FOR THIS LANDOWNER WILL BE PREPARED BY:

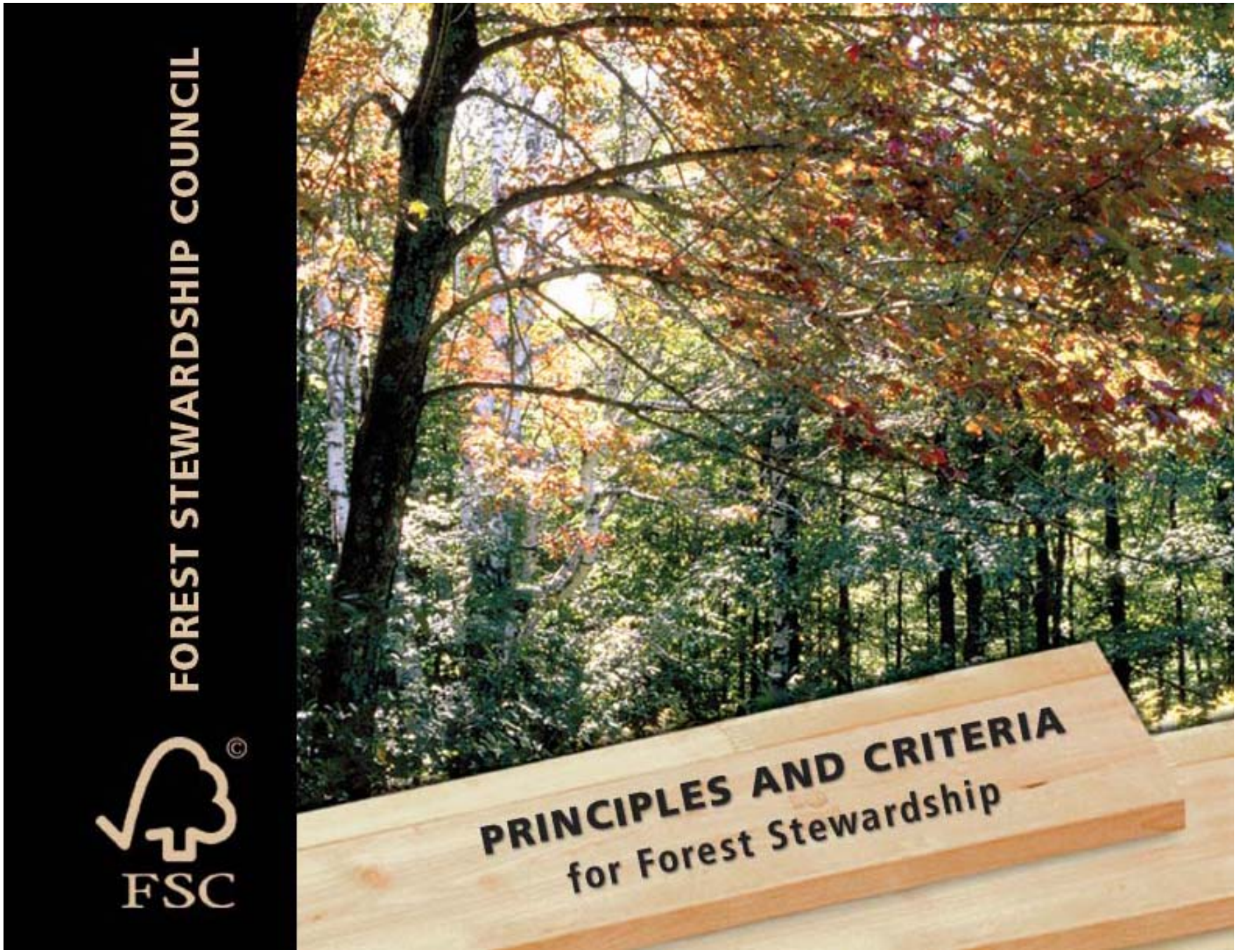
_____ _____

Name (Natural Resource Professional) **Telephone #**

_____

Agency or Company Name

APPENDIX 4


FOREST STEWARDSHIP COUNCIL
FSC
PRINCIPLES AND CRITERIA
for Forest Stewardship

PRINCIPLES AND CRITERIA for Forest Stewardship

Approved 1993 — Amended 1996, 1999, 2002

INTRODUCTION

It is widely accepted that forest resources and associated lands should be managed to meet the social, economic, ecological, cultural and spiritual needs of present and future generations. Furthermore, growing public awareness of forest destruction and degradation has led consumers to demand that their purchases of wood and other forest products will not contribute to this destruction but rather help to secure forest resources for the future. In response to these demands, certification and self-certification programs of wood products have proliferated in the marketplace.

The Forest Stewardship Council (FSC) is an international body which accredits certification organizations in order to guarantee the authenticity of their claims. In all cases the process of certification will be initiated voluntarily by forest owners and managers who request the services of a certification organization. The goal of the FSC is to promote environmentally responsible, socially beneficial and economically viable management of the world's forests, by establishing a worldwide standard of recognized and respected Principles of Forest Stewardship.

The FSC's Principles and Criteria (P&C) apply to all tropical, temperate and boreal forests, as addressed in Principle #9 and the accompanying glossary. Many of these P&C apply also to plantations and partially replanted forests. More detailed standards for these and other vegetation types may be prepared at national and local levels. The P&C are to be incorporated into the evaluation systems and standards of all certification organizations seeking accreditation by the FSC. While the P&C are mainly designed for forests managed for the production of wood products, they are also relevant, to varying degrees, to forests managed for non-timber products and other services. The P&C are a complete package to be considered as a whole, and their sequence does not represent an ordering of priority. This document shall be used in conjunction with the FSC's Statutes, Procedures for Accreditation and Guidelines for Certifiers.

FSC and FSC-accredited certification organizations will not insist on perfection in satisfying the P&C. However, major failures in any individual Principles will normally disqualify a candidate from certification, or will lead to decertification.

These decisions will be taken by individual certifiers, and guided by the extent to which each Criterion is satisfied, and by the importance and consequences of failures. Some flexibility will be allowed to cope with local circumstances.

The scale and intensity of forest management operations, the uniqueness of the affected resources, and the relative ecological fragility of the forest will be considered in all certification assessments. Differences and difficulties of interpretation of the P&C will be addressed in national and local forest stewardship standards. These standards are to be developed in each country or region involved, and will be evaluated for purposes of certification, by certifiers and other involved and affected parties on a case by case basis. If necessary, FSC dispute resolution mechanisms may also be called upon during the course of assessment. More information and guidance about the certification and accreditation process is included in the FSC Statutes, Accreditation Procedures, and Guidelines for Certifiers.

The FSC P&C should be used in conjunction with national and international laws and regulations. FSC intends to complement, not supplant other initiatives that support responsible forest management worldwide.

The FSC will conduct educational activities to increase public awareness of the importance of the following: 1) improving forest management; 2) incorporating the full costs of management and production into the price of forest products; 3) promoting the highest and best use of forest resources; 4) reducing damage and waste; and 5) avoiding over-consumption and over-harvesting. FSC will also provide guidance to policy makers on these issues, including improving forest management legislation and policies.

The FSC Founding Members and Board of Directors ratified Principles 1-9 in September 1994.
The FSC Members and Board of Directors ratified Principle 10 in February 1996.
The revision of Principle 9 and the addition of Criteria 6.10 and 10.9 were ratified by the FSC Members and Board of Directors in January 1999.
The definition of Precautionary Approach was ratified during the 1999 FSC General Assembly in June 1999.

PRINCIPLE 1

COMPLIANCE WITH LAWS AND FSC PRINCIPLES

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

1.1 Forest management shall respect all national and local laws and administrative requirements.

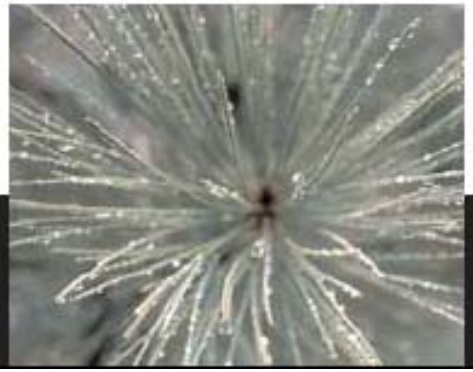
1.2 All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

1.3 In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA, and Convention on Biological Diversity, shall be respected.

1.4 Conflicts between laws, regulations and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case by case basis, by the certifiers and the involved or affected parties.

1.5 Forest management areas should be protected from illegal harvesting, settlement and other unauthorized activities.

1.6 Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.



PRINCIPLE 2

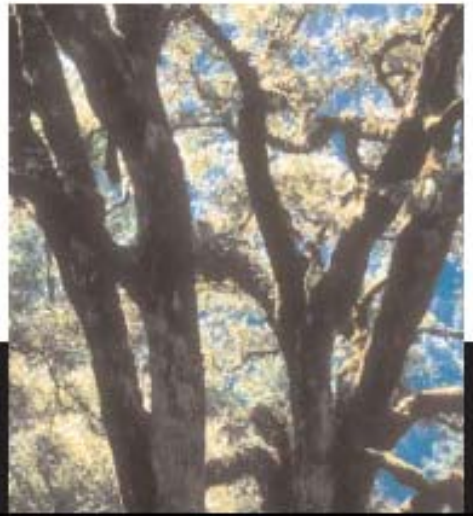
TENURE AND USE RIGHTS AND RESPONSIBILITIES

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

2.1 Clear evidence of long-term forest use rights to the land (e.g. land title, customary rights, or lease agreements) shall be demonstrated.

2.2 Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

2.3 Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.



PRINCIPLE 3

INDIGENOUS PEOPLE'S RIGHTS

The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

3.1 Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.2 Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.3 Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.4 Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation shall be formally agreed upon with their free and informed consent before forest operations commence.

PRINCIPLE 4

COMMUNITY RELATIONS AND WORKER'S RIGHTS

Forest management operations shall maintain or enhance the long-term social and economic well being of forest workers and local communities.

4.1 The communities within, or adjacent to, the forest management area should be given opportunities for employment, training, and other services.

4.2 Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

4.3 The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labour Organization (ILO).

4.4 Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups (both men and women) directly affected by management operations.

4.5 Appropriate mechanisms shall be employed for resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihoods of local peoples. Measures shall be taken to avoid such loss or damage.

PRINCIPLE 5

BENEFITS FROM THE FOREST

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

5.1 Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest.

5.2 Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.

5.3 Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

5.4 Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

5.5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.

5.6 The rate of harvest of forest products shall not exceed levels which can be permanently sustained.

PRINCIPLE 6

ENVIRONMENTAL IMPACT

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

6.1 Assessment of environmental impacts shall be completed—appropriate to the scale, intensity of forest management and the uniqueness of the affected resources—and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

6.2 Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled.

6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including:

a) Forest regeneration and succession.
b) Genetic, species, and ecosystem diversity.
c) Natural cycles that affect the productivity of the forest ecosystem.

6.4 Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

6.5 Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

6.6 Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.

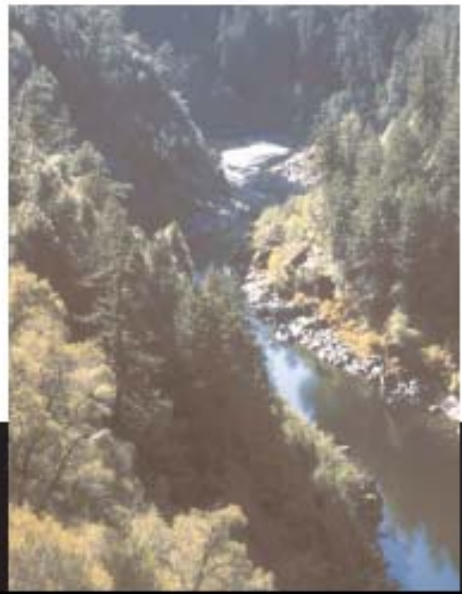
6.7 Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.8 Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.

6.9 The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

6.10 Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion:

a) entails a very limited portion of the forest management unit; and
b) does not occur on high conservation value forest areas; and
c) will enable clear, substantial, additional, secure long term conservation benefits across the forest management unit.



PRINCIPLE 7

MANAGEMENT PLAN

A management plan—appropriate to the scale and intensity of the operations—shall be written, implemented, and kept up to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

7.1 The management plan and supporting documents shall provide:

a) Management objectives.
b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands.
c) Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories.
d) Rationale for rate of annual harvest and species selection.
e) Provisions for monitoring of forest growth and dynamics.
f) Environmental safeguards based on environmental assessments.
g) Plans for the identification and protection of rare, threatened and endangered species.
h) Maps describing t0he forest resource base including protected areas, planned management activities and land ownership.
i) Description and justification of harvesting techniques and equipment to be used.

7.2 The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

7.3 Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

7.4 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

PRINCIPLE 8

MONITORING AND ASSESSMENT

Monitoring shall be conducted—appropriate to the scale and intensity of forest management—to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

8.1 The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

8.2 Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:

a) Yield of all forest products harvested.
b) Growth rates, regeneration and condition of the forest.
c) Composition and observed changes in the flora and fauna.
d) Environmental and social impacts of harvesting and other operations.
e) Costs, productivity, and efficiency of forest management.

8.3 Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain of custody."

8.4 The results of monitoring shall be incorporated into the implementation and revision of the management plan.

8.5 While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

PRINCIPLE 9

MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS

Management activities in high conservation value forests shall maintain or enhance the attributes which define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

9.1 Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

9.2 The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof.

9.3 The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

9.4 Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain or enhance the applicable conservation attributes.

PRINCIPLE 10

PLANTATIONS

Plantations shall be planned and managed in accordance with Principles and Criteria 1 - 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits, and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

10.1 The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

10.2 The design and layout of plantations should promote the protection, restoration and conservation of natural forests, and not increase pressures on natural forests. Wildlife corridors, streamside zones and a mosaic of stands of different ages and rotation periods, shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

10.3 Diversity in the composition of plantations is preferred, so as to enhance economic, ecological and social stability. Such diversity may include the size and spatial distribution of management units within the landscape, number and genetic composition of species, age classes and structures.

10.4 The selection of species for planting shall be based on their overall suitability for the site and their appropriateness to the management objectives. In order to enhance the conservation of biological diversity, native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts.

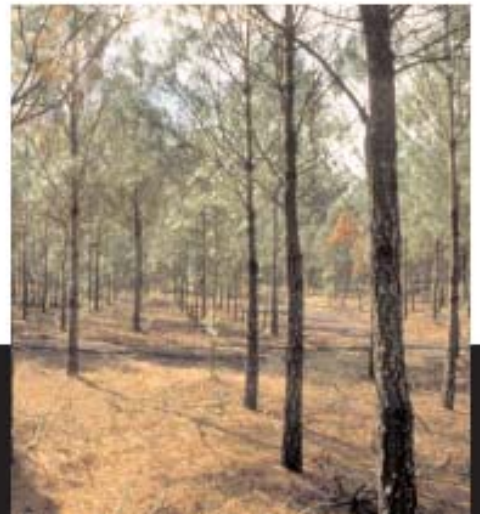
10.5 A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.

10.6 Measures shall be taken to maintain or improve soil structure, fertility, and biological activity. The techniques and rate of harvesting, road and trail construction and maintenance, and the choice of species shall not result in long term soil degradation or adverse impacts on water quality, quantity or substantial deviation from stream course drainage patterns.

10.7 Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management should make every effort to move away from chemical pesticides and fertilizers, including their use in nurseries. The use of chemicals is also covered in Criteria 6.6 and 6.7.

10.8 Appropriate to the scale and diversity of the operation, monitoring of plantations shall include regular assessment of potential on-site and off-site ecological and social impacts, (e.g. natural regeneration, effects on water resources and soil fertility, and impacts on local welfare and social well-being), in addition to those elements addressed in principles 8, 6 and 4. No species should be planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems. Special attention will be paid to social issues of land acquisition for plantations, especially the protection of local rights of ownership, use or access.

10.9 Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the manager/owner is not responsible directly or indirectly of such conversion.



GLOSSARY

Words in this document are used as defined in most standard English language dictionaries. The precise meaning and local interpretation of certain phrases (such as local communities) should be decided in the local context by forest managers and certifiers. In this document, the words below are understood as follows:

Biological diversity — The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (see Convention on Biological Diversity, 1992)

Biological diversity values — The intrinsic, ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components. (see Convention on Biological Diversity, 1992)

Biological control agents — Living organisms used to eliminate or regulate the population of other living organisms.

Chain of custody — The channel through which products are distributed from their origin in the forest to their end-use.

Chemicals — The range of fertilizers, insecticides, fungicides, and hormones which are used in forest management.

Criterion (pl. Criteria) — A means of judging whether or not a Principle (of Forest Management) has been fulfilled.

Customary rights — Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

Ecosystem — A community of all plants and animals and their physical environment, functioning together as an interdependent unit.

Endangered species — Any species which is in danger of extinction throughout all or a significant portion of its range.

Exotic species — An introduced species not native or endemic to the area in question.

Forest integrity — The composition, dynamics, functions and structural attributes of a natural forest.

Forest management/ manager — The people responsible for the operational management of the forest resource and of the enterprise, as well as the management system and structure, and the planning and field operations.

Genetically modified — Biological organisms which have been induced by various means to organisms consist of genetic structural changes.

High Conservation Value Forests — High Conservation Value Forests are those that possess one or more of Value Forest the following attributes:

a) forest areas containing globally, regionally or nationally significant:
   i) concentrations of biodiversity values (e.g. endemism, endangered species, refugia); and/or
   ii) large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance
b) forest areas that are in or contain rare, threatened or endangered ecosystems
c) forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control)
d) forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Indigenous lands and territories — The total environment of the lands, air, water, sea, sea-ice, flora and fauna, and other resources which indigenous peoples have traditionally owned or otherwise occupied or used. (Draft Declaration of the Rights of Indigenous Peoples: Part VI)

Indigenous peoples — The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at the time when persons of a different culture or ethnic origin arrived there from other parts of the world, overcame them and, by conquest, settlement, or other means reduced them to a non-dominant or colonial situation; who today live more in conformity with their particular social, economic and cultural customs and traditions than with the institutions of the country of which they now form a part, under State structure which incorporates mainly the national, social and cultural characteristics of other segments of the population which are predominant. (Working definition adopted by the UN Working Group on Indigenous Peoples).

Landscape — A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climactic, biotic and human interactions in a given area.

Local laws Includes all legal norms given by organisms of government whose jurisdiction is less than the national level, such as departmental, municipal and customary norms.

Long term The time-scale of the forest owner or manager as manifested by the objectives of the management plan, the rate of harvesting, and the commitment to maintain permanent forest cover. The length of time involved will vary according to the context and ecological conditions, and will be a function of how long it takes a given ecosystem to recover its natural structure and composition following harvesting or disturbance, or to produce mature or primary conditions.

Native species A species that occurs naturally in the region; endemic to the area.

Natural cycles Nutrient and mineral cycling as a result of interactions between soils, water, plants, and animals in forest environments that affect the ecological productivity of a given site.

Natural forest Forest areas where most of the principal characteristics and key elements of native ecosystems such as complexity, structure and diversity are present, as defined by FSC approved national and regional standards of forest management.

Nontimber forest All forest products except timber, including other materials obtained products from trees such as resins and leaves, as well as any other plant and animal products.

Other forest types Forest areas that do not fit the criteria for plantation or natural forests and which are defined more specifically by FSC approved national and regional standards of forest management.

Plantation Forest areas lacking most of the principal characteristics and key elements of native ecosystems as defined by FSC approved national and regional standards of forest stewardship, which result from the human activities of either planting, sowing or intensive silvicultural treatments.

Precautionary Approach Tool for the implementation of precautionary principle.

Principle An essential rule or element; in the FSC's case, of forest management.

Silviculture The art of producing and tending a forest by manipulating its establishment, composition and growth to best fulfill the objectives of the owner. This may, or may not, include timber production.

Succession Progressive changes in species composition and forest community structure caused by natural processes (nonhuman) over time.

Tenure Socially defined agreements held by individuals or groups, recognized by legal statutes or customary practice, regarding the "bundle of rights and duties" of ownership, holding, access and/or usage of a particular land unit or the associated resources there within (such as individual trees, plant species, water, minerals, etc).

Threatened species Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Use Rights Rights for the use of forest resources that can be defined by local custom, mutual agreements, or prescribed by other entities holding access rights. These rights may restrict the use of particular resources to specific levels of consumption or particular harvesting techniques.

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Revised Final

Forest Certification Standard

For the Southeastern United States

Version 10.0
2/10/05

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Developed by
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as part of the

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TABLE OF CONTENTS

INTRODUCTION

This standard is being developed for The Forest Stewardship Council (FSC). FSC is a not-for-profit, non-governmental, membership-based organization. Since its inception in 1993 FSC has worked to promote responsible forest management and to ensure the credibility of third party, independent forest certification. FSC does not perform certifications but rather accredits certification bodies and endorses regional forest certification standards.

Why are regional forest certification standards being developed?
The Forest Stewardship Council believes certification standards should be developed at the regional level due to the differences in ecological, social, and economic circumstances in each of nine regions in the continental United States. The Southeast Region includes all of the state of Florida and parts of the states of Virginia, North Carolina, South Carolina, Georgia, Alabama, and Mississippi. It borders the Appalachian region on the North and the Mississippi Alluvial Valley region on the West. A complete description of the region, including a list of all counties where the standard applies is found in appendix E. The Southeast Regional Standard applies to the forests of the biogeographical regions of the Atlantic and Gulf Coastal Plains and the Piedmont as delineated on the map of the regional working groups of the FSC-US Initiative (www.fscus.org).

To serve as a guiding framework for the development of regional standards, the FSC developed global *Principles and Criteria for Forest Management*, an international standard for environmentally appropriate, socially beneficial, and economically viable forest management. Concepts and requirements expressed in the FSC Principles and Criteria are included in the proposed Forest Certification Standard for the Southeastern United States. Those Criteria are considered applicable standards which, during an assessment, certification bodies are expected to evaluate with respect to the degree each Criterion is met. Once the regional standards are complete, they are submitted to the FSC for endorsement. Currently, standards are being developed for nine regions in the United States.

In the United States, a national set of indicators and verifiers were completed in Spring 2001. Regional working groups use the FSC Principles and Criteria for Forest Management and the United States' National Indicators to develop regional standards that are appropriate to social, ecological, and economic conditions at regional levels. The National Indicators, approved by the FSC-U.S. Board as baseline standards for the development of all nine regional standards (see www.fscus.org/documents/) including the Forest Certification Standard for the Southeastern United States, are considered by the U.S Standards Committee to exemplify sufficient scientific and technical rigor for application to assessments of private, municipal, county, tribal, and state lands conducted by accredited certification bodies in the continental United States.

What is the process for developing regional forest certification standards?
The FSC has guidelines for developing regional standards that must be implemented before such standards will be endorsed. The guidelines require: standards to be compatible with the FSC *Principles and Criteria for Forest Management*; shared ownership of the standards-development process by a working group with multiple interests; fair and democratic decision-making procedures by the working group; adequate public participation and representation by diverse stakeholders in the standards-development process; and a clear and open procedure to air grievances.

What was the process for developing the Southeast Standard?
The Forest Management Trust (The Trust; formerly the Tropical Forest Management Trust) and Tall Timbers Research teamed in October 1996 for the development of the Forest Stewardship Council's Forest Certification Standard for the Southeastern United States. The standard development process began in December 1996 with the initiation of an intensive stakeholder identification process. Individuals

from across the region represented stakeholder groups including landowners, the forest industry, environmental groups, academia, state, and federal agencies, and consultants in the fields of forestry, ecology, wildlife biology, sociology, and economics. Approximately 3,600 stakeholders were identified from various sources and invited to three sub-regional information meetings. In addition, meetings were held with officers of state forestry associations and leaders in academia to familiarize them with the project and solicit their involvement.

The regional working group that developed the standard was formed from stakeholders elected at the sub-regional information meetings and others selected from under-represented interest groups and/or sub-regions based on results of the elections. The 15-member "Southeast Working Group," (SEWG, Appendix A) represents all seven states and includes non-industrial private landowners, consulting foresters, ecologists, social scientists, forestry professors, an environmental activist, a geographer, a soil scientist, and a representative of a certification body.

All three chambers, economic, social and environmental are represented in the working group membership. Some members represent more than one chamber. Five members represent the environmental chamber, ten the economic chamber and five the social chamber. The working group members comprise the following experience and represent the following interests: three members own managed timber land, five are consulting foresters, three are academic foresters, one is an anthropologist with experience in Native American issues and forestry, one is a social forester with southeastern and tropical forestry community experience, one member is a county commissioner and a former SmartWood representative, one member is an environmental activist on a local level, two members are ecologists and two others are forest ecologists.

During the formation of the SEWG, the industrial forestry community was contacted and invited to participate in the sub-regional meetings. They also were invited to participate as voting members of the SEWG. During the initial years of the SEWG meetings, the industrial forestry community declined to participate. In the spring of 2001 several industrial foresters submitted comments on the southeast regional standard. A representative of the Roy O. Martin Lumber Company and Steve Loveland, an employee of Georgia Pacific Corporation, attended a meeting of the SEWG and submitted written and verbal comments on the Southeast Standard.

Between September 1997 and August 1998, the SEWG met five times for multi-day meetings, and several drafts were developed during this period. The Southeast Working Group elected to use a simple majority-vote process for all decisions, and requires that a 51% quorum be present for all votes. The earlier drafts developed consisted of the FSC Principles and Criteria For Forest Management coupled with indicators and verifiers developed by the Southeast Working Group. The indicators and verifiers are developed to measure compliance with the Principles and Criteria in a manner appropriate to the Southeast. Each working draft has been distributed for review to stakeholders expressing an interest in the project. In addition, the second draft was subjected to a formal peer review and a field test. Comments from these exercises were used to revise the drafts.

In 1999, FSC-U.S. formed a U.S. Standards Committee that began the drafting of a set of National Indicators. The regional standards development process was put on hold until this was accomplished. During the comment period on the National Indicators (NI), the SEWG submitted comments on the NI. In January 2001 the FSC-US Board of Directors approved the US National Indicators as baseline levels for compliance with the Principles and Criteria across the nine FSC-U.S. regions. Each of the regional working groups then engaged in a process of harmonizing their indicators and verifiers with those of the National Indicators. For the Southeast, two meetings were held to produce the harmonized version, followed by a two-month public review period, a field test, and a review by the FSC-U.S. Standards Committee (SC). Following these reviews, the working group met to consider public review comments,

field test results, and SC recommendations. A final, revised draft was prepared following this meeting and submitted to the SC for a second review. This draft was again reviewed by the SC through a series of conference calls, and in conjunction with the SEWG final language was developed and approved by vote of the SEWG. A final draft was submitted by the SC to the US Board on June 7th, 2002 and approved by the US Board on June 10, 2002.

The SEWG will remain constituted for future revisions. The standard will be revised as necessary in response to new scientific information and/or changes in social-environmental circumstances. A review-and-revision process will be initiated in no less than five years following approval by FSC. - FSC-US will maintain a regional working group coordinator in the Southeast region.

NOTES ON THE USE OF THE STANDARD

Items in bold are the FSC *Principles and Criteria for Forest Management*, which served as the outline and minimum threshold for the regional standard. Items that are not in bold are either indicators or verifiers. Indicators have two numbers and a letter (e.g., 1.1.a) and are sometimes followed by bulleted items, which are verifiers. The indicators and verifiers were designed to work with the principles and criteria as a package. Occasionally an indicator will not follow a criterion. In this case the criterion will be followed by the phrase: Note: The working group considers this criterion sufficiently explicit and measurable. Indicators are not required. The roles of principles, criteria, indicators, and verifiers are as follows:

Principle: An essential element of forest stewardship.

Criterion: A specific means of judging whether a principle has been fulfilled.

Indicator: A variable that specifically tells whether a criterion is met in a regional context, and that specifically states desired management outcomes and processes. Quantitative indicators include amounts, volumes, numbers, and percentages; qualitative indicators are usually satisfied by a 'yes' or 'no' answer.

Verifier: An example of a way in which a forest or management condition or state can be easily assessed to determine whether an indicator has been met.

Compliance with the Southeast Standard will be decided by FSC-accredited, third party certification bodies through voluntary assessments of forest management operations. As mentioned above, the concepts and requirements expressed in the FSC Principles and Criteria are embodied in the Southeast Regional Certification Standard. The criteria are considered applicable standards, and during an assessment, certification bodies are expected to evaluate the degree to which each criterion is met in the same manner as they evaluate the regional indicators. However, not every item in the standards will be applicable to every forest management operation.

This standard is a tool that must be applied with professional discretion by certification bodies, so the SEWG elected not to establish any "fatal flaw" standards, preferring that certification bodies evaluate the cumulative weight of adherence to the overall body of the standard. The standard seeks to establish a rigorous performance bar that forest managers must clear to be certified, while providing managers latitude in selecting methods used to meet the performance objectives and giving certification bodies sufficient flexibility to exercise professional judgment.

Periodic Review Process
The FSC-US Board will periodically review this standard during the accreditation period. At a minimum a comprehensive review will be conducted no later than 6 months prior to the expiration of the endorsement period (e.g. no later than May 29, 2007). During the review period the FSC-US Board will solicit feedback from Regional Working Group members, certificate holders, certifying bodies, FSC members, interested individuals and the general public. Information from scoping will be reviewed by the FSC-US Board and incorporated into the standard as needed.

What is the FSC-US Federal Lands Policy?
The FSC-US Board recognizes that additional indicators of performance may be required on Federally managed public lands because of their particular public mandates. For information on the certification of federal lands and the applicability of these standards in that context see FSC-US federal lands certification policy at: http://www.fscus.org/documents/.

Working Group Process
Consensus will be used as the basis for decision-making in future deliberations. Voting will serve as a back-up procedure if consensus cannot be achieved.

Notes regarding conditions issued by FSC International.

On 11/28/02 FSC-IC accredited the SE standard with 13 conditions. On 6/16/03 FSC-IC issued ABU-REP-34-06-2003-FSS-ACC-C-USA-SE, which documented closure of conditions 2, 4, 5, 6, 9 and 11 as a result of the submission of the FSC-US condition closure report submitted on 5/16/03. The results of closing conditions4, 5, 6, 9 and 11 are incorporated into V9.0 and shown below. Closure of condition 2 (describing the procedure by which the US government approves treaties) was accomplished by FSC-US submitting the required documentation directly to FSC-IC and therefore the results of closing condition 2 need not be incorporated into this version of the SE standard. For further information on condition 2 refer to the closure report issued by FSC-IC above.

Although condition 5 was issued on indicator 4.1.c, no change ultimately took place to this indicator after correspondence between FSC-US and FSC-IC clarified the language of this indicator.

In its response to condition 11, the FSC-US SEWG agreed to use consensus as a basis for decision-making in future deliberations. Voting will serve as a back-up procedure if consensus cannot be achieved.

Principle level failure
In the SE region, an FSC Principle level failure (which precludes award of certification until appropriately corrected, or necessitates revocation of certification) results from the fundamental inability to achieve the goal of an FSC Principle through a major non-compliance that

1. has continued for one year or longer,
2. is systematic throughout the management organization,
3. has created adverse effects over a wide area, which is defined as either the entire set of lands controlled by the forest owner or manager or a subwatershed, which ever is smaller (for definition of subwatershed see: http://watershed.org/news/fall_94/terminology.html.)

ACKNOWLEDGEMENTS

We offer our most sincere thanks to all who participated in the process of developing this standard, including the U.S.FSC National Initiative, its staff and Board, other regional working groups, meeting attendees, reviewers of the drafts, field test participants, peer reviewers, project interns, and especially the diligent Southeast Working Group. This process and its resultant Standard would not have been possible without the SEWG tireless efforts.

REVISED FINAL
FSC CERTIFICATION STANDARD FOR THE SOUTHEASTERN UNITED STATES

Applicability Note to Regional Standard regarding certification of federal lands. The process for certifying federal lands must comply with the FSC-US Board approved Federal Lands Policy and Federal Lands Findings, both of which are available at www.fscus.org. Certifiers should consult the Federal lands policy and findings to determine whether there are FSC-US approved indicators specific to the type of federal property being assessed, which must used in addition to these regional standards.

PRINCIPLE #1: COMPLIANCE WITH LAWS AND FSC PRINCIPLES

Forest management shall respect all applicable laws of the country in which they occur, and international treaties and agreements to which the country is a signatory, and comply with all FSC Principles and Criteria.

1.1. Forest management shall respect all national and local laws and administrative requirements.

1.1.a. Forest (see Glossary) management plans and operations comply with federal, state, county, municipal, and tribal laws, case law, and regulations.

For example, permits and/or authorization are obtained when required. (SE V10.0)

1.1.b. Forestry operations meet or exceed the current state forest practice regulations, best management practices for forestry, and other protective measures for water quality (see Glossary) that exist within the state(s) or other appropriate jurisdiction(s) in which the operations occur. *(SE V10.0)*

1.1.c. Forest owners or managers share public information, provide open records, and conduct procedures for public participation as required by law. *(SE V10.0)*

1.2. All applicable and legally prescribed fees, royalties, taxes and other charges shall be paid.

1.2.a. Taxes on forestland and timber, and other fees related to forest management, are paid in a timely manner and in accordance with federal, state, county, municipal and tribal laws.

For example:

- *Inquiries at local clerk's office verify that property taxes have been paid.*

Title to property is not jeopardized by delinquent taxes or loans. (SE V10.0)

1.3. In signatory countries, the provisions of all binding international agreements such as CITES, ILO Conventions, ITTA and Convention on Biological Diversity, shall be respected.

1.3.a. Forest owners or managers comply with treaties ratified by the U.S. Senate, including treaties with Native American tribes (note, see Appendix D for treaties which have been ratified and to which the US is a party as well as the following link: http://fletcher.tufts.edu/multilaterals.html). *(SE V10.0)*

1.4. Conflicts between laws, regulations and the FSC Principles and Criteria shall be evaluated for the purposes of certification, on a case-by-case basis, by the certifiers and the involved or affected parties.

1.4.a. Where discrepancies between laws and FSC Principles and Criteria occur, they are referred to the appropriate FSC body. *(SE V10.0)*

1.5. Forest management areas should be protected from illegal harvesting, settlement, and other unauthorized activities.

1.5.a. Forest owners and managers implement measures to prevent illegal or unauthorized activities in the forest management area (see Glossary).

> *For example, by: painting and posting boundary notices, using gates, and making periodic inspections, etc. (SE V10.0)*

1.6. Forest managers shall demonstrate a long-term commitment to adhere to the FSC Principles and Criteria.

Applicability note to Criterion 1.6.: Assessment of this criterion is guided by both FSC Policy and Guidelines: Partial Certification for Large Ownerships (BM19.24). May 2000, (http://www.fsc.org/en/whats_new/documents/Docs_cent/2) and the FSC Guidelines for Certification FSC STD 20-001. (SE V10.0)

1.6.a. Forest owners or managers provide written statements of commitment to the FSC Principles and Criteria. The commitment is stated in the management plan [see 7.1], a document prepared for the certification process, or another official document. *(SE V10.0)*

1.6.b Forest owners or managers document the reasons for seeking partial certification*(SE V10.0)*.

PRINCIPLE #2: Tenure and Use Rights and Responsibilities

Long-term tenure and use rights to the land and forest resources shall be clearly defined, documented and legally established.

2.1. Clear evidence of long-term forest use rights to the land (e.g., land title, customary rights, or lease agreements) shall be demonstrated. For definition of long term forest use rights see glossary.

2.1.a. Forest owners or managers make available information on legal and customary rights associated with the forest. These rights include both those held by the party seeking certification and those held by other parties.

> *For example, long-term leases, timber rights, or other assured rights of ownership, management, or use. (SE V10.0)*

2.2. Local communities with legal or customary tenure or use rights shall maintain control, to the extent necessary, to protect their rights or resources, over forest operations unless they delegate control with free and informed consent to other agencies.

For definition of legal or customary tenure see glossary.

2.2.a. Where customary and lawful uses of the forest are consistent with the conservation of the forest resource and the objectives stated in the management plan, forest owners or managers permit their continuance. *(SE V10.0)*

2.2.b. On ownerships, where customary use rights and traditional and cultural areas/sites exist, forest owners or managers consult with concerned groups in the management planning process and take precautions in the implementation of management operations in those areas.

For example, site preparation, harvesting, onsite processing. (SE V10.0)

2.3. Appropriate mechanisms shall be employed to resolve disputes over tenure claims and use rights. The circumstances and status of any outstanding disputes will be explicitly considered in the certification evaluation. Disputes of substantial magnitude involving a significant number of interests will normally disqualify an operation from being certified.

2.3.a. Forest owners or managers maintain relations with community (see Glossary) stakeholders to identify disputes in their early stages. If disputes arise, forest owners or managers initially attempt to resolve them through open communication, negotiation, and/or mediation. If negotiation fails, federal, state, local, and/or tribal laws are employed to resolve land-tenure (see Glossary) claims. *(SE V10.0)*

2.3.b. Forest owners or managers provide information regarding unresolved and ongoing disputes over tenure and use rights to the certifying body. *(SE V10.0)*

PRINCIPLE #3: Indigenous People's Rights

The legal and customary rights of indigenous peoples to own, use and manage their lands, territories, and resources shall be recognized and respected.

Applicability Note: The terms "tribes", "tribal" or "American Indian groups" in indicators under Principle 3 include all groups and individual indigenous people in the US, who may be organized in recognized or unrecognized tribes, bands, nations, native corporations, or other native groups. (SE V10.0)

3.1. Indigenous peoples shall control forest management on their lands and territories unless they delegate control with free and informed consent to other agencies.

3.1.a. Forest management planning on tribal lands includes a process for input by tribal members in accordance with their laws and customs.

For example:
Documentation in the form of public notices, correspondence, or meeting minutes is provided.
Management plans reflect knowledge and consideration of tribal interests and concerns. (SE V10.0)

3.1.b. Forest management on tribal lands takes place only after securing the informed consent of tribes and individuals (such as allottees; see Glossary) whose forest is being considered for management. *(SE V10.0)*

3.1.c. When requested to do so by the tribal landowner(s), forest owners or managers utilize tribal experience, knowledge, practices, and insights in forest management planning and operations on tribal lands. *(SE V10.0)*

3.2. Forest management shall not threaten or diminish, either directly or indirectly, the resources or tenure rights of indigenous peoples.

3.2.a. Forest owners or managers identify and contact indigenous groups that have current legal or customary rights to use the management area, and invite their input on the forestry operations that affect their resources and/or their resource rights. *(SE V10.0)*

3.2.b. On lands adjacent to tribal lands or falling within watersheds that affect tribal lands, safeguards are implemented to ensure that forest management does not adversely affect tribal resources. *(SE V10.0)*

3.3. Sites of special cultural, ecological, economic or religious significance to indigenous peoples shall be clearly identified in cooperation with such peoples, and recognized and protected by forest managers.

3.3.a. Forest owners or managers request the participation of tribal representatives in culturally appropriate identification of sites of current or traditional significance within the property proposed for certification.

For example:

- *Ceremonial, burial, or village sites;*
- *Areas used for hunting, fishing, or trapping;*
- *Current gathering areas for culturally important or ceremonial materials, such as basket materials, medicinal plants, or plant materials used in dances;*
- *Current gathering areas for subsistence uses, such as mushrooms, berries, acorns, etc;*
- *Unique historical, or archeological sites. (SE V10.0)*

3.3.b. Forest owners or managers, and tribal representatives jointly develop measures to protect or enhance sites of special significance.

For example:

- *The management plan outlines appropriate management of such sites and references appropriate legislation (e.g., Native American Graves Protection and Repatriation Act).*
- *Interviews and/or field inspections verify appropriate management and protection of such sites.*
- *Evidence exists of consultation with appropriate tribal authorities. (SE V10.0)*

3.3.c. Confidentiality of disclosure is maintained in keeping with custom, laws, and the requirements of tribal representatives.

3.4. Indigenous peoples shall be compensated for the application of their traditional knowledge regarding the use of forest species or management systems in forest operations. This compensation is formally agreed upon with their free and informed consent before forest operations commence.

3.4.a. Forest owners or managers respect the confidentiality of tribal knowledge and assist in the protection of tribal intellectual property rights. *(SE V10.0)*

3.4.b Where indigenous intellectual property is commercially utilized, a written agreement with individuals and/or tribes is reached prior to commercialization that states how they will be compensated for the use of their traditional knowledge *(SE V10.0)*

3.4.c. Protocols are jointly developed with local tribes to protect their intellectual property rights when traditional knowledge is requested for use in forest management. *(SE V10.0)*

PRINCIPLE #4: Community Relations and Workers' Rights

Forest management operations shall maintain or enhance the long-term social and economic well being of forest workers and local communities.

4.1. The communities within, or adjacent to, the forest management area should be given opportunities for employment, training, and other services.

4.1.a. Forest work is packaged and offered in ways that create quality work opportunities for employees, contractors and their workers.

For example, quality work can include the following attributes:

- *Employee and contractor relationships that are long term and stable*
- *A mixture of diverse tasks requiring varying skill levels*
- *Opportunities for advancement*
- *A comprehensive package of benefits*
- *Opportunities for employee and contractor participation in decision-making(SE V10.0)*

4.1.b. Employment conditions (e.g., remuneration, benefits, safety equipment, training, and workman's compensation) are comparable for both non-local and local workers doing equivalent work. *(SE V10.0)*

4.1.c. Forest owners or managers give preference to the local procurement of goods and services.

For example, forest owners or managers make an effort to employ foresters, loggers, and contractors from within the area of operation. (e.g., work opportunities are advertised in area newspapers). (SE V10.0)

4.1.d. Workers and contractors have the skills to perform their assigned duties. Forest owners or managers provide work opportunities for qualified, local workers. *(SE V10.0)*

4.1.e. Forest owners or managers contribute to public education about forestry practices, forest values (e.g., watershed protection, habitat), and preservation of local heritage in conjunction with schools, community colleges, and/or other providers of training and education. *(SE V10.0)*

4.1.f. Employee compensation and hiring practices meet or exceed the prevailing local norms for work requiring equivalent education, skills, and experience. *(SE V10.0)*

4.1.g. Forest owners or managers provide and/or support training opportunities for workers to improve their skills. *(SE V10.0)*

4.1.h. Forest owners or managers, and their contractors comply with the letter and intent of applicable state and federal labor laws and regulations (see also 1.1.a). *(SE V10.0)*

4.2. Forest management should meet or exceed all applicable laws and/or regulations covering health and safety of employees and their families.

4.2.a. Forest owners or managers and their contractors develop and implement safety programs and procedures that include:

- Well-maintained and safe machinery and equipment
- Use of safety equipment appropriate to each task
- Documentation and posting of safety procedures in the workplace
- Educational efforts (such as Forest Industry Safety Training Alliance and Game of Logging)
- Contracts that include safety requirements
- Safety records, training reports, and certificates. *(SE V10.0)*

4.3. The rights of workers to organize and voluntarily negotiate with their employers shall be guaranteed as outlined in Conventions 87 and 98 of the International Labor Organization (ILO).

*Applicability Note: Compliance with this criterion can be accomplished with guidance from: FSC Certification and ILO Conventions:.(**http://fsc.org/fsc/whats_new/documents/Docs_cent/2**). Full texts of Conventions 87 (Freedom of Association and Protection of the Right to Organize) and 98 (Right to Organize and Collective Bargaining) can be read at the ILO website (www.ilo.org).* ***(SE V10.0)***

4.3.a. Forest owners or managers and their contractors develop mechanisms to resolve disputes between workers and management that take into consideration the cultural diversity of the southeast region.

For example:

- *Language translation and cultural interpretation are employed when needed.*
- *Cross-cultural training is employed when needed to integrate the workforce. (SE V10.0)*

4.4. Management planning and operations shall incorporate the results of evaluations of social impact. Consultations shall be maintained with people and groups directly affected by management operations.

Applicability Note: People and groups directly affected by management operations may include: employees and contractors of the landowner, neighbors, fishers and hunters, recreational users, local water users, and forest products processors. (SE V10.0)

4.4.a. Forest owners or managers contribute to designing and achieving goals for use and protection of forest and natural resources as articulated in local and regional plans. Examples of organizations working on these plans include watershed protection groups, BMP committees, and prescribed fire councils.

4.4.b. Through a process that includes outside consultation (e.g., state archaeological offices, tribes, universities, and local experts), all sites and features of special cultural significance are identified and protected, such as:

- historic and other significant trails
- prominent viewing points
- landscape features
- champion or other notable trees
- prehistoric and historic features. *(SE V10.0)*

4.4.c. Prior to the commencement of operations with off-site impacts, forest managers inform potentially affected adjacent landowners and/or communities (e.g., downstream water users, municipalities) of proposed forestry activities. These impacts are addressed during project implementation.

For example:
- *Interviews with adjacent landowners verify notification of relevant management activities*
- *Documentation of notification is provided.*
- *Management plan addresses neighbor and surrounding community smoke management concerns. (SE V10.0)*

4.4.d. Forest owners or managers of large-scale operations provide opportunities for people affected by management operations to provide input into management planning. *(SE V10.0)*

4.5. Appropriate mechanisms shall be employed for resolving grievances and for providing fair compensation in the case of loss or damage affecting the legal or customary rights, property, resources, or livelihood of local peoples. Measures shall be undertaken to avoid such loss or damage.

Applicability Note: Provisions of Criterion 4.5 do not evoke protections or liabilities beyond those provided by U.S., state, and local laws. (SE V10.0)

4.5.a. Forest owners or managers attempt to resolve grievances and mitigate damage resulting from forest management activities through open communication and negotiation prior to legal action.

4.5.b. Forest owners, managers, and their contractors have liability insurance or other forms of financial protection (e.g., monetary assets). *(SE V10.0)*

PRINCIPLE #5: BENEFITS FROM THE FOREST

Forest management operations shall encourage the efficient use of the forest's multiple products and services to ensure economic viability and a wide range of environmental and social benefits.

5.1. Forest management should strive toward economic viability, while taking into account the full environmental, social, and operational costs of production, and ensuring the investments necessary to maintain the ecological productivity of the forest.

5.1.a. Forest owners or managers are financially able to support long-term (i.e., decades rather than quarter-years or years) forest management (e.g., planning, inventory, resource protection, post-harvest management activities).

For example:
- *A budget shows that projected revenues and/or investments are sufficient to cover itemized activities and long-term management objectives with detail appropriate to scale. Such records can be considered proprietary.*
- *Adequate revenues from timber sales are reserved for budgeted expenditures. (SE V10.0)*

5.1.b. Increases in harvests or debt load as responses to short-term financial factors, such as fluctuations in the market, requirements for cash flow, need for sawmill equipment and log supplies, are limited to levels that enable fulfillment of the management plan. *(SE V10.0)*

5.1.c. Investment and reinvestment in forest management are sufficient to fulfill management objectives and maintain and/or restore forest health and productivity. *(SE V10.0)*

5.1.d. Forest owners or managers reinvest in the local economy and the community through both active civic engagement and ongoing capital investment.

For example:

- *Facilities and equipment are regularly maintained and updated.*
- *Out-of-area owners maintain a local office.*
- *The owner or manager supports local business development by working with organizations, such as chambers of commerce. (SE V10.0)*

5.1.e. Forest management activities produce an economic return as described in the primary objectives of the management plan. *(SE V10.0)*

5.1.f. Marketing strategies are designed to maintain the economic efficiency of forest operations.

For example, a competitive bidding process is used. (SE V10.0)

5.2. Forest management and marketing operations should encourage the optimal use and local processing of the forest's diversity of products.

5.2.a. Products from timber sales are sorted and sold for the highest value and use.

For example, records of timber sales document optimum use by providing a product's destination(s) and category (e.g., veneer logs, saw timber, poles, and/or pulpwood). (SE V10.0)

5.2.b. Opportunities are given for local, financially competitive, value-added processing and manufacturing facilities. *(SE V10.0)*

5.2.c. New markets are explored and developed for common but less-used species, grades of lumber, or an expanded diversity of forest products. *(SE V10.0)*

5.2.d. When non-timber products (e.g., saw palmetto berries; Spanish moss; lichens; mistletoe; turkey; quail; deer; deer tongue, *Carphephorous odoratissima*) are harvested, the management and use of those products are incorporated into the management plan. *(SE V10.0)*

5.3. Forest management should minimize waste associated with harvesting and on-site processing operations and avoid damage to other forest resources.

5.3.a. Merchantable by-products of harvest and in-field milling operations are used or sold as feasible, after leaving adequate woody debris (see Glossary) on site to provide nutrient cycling and habitat.

For example:
- *Chips and sawdust are used for mulch, filler, or fuel.*
- *Small diameter boles are used for fence posts, flooring, and furniture stock. (SE V10.0)*

5.3.b. Harvesting, sorting, and handling operations are carried out in a way that maximizes utilization of forest resources, while minimizing merchantable log loss and waste.

For example:
- *Merchantable wood is not left in the forest or the log yard.*
- *Care is demonstrated in felling trees to prevent broken tops or logs. (SE V10.0)*

5.3.c. Management operations are implemented in a way that protects the integrity of the residual stand (see Glossary). Provisions concerning acceptable levels of residual damage are included in operational contracts.

For example:
- *Bumper trees are utilized, and equipment is selected and used in a way that minimizes unintentional damage to crop trees.*
- *Residual damage is minimal. (SE V10.0)*

5.4. Forest management should strive to strengthen and diversify the local economy, avoiding dependence on a single forest product.

5.4.a. Forest managers diversify the long-term production of forest products and services (e.g., timber and non-timber forest product harvesting, ecotourism, hunting leases, watershed protection), while maintaining forest composition, structures, and functions.

For example:
- *The forest manager provides a list of products and benefits being managed in the forest.*
- *The management objectives include a mix of forest products and services. (SE V10.0)*

5.5. Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries. See also 6.5.h.and i.

Note: The working group considers this criterion sufficiently explicit and measurable. Indicators are not required. (SE V10.0)

5.6 The rate of harvest of forest products shall not exceed levels that can be permanently sustained.

5.6.a. The rate of harvest (annual or periodic) does not exceed levels that can be permanently sustained. The harvest rate is based on the management objectives, growth and yields estimates (as derived from stand table projections and/or published growth models), and harvest records.

For example:

- *Stocking rates and volumes conform to projections of the management plan.*
- *The age-class distribution (see Glossary) required for sustainability and predicted yields in volume is justified by empirical data. (SE V10.0)*

5.6.b. Once the age-class distribution (see Glossary) is commensurate with long-term sustainability, harvest levels maintain growth levels over a ten-year period. Exceptions to this constraint may be granted to forest owners or managers whose periodic re-entry cycle is longer than 10 years. In such cases, allowable harvest is determined by examining the volume of re-growth since the previous harvest as evidence of the owner or manager's commitment to allow an equivalent amount of re-growth before additional harvests.

For example, records show that rates of tree growth meet or exceed harvest rates over a period of ten years or less. (SE V10.0)

PRINCIPLE #6: ENVIRONMENTAL IMPACT

Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by so doing, maintain the ecological functions and the integrity of the forest.

Applicability Note: Small landowners who practice low intensity forestry may meet this requirement with brief, informal assessments. More extensive and detailed assessments (e.g., formal assessments by scientists) are expected by large landowners and/or those who practice more intensive forest management. (SE V10.0)

6.1. Assessment of environmental impacts shall be completed – appropriate to the scale, intensity of forest management and the uniqueness of the affected resources – and adequately integrated into management systems. Assessments shall include landscape level considerations as well as the impacts of on-site processing facilities. Environmental impacts shall be assessed prior to commencement of site-disturbing operations.

6.1.a. Using available science and local expertise, an assessment of current conditions is completed that includes:

- ecological processes, such as disturbance regimes;
- unique, vulnerable, rare, and threatened ecosystems/natural communities;
- common plants, animals, and their habitats;
- sensitive, rare, threatened, and endangered species (see Glossary) and their habitats;
- wetlands and water resources; and
- soil resources. (see also 7.1.a and b).

For example:

- *Appropriate inventories and literature are on file.*
- *Field inspection verifies inventory information. (SE V10.0)*

6.1.b. Using available science and local expertise, current ecological conditions are compared to the historical conditions within the landscape context, using the baseline factors identified in 6.1.a. *(SE V10.0)*

6.1.c. Prior to the commencement of management activities, anticipated short-term and cumulative effects are considered in the development of specific forest management prescriptions. Potentially significant negative impacts are evaluated.

For example, resources that are potentially affected include:

- *ground cover*
- *residual trees*
- *regeneration*
- *wildlife and its habitat*
- *water quality and quantity*
- *soil compaction, structure, and fertility*
- *native communities/ecosystems*
- *biodiversity*
- *fragmentation. (SE V10.0)*

6.1.d. Using assessments derived from the above information, options are developed and implemented to maintain and/or restore the long-term ecological functions of the forest (see also 7.1.c). *(SE V10.0)*

6.2. Safeguards shall exist which protect rare, threatened and endangered species and their habitats (e.g., nesting and feeding areas). Conservation zones and protection areas shall be established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources. Inappropriate hunting, fishing, trapping and collecting shall be controlled. For a definition of conservation zones see glossary.

Applicability Note: The following lists provide information on the identification of threatened, rare, locally endemic, or endangered species of plants and animals and their habitats: federal, state, and county/local lists produced by government agencies, Natural Heritage Programs, state Natural Areas Inventories, and/or the World Wildlife Fund's classification of forest communities. (SE V10.0)

6.2.a. If state or federal listings and species databases indicate the likely presence of a sensitive, rare, threatened, or endangered species, either a survey is conducted prior to management activities being carried out (to verify the species' presence or absence) or the forest owner or manager manages as though the species were present. Any such species are noted on a map of the forest management area. Management activities are compatible with the maintenance, improvement, or restoration (see Glossary) of the species and its habitat.

Note: The landowner has the discretion to keep the specific location of rare populations or communities confidential.

For example:

- *Execution of the activities described in the management plan is verified in the field.*
- *Reference to relevant literature (e.g., endangered species lists, recovery plans, habitat conservation methods, state and local laws) is noted in the management plan.*
- *Qualified individuals survey for such species.*

- *When such a species is found on site, modifications are made in both the management plan and its implementation. (SE V10.0)*

6.2.b. Conservation zones are established, appropriate to the scale and intensity of forest management and the uniqueness of the affected resources, to protect rare, threatened, locally endemic, or endangered species and their habitats, and their connectivity within the landscape.

For example:
- *Forest owners or managers implement management practices necessary to protect the species and their habitats.*
- *Forest owners or managers consult outside experts on planned activities. (SE V10.0)*

6.3 Ecological functions and values shall be maintained intact, enhanced, or restored, including: a) Forest regeneration and succession; b) Genetic, species, and ecosystem diversity; c) Natural cycles that affect the productivity of the forest ecosystem.

Applicability Note: See Appendix B for a summary of the Southeast Working Group's development of indicators 6.3.a.6, 6.3.a.7, and 6.3.a.8.
APPLICABILITY TO PRIMARY AND OLD-GROWTH FORESTS:

Due to the scarcity of old-growth forests in the Southeast states, they are normally designated as High Conservation Value Forests (see Principle 9). Certified old-growth forests not designated as High Conservation Value Forest are managed to maintain or recruit: (1) the existing abundance of old-growth trees, and (2) the landscape and stand-level structures of old-growth forests, consistent with the composition and structures produced by natural processes. Limited timber harvest is permissible, provided these characteristics are retained or enhanced.

Although old-growth trees and old-growth forests can be characterized ecologically, no practical nationwide definition of "old growth" can be objectively devised because old-growth characteristics differ by species and forest type, within and among regions. Regional working groups have determined which ecological characteristics (e.g., ages, structures, species composition, effective core area) describe old growth in the forests of their regions. See the Glossary for the Southeast definition of old-growth.

When forest management activities (including timber harvest) create and maintain conditions that emulate an intact, mature forest or other successional phases that may be under-represented in the landscape, the management system that created those conditions may be used to maintain them. (SE V10.0)

6.3.a. Forest regeneration and succession

6.3.a.1. Forest owners or managers use the following information to make management decisions: landscape patterns (e.g., land use/land cover, non-forest uses, habitat types); ecological characteristics of adjacent forested stands (e.g., age, productivity, health); species' requirements and frequency; distribution and intensity of natural disturbances.

For example:
- *Ecological connections and/or corridors to adjacent properties are maintained or improved.*
- *Cooperation with adjacent landowners is in place when and where possible.*

Note: This indicator may have limited applicability for managers of small and mid-sized forest properties because of their limited ability to coordinate their activities with other owners within the landscape, or to

significantly maintain and/or improve landscape-scale vegetative patterns. (SE V10.0)

6.3.a.2. Forest owners or managers maintain or restore portions of the forest to the range and distribution of age classes of trees (including old/large trees) that result from processes that would naturally occur on the site. *(SE V10.0)*

6.3.a.3. Silvicultural practices generate conditions, including species composition, habitat types, and forest structures, that would naturally occur on the site. *(SE V10.0)*

6.3.a.4. Natural regeneration is used to sustain, enhance, or restore forest cover that is consistent with management objectives. *(SE V10.0)*

6.3.a.5. When natural regeneration is insufficient, practices (e.g. supplemental planting, burning, thinning) are employed to achieve desired stocking levels and contribute to species or genetic diversity and/or restore ecosystem structure and function.

For example:
- *Inventory of natural regeneration justifies enrichment planting (see 8.2.b).*
- *Planted species and spacing are ecologically appropriate.*
- *Records of numbers of trees and species planted are provided.*
- *Site preparation techniques, if required, minimize damage to residual stands, soils, and desirable understory and ground cover.*
- *Seed source is documented. (SE V10.0)*

6.3.a.6. Well-distributed quality seed trees are retained, and a desirable seedbed is created for all affected species for which natural regeneration is desired.

For example:
- *Adequate regeneration exists.*
- *Desirable species (see Glossary) present at low frequency are not harvested unless sufficient regeneration can be secured through natural or artificial means.*
- *The number of seed trees retained is sufficient to produce a well-stocked stand.*
- *Professional literature or experience is referenced to determine appropriate numbers of trees and their required distribution. (SE V10.0)*

6.3.a.7. When uneven-aged management (see Glossary) is employed, canopy (see Glossary) openings are created in sizes that facilitate the regeneration of the species of tree being managed. Canopy openings are created using single-tree or group selection (see Glossary) and are within the range of non-catastrophic, natural openings common for each particular forest type and sufficiently large to regenerate desirable tree species.

For example, justification is provided, based on professional literature or experience, for the size of canopy openings used in each forest cover type. (SE V10.0)

6.3.a.8. When even-aged management (see Glossary) is employed, live trees and native vegetation are retained within the harvest unit in a proportion and configuration that is consistent with the characteristic natural disturbance regime in each community type (see Glossary), unless retention at a lower level is necessary for purposes of restoration or rehabilitation. The level of retention increases proportionally to the size of the harvest unit and is based on professional literature and/or experience. *(SE V10.0)*

6.3.a.9. Primary and uneven-aged natural and semi-natural stands (see Glossary for definitions of forest types) are retained as such. Degraded semi-natural stands (see Glossary) may be converted to even-aged stands (see Glossary) for the purpose of restoration. *(SE V10.0)*

6.3.b. Genetic, species, and ecosystem diversity

6.3.b.1. Forest management activities maintain a diversity of groundcover and a mix of mid story and canopy species that are found in the natural communities so as to maintain or enhance the productive capacity of the site being managed, as well as genetic, species, and community diversity. *(SE V10.0)*

6.3.b.2. A diversity of habitats for native species is protected, maintained, and/or enhanced, such as:

- Declining trees and snags (see Glossary);
- Vertical and horizontal structural complexity;
- Understory species diversity;
- Well-distributed, large woody debris;
- Habitats and refugia (see Glossary) for sedentary species and those with special habitat requirements.
- Riparian areas on rivers, streams, springs, bogs, and seeps. *(SE V10.0)*

6.3.b.3. Locally threatened ecosystems or communities (e.g., pitcher plant bogs, savannahs, prairies, and isolated wetlands) and fragile or unique areas (e.g., isolated ephemeral wetlands, sinkholes, endangered endemic populations (see Glossary), and other rare and threatened habitats) are identified, mapped, and maintained for their ecological functions.

For example:
- *Forest owners or managers have a copy of or have access to relevant Natural Heritage Inventory, Natural Areas Inventory, or other inventories.*
- *No evidence of significant alterations to these areas exists. (SE V10.0)*

6.3.b.4. Naturally non-forested land and forest gaps that provide a diversity of wildlife habitat are maintained. *(SE V10.0)*

6.3.b.5. High grading (see glossary) is not practiced. *(SE V10.0)*

6.3.c. Natural cycles that affect the productivity of the forest ecosystem

6.3.c.1. Coarse woody debris, in the form of large fallen trees, large logs, and snags of various sizes, is maintained. *(SE V10.0)*

6.3.c.2. Forest owners or managers maintain natural nutrient cycles, soil fertility, and structure by leaving residues in the forest and minimizing soil disturbance.

For example:
- *Slash is left distributed or redistributed into the forest.*
- *Burning is used when and where it is appropriate to the natural disturbance regime. (SE V10.0)*

6.3.c.3. If soil degradation occurs, as indicated by declining fertility or forest health, forest owners or managers modify soil management techniques.

For example:
- *Primary management objectives shift from commercial production to restoration.*
- *Site preparation is minimized.*
- *Road system design and construction is upgraded.*
- *The lightest practical equipment with the lowest ground pressure is used.*
- *Whole-tree harvesting is discontinued, and tops are left in the forest.*
- *Longer rotations and a diversity of species are used in lieu of artificial fertilization.*
- *Natural, early successional processes are allowed or encouraged. (SE V10.0)*

6.3.c.4. Hydrological functions, including those of wetlands and other sensitive areas, are maintained, enhanced, and/or restored. *(SE V10.0)*

6.3.c.5. Prescriptions for salvage harvests balance ecological and economic considerations.

For example:

- *Coarse woody debris is maintained.*
- *Den trees and snags are maintained.*
- *Background levels of native pest populations are allowed.*
- *Potentially devastating pest outbreaks are controlled expeditiously. (SE V10.0)*

6.3.c.6. Prescribed burning reflects the natural fire regime, including its periodicity, intensity, variability, seasonality, and timing. Prescribed burning is documented and implemented by qualified personnel in accordance with a burn prescription.

For example:

- *Documentation for the history of natural and prescribed fires in the forest management area is provided.*
- *A prescription is prepared for each burn. Prescriptions include burn-unit maps, desired wind direction, smoke-sensitive areas, locations of fire breaks, and other relevant information in the plan and on the map.*
- *Burning is implemented in accordance with the fire management plan. (SE V10.0)*

6.4. Representative samples of existing ecosystems within the landscape shall be protected in their natural state and recorded on maps, appropriate to the scale and intensity of operations and the uniqueness of the affected resources.

Applicability Note: When forest management activities (including timber harvest) create and maintain conditions that emulate an intact, mature forest or successional phases that are under-represented in the landscape, the management system that created those conditions is used to maintain them, and the area may be considered a representative sample for the purposes of meeting this criterion.

Ecologically viable representative samples are designated to serve one or more of three purposes: (1) to establish and/or maintain an ecological reference condition, (2) to create or maintain an under-represented ecological condition (e.g., successional phases of a forest type or plant community (see Glossary), and (3) to protect a feature that is sensitive, rare, or unique in the landscape. Areas serving the purposes of (1) and (2) may move across the landscape as under-represented conditions change, or may be fixed in area and manipulated to maintain the desired conditions. Areas serving the purposes of (3) are fixed in location.

Forests of all sizes may be conducive to protection of fixed features, such as rock outcrops and bogs. Medium- sized and large forests may be more conducive to the maintenance of successional phases and disturbance patterns than small forests.

While public lands (see Glossary) are expected to bear primary responsibility for protecting representative samples of existing ecosystems, FSC certification of private lands can contribute to such protection.

Representative samples may be protected solely by the conditions of the certificate and/or through the use of conservation easements or other instruments of long-term protection. (SE V10.0)

6.4.a. Fragile and/or unique ecosystems present in the forest management area are identified and described in the management plan. The location of such ecosystems is noted on a map of the forest management area. *(SE V10.0)*

6.4.b. Forest owners or managers assess the adequacy of representation of their forest types in conservation zones across the landscape. This assessment will entail collaboration with state natural heritage programs; public agencies; regional, landscape, and watershed planning efforts; universities; and/or local conservationists and can include gap analysis. *(SE V10.0)*

6.4.c. Where existing protected areas within the landscape are not of a size and configuration to serve the above purposes, forest owners or managers, whose properties are conducive to the establishment of such areas, designate ecologically viable areas that serve the three purposes described in the above applicability note. *(SE V10.0)*

6.4.d. In the certification of public lands, large, contiguous public forests under the management of one agency (see Glossary) create and maintain representative conservation zones sufficient in size to allow natural disturbances to occur at their natural rate. The size and extent of representative samples on public lands is determined through a transparent planning process that is accessible and responsive to the public; in addition, the process and rationale are explicitly described in the public summary. *(SE V10.0)*

6.5. Written guidelines shall be prepared and implemented to: control erosion; minimize forest damage during harvesting, road construction, and all other mechanical disturbances; and protect water resources.

For a definition of erosion see glossary.

6.5.a. Logging operations and construction of roads and skid trails are carried out only during periods of weather when soil compaction, surface erosion, or sediment transport into streams and other bodies of water can be kept to a minimum. There are provisions in sales contracts to interrupt harvest operations under adverse environmental conditions.

For example, there is no evidence of significant degradation to soil or water quality. (SE V10.0)

6.5.b. Implementation of harvesting, road construction, and other mechanical operations follow the management plan and meet or exceed state Best Management Practices (BMPs) and applicable water quality regulations. Silvicultural techniques and logging equipment vary with slope, erosion-hazard rating, and/or soil instability in order to minimize soil disturbance. Areas that exhibit an extreme risk of landslide are excluded from logging.

Note: "Extreme risk" is a legally binding term in some states; see respective state BMP's.

For example, a logging contract contains requirements to conform to state BMPs and a damage liability clause. (SE V10.0)

6.5.c. Logging operations avoid damage to residual trees, regeneration, ground cover, soils, waterways, and wetlands.

For example, post-harvest inspection of the site indicates no significant damage to residual trees, ground cover, wildlife and/or their habitats, and soils (including erosion, rutting, and compaction). (SE V10.0)

6.5.d. Plans for site preparation specify the following mitigations to minimize impacts to the forest resource:

- Slash is concentrated only as much as necessary to achieve the goals of site preparation and the reduction of fuels to moderate or low fire hazard levels.
- Scarification of soils is limited to the minimum necessary to achieve successful regeneration of desired species.
- Topsoil is minimally disturbed. *(SE V10.0)*

6.5.e. The transportation system is designed, constructed, maintained, and/or reconstructed to minimize the extent of the road network and its potential adverse cumulative effects.

For example:

- *Road density is minimized.*
- *Displacement of soil and the sedimentation of streams, as well as impacts to water quality, are minimized.*
- *Patches of habitat and migration corridors are conserved as much as possible.*
- *The integrity of riparian management zones (see Glossary) and buffers (see Glossary) surrounding other valuable ecological elements (e.g., wetlands, habitat for sensitive species, and interior old-growth forest) is conserved.*
- *To avoid damage, log landings are on level areas away from streams, and skid trails and roads avoid steep grades and have adequate water control structures. (SE V10.0)*

6.5.f. Access to temporary and permanent roads is controlled to minimize impacts to soil, biota, and public roads while allowing legitimate access as addressed by Principles 3 & 4 and identified in the management plan.

For example:

- *Roads without a weather resistant surface (e.g., soil, dirt, or native-surfaced roads) are used only during periods when conditions are favorable to minimize road damage, surface erosion, and sediment transport.*
- *Access to roads not immediately necessary for management purposes is restricted. (SE V10.0)*

6.5.g. Failed drainage structures or other areas of active erosion caused by roads and skid trails are identified, and measures are taken to correct the drainage problems and stabilize erosion. *(SE V10.0)*

6.5.h. Streamside or special management zones (SMZs) are specifically described and/or referenced in the management plan, included in a map of the forest management area, and designed to protect and/or restore water quality and aquatic and riparian populations and their habitats (including river and stream corridors, steep slopes, fragile soils, wetlands, vernal pools, seeps and springs, lake and pond shorelines, and other hydrologically sensitive areas).

At a minimum, management of SMZs has the following characteristics:

- Management meets or exceeds state BMPs.
- SMZ width reflects changes in forest condition, stream width, slope, erodibility of soil, and potential hazard from windthrow along the length of the watercourse.

- SMZs provide sufficient vegetation and canopy cover to filter sediment, limit nutrient inputs and chemical pollution, moderate fluctuations in water temperature, stabilize stream banks, and provide habitat for riparian and aquatic flora and fauna.
- Characteristic diameter-class distributions, species composition, and structures are adequately maintained within the SMZs. *(SE V10.0)*

6.5.i. Wetlands in the forest management area are classified in the management plan, mapped, and their ecological and hydrological qualities are maintained or improved.

For example, all wetlands, including isolated wetlands, are protected from adverse changes in hydrology caused by ditching, dyking, draining, and filling. (SE V10.0)

6.5.j. Stream crossings are located and constructed to minimize fragmentation of aquatic habitat and maintain water quality.

For example:

- *Riparian management zone crossings are kept to a minimum.*
- *Stream crossings are installed at an angle that causes least damage.*
- *Culverts allow free passage of aquatic organisms. (SE V10.0)*

6.6. Management systems shall promote the development and adoption of environmentally friendly non-chemical methods of pest management and strive to avoid the use of chemical pesticides. World Health Organization Type 1A and 1B and chlorinated hydrocarbon pesticides; pesticides that are persistent, toxic or whose derivatives remain biologically active and accumulate in the food chain beyond their intended use; as well as any pesticides banned by international agreement, shall be prohibited. If chemicals are used, proper equipment and training shall be provided to minimize health and environmental risks.
For a definition of chlorinated hydrocarbons see glossary.

6.6.a. Forest owners or managers employ silvicultural systems, integrated pest management, and strategies to control vegetation that minimize adverse environmental impact. Techniques, other than chemical applications, are emphasized in the implementation of these strategies. Components of silvicultural systems, integrated pest management, and strategies to control vegetation include several or all of the following:

- Creation and maintenance of habitat that discourages pests;
- Creation and maintenance of habitat that encourages natural predators;
- Evaluation of pest populations and establishment of action thresholds;
- Diversification of species composition (see Glossary) and structure;
- Use of mechanical methods to control pests;
- Use of prescribed fire to control pests;
- Selection and application of proper pest control methods to avoid negative impacts on non-target organisms;
- Modification of stand structure to improve forest health (e.g., thinning). *(SE V10.0)*

6.6.b. Forest owners or managers develop written pest control strategies as a component of the management plan (criterion 7.1).

For example:

- *Forest management plan includes a description, evaluation, and comparison of integrated pest management (see Glossary) practices that might be used for common problems.*
- *Forest management plan or other documents contain detailed justification, in terms of forest health and growth, for any use of insecticides, fungicides, or herbicides.*
- *Forest owners or managers are aware of the more significant potential pest problems typical for the region and have some knowledge of control procedures.*
- *Pest (e.g., insects, disease, animals) surveys or observations are periodically conducted.*
- *Cost/benefit estimates and environmental impacts are evaluated prior to implementing any pest control methods. (SE V10.0)*

6.6.c. When chemicals are being used, a written prescription is prepared that describes application objectives, rates and methods of their application, risks and benefits of their use, methods to reduce dependence on chemicals, and the precautions that must workers employ. Records are kept of pest occurrences and control measures taken.

For example:

- *Pest control methods are applied by trained personnel, following a written prescription.*
- *Records of location, application rates, and weather conditions are on file for each application. (SE V10.0)*

6.6.d. The use of pesticides (e.g., herbicides, insecticides, fungicides, fumigants, rodenticides, and algaecides) does not harm employees, neighbors, the public at large, or sensitive areas as per 6.3.b.3, 6.3.c.4, or 6.5.h. All applicable laws and label requirements for chemical use are followed. Records are kept that identify incidences of worker exposure to chemicals.

For example:

- *There are no records of violations.*
- *All equipment for transport, storage, and application of chemicals is safe and leak proof, and complies with all federal and state safety standards.*
- *The current labels and Materials Safety Data Sheets (MSDS) are present for pesticides on site. (SE V10.0)*

6.6.e. Application of pesticides and their effects are confined to the target area and species.

For example:

- *There is no evidence that non-target flora or fauna have been significantly damaged by pesticide applications.*
- *There is no evidence of off-site damage from pesticide applications. (SE V10.0)*

6.6.f Forest owners and managers demonstrate compliance with FSC Policy paper: "Chemical Pesticides in Certified Forests, Interpretation of the FSC Principles and Criteria, July 2002. *(SE V10.0)*

6.7. Chemicals, containers, liquid and solid non-organic wastes including fuel and oil shall be disposed of in an environmentally appropriate manner at off-site locations.

6.7.a. Operational procedures for the proper management of all waste oil, filters, containers, litter, and other forms of waste created during harvest and other management operations are established and followed.

For example, written procedures are in or attached to the management plan, meet or exceed legal requirements, and are followed. (SE V10.0)

6.7.b. In the event of a spill of hazardous material, forest owners or managers immediately contain the material, report the spill as required by applicable regulations, and engage qualified personnel to perform the appropriate removal and remediation. *(SE V10.0)*

6.7.c. Waste materials are disposed of in a timely manner.

For example:

- *Broken and leaking equipment and parts are repaired or removed from the forest; discarded parts are taken to a designated disposal facility.*
- *There is no evidence of waste materials on past operational sites. (SE V10.0)*

6.7.d. Fuel tanks are located, and equipment is parked, outside of riparian management zones and away from sinkholes.

For example, there is no evidence of ground- or surface-water contamination. (SE V10.0)

6.7.e. Employees and contractors are trained in the proper handling, storage, and disposal of chemicals, and protective equipment is available and used.

For example:

- *Training records for employees exist, and contracts contain clauses that require such training as required by the Federal Worker Protection Standards Law.*
- *Personal protective equipment and spill containment materials are available on all operational sites. (SE V10.0)*

6.7.f. Waste from on-site processing plants (e.g., portable sawmills, chippers) is disposed of according to legal or label requirements.

For example, disposal follows legal and/or label requirements. (SE V10.0)

6.8. Use of biological control agents shall be documented, minimized, monitored and strictly controlled in accordance with national and state laws and internationally accepted scientific protocols. Use of genetically modified organisms shall be prohibited.
For a definition of genetically modified organisms see glossary.

Applicability note: Genetically improved organisms (e.g., Mendelian crossed) are not considered to be genetically modified organisms and may be used. The prohibition of genetically modified organisms applies to all organisms, including trees. This Criterion is guided by FSC guidelines on GMO's http://fsc.org/fsc/whats_new/documents/Docs_cent/2).
(SE V10.0)

6.8.a. Biological controls are only used for pest problems, as part of integrated pest management (IPM) programs, and when the biological control agents, methods, and effects have been subjected to peer reviewed scientific research that demonstrates there are no significant negative impacts on native flora and fauna.

For example:

- *Forest management records document the justification and use of biological control agents.*
- *Records include location, application rates, and weather conditions for each application.*
- *Only narrow-spectrum biological control agents are used.*
- *Exotic biological control agents are used only as a last resort and then only for the control of invasive exotic species. (SE V10.0)*

6.9. The use of exotic species shall be carefully controlled and actively monitored to avoid adverse ecological impacts.

Applicability Note: For the Forest Certification Standard for the Southeastern United States, terrestrial exotic species are further defined as "Species not native or endemic to the Southeastern United States."

6.9.a. Exotic species (see Glossary) are not planted or otherwise introduced, with the possible exception of exotic biocontrol agents (see 6.8.a). *(SE V10.0)*

6.9.b. Planted exotic species are monitored to ensure they do not spread beyond their originally planted site (see 8.2.c). If they spread, control or eradication measures are taken. *(SE V10.0)*

6.10. Forest conversion to plantations or non-forest land uses shall not occur, except in circumstances where conversion: a) entails a very limited portion of the forest management unit; and b) does not occur on high conservation value forest areas; and c) will enable clear, substantial, additional, secure, long term conservation benefits across the forest management unit.
For a definition of plantations see glossary.

6.10.a. Primary, natural, and semi-natural stands are not converted to plantations. Degraded semi-natural stands can be converted to restoration plantations (see Glossary). *(SE V10.0)*

6.11. Invasive exotic species of plants should be eradicated from the property if biologically possible and economically feasible. Otherwise, invasive exotic species should be controlled to limit their expansion and ecological damage.

Note: Criterion 6.11 was added by the working group for the Southeastern U.S.

Applicability Note on "if biologically possible": Sometimes it is not biologically possible to eradicate an organism. For example, multi-million dollar efforts to eradicate hydrilla, melaleuca, kudzu, water hyacinth, and Brazilian pepper have proven that sometimes it is not possible to eradicate well-established invasive exotic species. Thus, in some cases, efforts can only reduce the species to an economically and ecologically acceptable threshold. (SE V10.0)

6.11.a. Periodic assessments for location and severity of invasive exotic species are carried out, including searches for new infestations of additional invasive species. *(SE V10.0)*

6.11.b. Locations of invasive exotic species are both described and mapped in the management plan. *(SE V10.0)*

6.11.c. The forest owners or managers specify measures to eradicate or control invasive exotic species and implement them in the field.

For example,
Measures to control invasive exotic species are evident on site. (SE V10.0)

6.11.d. Periodic monitoring is conducted to assess the effectiveness of the control measures, including the economic feasibility. *(SE V10.0)*

PRINCIPLE #7: MANAGEMENT PLAN

A management plan—appropriate to the scale and intensity of forest management—shall be written, implemented, and kept to date. The long-term objectives of management, and the means of achieving them, shall be clearly stated.

7.1. The management plan and supporting documents shall provide:
a) Management objectives.
b) Description of the forest resources to be managed, environmental limitations, land use and ownership status, socio-economic conditions, and a profile of adjacent lands.
c) Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories.
d) Rationale for rate of annual harvest and species selection.
e) Provisions for monitoring of forest growth and dynamics.
f) Environmental safeguards based on environmental assessments.
g) Plans for the identification and protection of rare, threatened and endangered species.
h) Maps describing the forest resource base including conservation zones, planned management activities and land ownership.
i) Description and justification of harvesting techniques and equipment to be used.

Applicability note: The management plan may consist of a variety of documents not necessarily unified into a single planning document, but which represents an integrated strategy for managing the forest. (SE V10.0)

7.1.a. Management objectives

7.1.a.1. A written management plan is prepared that includes the landowner's short-term and long-term vision, goals, and objectives (ecological, silvicultural, social, and economic). The objectives are specific, achievable, and measurable. *Appropriate to the scale, intensity, and context of management*, the plan includes description and rationale for:

Silvicultural systems:
- *Regeneration strategies*
- *Maintenance of structural and species diversity, including rare, threatened, and endangered species*
- *Pest control (disease, insects, invasive species, and vegetation)*
- *Soil and water conservation*
- *Methods and annual rates of harvest, by species and products*
- *Equipment and personnel needs*

- *Transportation systems*

Fire management:

- *Prescribed fires*
- *Wildfires*

Fish and wildlife and their habitats (including non-game species)

Non-timber forest products:

- *Methods and annual rates of harvest, by species and products*
- *Regeneration strategies*

Socioeconomic issues:

- *Public access and use*
- *Conservation of historical and cultural resources*
- *Protection of aesthetic values*
- *Employee and contractor policies and procedures*
- *Community relations*
- *Stakeholder notification*
- *Public comment process*

Indigenous peoples' issues:

- *Protection of legal and customary rights*
- *Procedures for integrating tribal concerns into forest management*
- *Management of sites of special significance*

Special management areas:

- *Riparian management zones*
- *Set asides of sample representative ecosystems*
- *Protection of sensitive, rare, threatened, and endangered species n*
- *Other conservation zones and/or ecologically sensitive features in the forest*
- *Landscape level analyses and strategies (SE V10.0)*

7.1.b. Description of forest resources to be managed, environmental limitations, status of land use and ownership, socio-economic conditions, and a profile of adjacent lands

7.1.b.1. Descriptions of the following forest resources at the stand level and summarized at the total forest level are included in the forest management plan:

- Acreage
- Timber inventory
- Forest type
- Soil type
- Natural communities
- Water resources
- Fragile and unique areas
- Fish, wildlife, and their habitats
- Harvested non-timber forest products (e.g., botanical and mycological)
- Non-economic natural resources (e.g., ground cover) *(SE V10.0)*

7.1.b.2. A general description of the history, including ownership and use, of the forest management area is included in the forest management plan. *(SE V10.0)*

7.1.b.3. A general description of landowner and the forest management area includes:

- the landowner's name and address;
- socio-economic context and conditions of the forest management area;
- other interests in the property (e.g., conservation easements, hunting leases, usufruct rights and treaty rights, mineral rights, utility rights of ways);
- significant plans to change ownership status or size of the forest management area;
- the location, size, environmental limitations, and legal description of the forest management area and a profile (including ownership and use) of adjacent lands. *(SE V10.0)*

7.1.b.4. The management plan identifies relevant cultural and socioeconomic issues (e.g., traditional and customary rights of use, access, recreational uses, and employment), conditions (e.g., composition of the workforce, stability of employment, and changes in forest ownership and tenure), and areas of special significance (e.g., ceremonial and archeological sites). *(SE V10.0)*

7.1.b.5. The management plan incorporates landscape-level considerations within the ownership and among adjacent and nearby lands, including major water bodies, critical habitats, and riparian corridors shared with adjacent ownerships. *(SE V10.0)*

7.1.c. Description of silvicultural and/or other management system, based on the ecology of the forest in question and information gathered through resource inventories.

7.1.c.1 Silvicultural system(s) and prescriptions are based on the integration of ecological and economic characteristics (e.g., successional processes, soil characteristics, existing species composition and structures, desired future conditions, and market conditions). (see also 6.3.a) *(SE V10.0)*

7.1.c.2. Prescriptions are prepared prior to harvesting, site preparation, pest control, burning, and planting and are made available to people who carry out the prescriptions. *(SE V10.0)*

7.1.d. Rationale for the rate of annual harvest and species selection

7.1.d.1. The management plan includes reliable data on growth, yield, stocking, and regeneration (see also 5.6.b). *(SE V10.0)*

7.1.d.2. Species selection meets the economic goals and objectives of the forest owner or manager, while maintaining or improving the ecological composition and structure and functions of the forest. *(SE V10.0)*

7.1.d.3. A time line that includes a schedule for program level forest management activities to be implemented over a five-year planning horizon is included in the forest management plan. Items to be addressed in the schedule include such activities as silviculture, monitoring, and assessment. *(SE V10.0)*

7.1.e. Provisions for monitoring forest growth and dynamics (see also Principle 8).

7.1.e.1. Monitoring goals and objectives are stated in the management plan. *(SE V10.0)*

7.1.f Environmental safeguards based on environmental assessments.

7.1.f.1. Written safeguards are based on the results of environmental assessments (see 5.3, 6.1 and 2, and 8.2.d). *(SE V10.0)*

7.1.g. Plans for the identification and protection of rare, threatened, and endangered species. Note: also see Criterion 6.3.

7.1.g.1. The management plan provides descriptions of activities for maintaining sensitive, rare, threatened, or endangered species and their habitat(s). *(SE V10.0)*

7.1.h. Maps describing the forest resource base, including protected areas, planned management activities, and land ownership.

7.1.h.1. The management plan includes maps of the forest's characteristics, such as:

- relevant landscape-level factors;
- property boundaries and roads;
- timber production areas;
- forest types by age and/or structure;
- forest tracts mapped by community types;
- topography;
- soils, riparian zones (see Glossary) and springs and wetlands;
- archaeological sites and cultural and customary use areas;
- locations of and habitats for sensitive, rare, threatened, and endangered species; and
- designated High Conservation Value Forests. *(SE V10.0)*

7.1.i. Description and justification of harvesting techniques and equipment to be used (see also Criterion 6.5).

Note: The working group considers this sub-criterion sufficiently explicit and measurable. Indicators are not required. (SE V10.0)

7.2. The management plan shall be periodically revised to incorporate the results of monitoring or new scientific and technical information, as well as to respond to changing environmental, social and economic circumstances.

7.2.a. The management plan is current and is reviewed and revised as necessary (at least every five years to coincide with certification re-assessments) to accommodate new research findings and the observed effects of previous practices, as well as changes in the resource base. *(SE V10.0)*

7.2.b. Relevant provisions of the management plan are modified in response to detrimental environmental effects of illegal and/or unauthorized activities, as documented by monitoring (e.g., road damage, depletion of timber and non-timber resources). *(SE V10.0)*

7.2.c. Relevant provisions of the management plan are modified in response to changes in the forest due to unplanned disturbances (e.g. hurricanes, ice storms, floods, wildfire, pest outbreaks). (SE V10.0)

7.3. Forest workers shall receive adequate training and supervision to ensure proper implementation of the management plan.

Note: The working group considers this criterion sufficiently explicit and measurable. Indicators are not required. (SE V10.0)

7.4. While respecting the confidentiality of information, forest managers shall make publicly available a summary of the primary elements of the management plan, including those listed in Criterion 7.1.

Applicability Note: Forest owners or managers of private forests may withhold proprietary information (e.g., the nature and extent of timber volumes by species, timber quality, size and age class, marketing strategies, and other financial information) (see also Criterion 8.5).

Note: The working group considers this criterion sufficiently explicit and measurable. Indicators are not required. (SE V10.0)

PRINCIPLE #8: MONITORING AND ASSESSMENT

Monitoring shall be conducted -- appropriate to the scale and intensity of forest management -- to assess the condition of the forest, yields of forest products, chain of custody, management activities and their social and environmental impacts.

Applicability Note: On small and medium-sized forests, an informal, qualitative assessment may be appropriate. On large forests and intensively managed forests, formal, quantitative monitoring is probably required. (SE V10.0)

8.1. The frequency and intensity of monitoring should be determined by the scale and intensity of forest management operations as well as the relative complexity and fragility of the affected environment. Monitoring procedures should be consistent and replicable over time to allow comparison of results and assessment of change.

8.1.a. Implementation and effectiveness of the management plan are periodically monitored to assess:

- The degree to which management the vision, goals, and objectives have been achieved;
- Deviations from the management plan;
- Unexpected effects of management activities;
- Social and environmental effects of management activities. *(SE V10.0)*

8.1.b. When sampling is needed, designs and procedures are clearly defined and provide results with levels of confidence appropriate to the scale and intensity of management. *(SE V10.0)*

8.2. Forest management should include the research and data collection needed to monitor, at a minimum, the following indicators:

a) Yield of all forest products harvested.
b) Growth rates, regeneration, and condition of the forest.
c) Composition and observed changes in the flora and fauna.
d) Environmental and social impacts of harvesting and other operations.
e) Cost, productivity, and efficiency of forest management.

For a definition of social impacts see glossary.

8.2.a. Yield of all forest products harvested

8.2.a.1. Forest owners or managers maintain records of standing timber and timber harvest volumes by species, volume, and product class (e.g., saw timber, chip and saw, and pulp wood). *(SE V10.0)*

8.2.a.2. Forest owners or managers maintain records of the yield of harvested non-timber forest products. *(SE V10.0)*

8.2.a.3. Significant, unanticipated removal of forest products (e.g., theft and poaching) is monitored and recorded. *(SE V10.0)*

8.2.b. Growth rates, regeneration, and condition of the forest

8.2.b.1. Species composition, regeneration, growth rates, stocking, stand structure, and age-class distribution are monitored and recorded through a forest inventory system that includes:

- Growth and mortality rates of the dominant and/or important species are estimated for each forest and site type.
- Stand structure and composition are monitored periodically by estimating the number of trees in each age or size class by species or species group.
- The number of stems per acre of regeneration is estimated, by species or species group.
- The impacts of natural disturbances (e.g., disease, wind, fire, damage by insects and/or mammals) are periodically monitored.
- Stands are monitored to assess their vulnerability to natural disturbances. *(SE V10.0)*

8.2.c. Composition and observed changes in the flora and fauna

8.2.c.1. Forest owners or managers periodically monitor the forest for changes in major habitat elements; in the occurrence of sensitive, rare, threatened, or endangered species; and of invasive exotic species. *(SE V10.0)*

8.2.d. Environmental and social impacts of harvesting and other operations

8.2.d.1. The environmental impacts of site-disturbing activities are assessed after their completion.

Examples include impacts on:

- *residual trees*
- *ground cover*
- *regeneration*
- *wildlife habitat*
- *wetland hydrology*
- *water quality and quantity*
- *soil compaction, structure, and fertility*
- *native communities/ecosystems*
- *biodiversity*
- *fragmentation(SE V10.0)*

8.2.d.2. A monitoring program is in place to assess the condition of and the environmental impacts of the forest road system. *(SE V10.0)*

8.2.d.3. Creation and/or maintenance of local jobs and public responses to management activities are documented. *(SE V10.0)*

8.2.d.4. On tribal lands, management of sites of special significance (see indicators 3.2 and 3.3) is jointly monitored with tribal representatives to determine the adequacy of management prescriptions. *(SE V10.0)*

8.2.e. Costs, productivity, and efficiency of forest management

8.2.e.1. Forest owners or managers monitor the costs of and revenues from management activities in order to assess forest productivity and efficiency over the long term. *(SE V10.0)*

8.3. Documentation shall be provided by the forest manager to enable monitoring and certifying organizations to trace each forest product from its origin, a process known as the "chain-of-custody."

8.3.a. While certified forest products are in the landowner or manager's possession, they are clearly identified through marks or labels and/or stored separately from non-certified products. *(SE V10.0)*

8.4. The results of monitoring shall be incorporated into the implementation and revision of the management plan.

8.4.a. Information is collected through monitoring to enable adjustment of management plans and strategies. Deficiencies in information are identified and procedures initiated to remedy them. *(SE V10.0)*

8.4.b. Discrepancies between outcomes (i.e., yields, growth, ecological changes) and expectations (i.e., plans, projections, anticipated impacts) are appraised and taken into account in the subsequent management plan. *(SE V10.0)*

8.5. While respecting the confidentiality of information, forest managers shall make publicly available a summary of the results of monitoring indicators, including those listed in Criterion 8.2.

Applicability Note: Owners and managers of private forests may withhold proprietary information (e.g., timber volumes by size and age class, marketing strategies, and other financial information).

8.5.a. An up-to-date summary of monitoring information is maintained and is available upon request at either no cost or at a reasonable price. *(SE V10.0)*

PRINCIPLE #9: MAINTENANCE OF HIGH CONSERVATION VALUE FORESTS

Management activities in high conservation value forests shall maintain or enhance the attributes that define such forests. Decisions regarding high conservation value forests shall always be considered in the context of a precautionary approach.

High Conservation Value Forests are those that possess one or more of the following attributes:

- Forest areas containing globally, regionally, or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia) and/or large, landscape-level forests that are either contained within the management unit or contain the management unit,

wherein viable populations of most, if not all, naturally occurring species exist in natural patterns of distribution and abundance;

- Forest areas that are in or contain rare, threatened or endangered ecosystems;
- Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control); see Glossary for definition of Critical Situations.
- Forest areas that are fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional, cultural identity (areas of cultural, ecological, economic, or religious significance identified in cooperation with such local communities).
- Forests that fall under the definition of primary ("old-growth") and natural forests (see Glossary), as defined in the Forest Certification Standard for the Southeastern United States *(SE V10.0)*

9.1. Assessment to determine the presence of the attributes consistent with High Conservation Value Forests will be completed, appropriate to scale and intensity of forest management.

Applicability Note: Small landowners who practice low intensity forestry may meet this requirement with brief, informal assessments. More extensive and detailed assessments (e.g., formal assessments by scientists) are expected by large landowners and/or those who practice more intensive forest management. (SE V10.0)

9.1.a. Attributes and locations of High Conservation Value Forests (HCVF) are determined (in consultation with stakeholders and scientists) by:

(1) Identification of globally scaled HCVF attributes that are present in the forest;
(2) Identification and description of regionally and locally scaled HCVF attributes and areas that are in the landscape and/or certified forest;
(3) Delineation by maps and habitat descriptions. *(SE V10.0)*

9.2. The consultative portion of the certification process must place emphasis on the identified conservation attributes, and options for the maintenance thereof (see 9.1.a and Note for 6.2).

Note: FSC understands that Criterion 9.2 is an instruction to FSC –accredited certification bodies and that no indicators are required. (SE V10.0)

9.3. The management plan shall include and implement specific measures that ensure the maintenance and/or enhancement of the applicable conservation attributes consistent with the precautionary approach. These measures shall be specifically included in the publicly available management plan summary.

Applicability Note: The applicability of the precautionary principle and the consequent flexibility of forest management vary with the size, configuration, and tenure of the HCVF:

a) More flexibility is appropriate where HCVF is less intact, larger in area, has a larger area-to-perimeter ratio, and its tenure is assured over the long term.
b) Less flexibility is appropriate where HCVF is more intact, covers a smaller area, has a smaller area-to-perimeter ratio, and future tenure is uncertain based on social considerations, and is consistent with Principle 3.

In forests that take on the characteristics of a primary ("old-growth") forest (see Glossary) as a result of management practices, harvesting is permitted, provided HCVF characteristics are maintained. (SE V10.0)

9.3.a. In intact old-growth forests (see Glossary) and unentered old-growth stands (see Glossary), the precautionary principle requires that no active management is conducted unless it is ecologically necessary to maintain or enhance HCVF values, which includes old-growth attributes. *(SE V10.0)*

9.3.b. Management of HCVFs maintains or enhances their defining characteristics, their extent, and is implemented according to the management plan. A summary of the management activities planned for these forests is included in the publicly available summary of the management plan (see 7.4.1). *(SE V10.0)*

9.3.c. Forest owners or managers of HCVFs (forests and/or stands) coordinate conservation efforts with owners and managers of other HCVFs within their landscape. *(SE V10.0)*

9.3.d Conservation zones are established to protect and/or maintain all managed, HCV old-growth forests (see Glossary). In these forests, the precautionary principle requires that no active management is conducted unless it is ecologically acceptable and maintains or enhances HCVF values. Management of the conservation zones is described in the management plan and their locations are mapped. *(SE V10.0)*

9.4. Annual monitoring shall be conducted to assess the effectiveness of the measures employed to maintain and enhance the applicable conservation attributes.

Note: The working group considers this criterion sufficiently explicit and measurable. Indicators are not required. (SE V10.0)

PRINCIPLE #10: PLANTATIONS

Plantations shall to be planned and managed in accordance with Principles and Criteria 1 - 9, and Principle 10 and its Criteria. While plantations can provide an array of social and economic benefits and can contribute to satisfying the world's needs for forest products, they should complement the management of, reduce pressures on, and promote the restoration and conservation of natural forests.

Applicability Note: See Appendices 3 and 4 for summary and clarification of concerns about and positions on plantation management (Appendix 3) and the conversion of natural forests to plantations (Appendix 4). (SE V10.0)

10.1. The management objectives of the plantation, including natural forest conservation and restoration objectives, shall be explicitly stated in the management plan, and clearly demonstrated in the implementation of the plan.

10.1.a. The forest management plan contains sections specific to the objectives and management of each plantation. See Applicability note under 7.1.

For example:

- *Objectives and justification for establishing a plantation are included in the management plan.*
- *Commercial and restoration plantations are each identified in the management plan.*
- *Planned management practices and rotation age are identified for each plantation. (SE V10.0)*

10.2. The design and layout of plantations promote the protection, restoration, and conservation of natural forests, and should not increase pressures on natural forests. Wildlife corridors, streamside zones, and a mosaic of stands of different ages and rotation periods, shall be used in the layout of the plantation, consistent with the scale of the operation. The scale and layout of plantation blocks shall be consistent with the patterns of forest stands found within the natural landscape.

10.2.a. Plantation establishment does not replace, endanger, or otherwise diminish the ecological integrity of any existing primary, natural, or semi-natural forests (see Glossary) on the property. Commercial plantations (as opposed to those for restoration; see Glossary) can be established on the following sites: former plantations; abandoned agricultural lands; non-forested lands that were historically forested; and forest sites lacking most of the native forest ecosystem components, such as native ground cover (see 6.10 and 10.9; see Glossary). *(SE V10.0)*

10.2.b. Primary, natural, and semi-natural forests are not converted to commercial plantations. *(SE V10.0)*

10.2.c. Plantations, consistent with the scale of the operation, are designed to be compatible with landscape features and functions. See 7.1.b.5.

For example:

- *Plantation boundaries follow land contours and, wherever possible, avoid intersecting stream channels and hillsides with straight lines.*
- *Plantations are established in a way that supports functional habitat for native flora and fauna.*
- *All provisions for streamside management zones are applied in the establishment of plantations.*
- *Wildlife corridors that connect natural or secondary forests are designed to be functional. (SE V10.0)*

10.2.d The design and layout of restoration plantations move the stand to recover most of the principle characteristics of the target native ecosystem described in the restoration objectives. *(SE V10.0)*

10.2.e On areas already converted to plantations, even-aged harvests lacking within-stand retention are limited to forty acres or less in size, unless a larger opening can be justified by scientifically credible analyses.

Note: Credible scientific analyses are defined as scientific opinions supported by data and explanations in articles published in peer-reviewed professional journals that deal with the natural or social sciences and judged to be relevant to the matter in question. Scientific credibility, as it applies to this criterion, is, based on a body of scientific work and on the judgment of experienced professionals. (SE V10.0)

10.2.f. Harvest units are arranged to support viable populations of native species of flora and fauna. For *hardwood* ecosystems, regeneration in previously harvested areas reaches a mean height of at least ten feet or achieves canopy closure before adjacent areas are harvested. For *southern pine* ecosystems, (e.g. upland pine forests, pine flatwoods forests, sand pine scrub), harvest areas are located, if possible, adjacent to the next youngest stand to enable early succession or groundcover-adapted species to migrate across the early successional continuum. *(SE V10.0)*

10.3. Diversity in the composition of plantations is preferred, so as to enhance economic, ecological, and social stability. Such diversity may include the size and spatial distribution of management units within the landscape, number and genetic composition of species, age classes, and structures.

10.3.a Forests containing plantations are managed to create and maintain structural and species diversity that results in viable wildlife habitat and long-term soil maintenance and replenishment.

For example:

- *Thinning provides light to the forest floor that enhances the diversity of understory species.*
- *Prescribed burning promotes the diversity of groundcover.*
- *The use of mechanical and chemical site preparation is minimized when establishing and managing plantations. (SE V10.0)*

10.3.b. Prescribed burning is periodically carried out in plantations of fire-tolerant species (e.g., loblolly, slash, shortleaf, and longleaf pines) to promote forest health and species diversity.

For example, the frequency, seasonality, and intensity of burning are such that native fauna and flora are promoted and the dominant tree species protected. (SE V10.0)

10.3.c. Plantation management activities are planned to generate and maintain opportunities for employment over the long term. *(SE V10.0)*

10.4. The selection of species for planting shall be based on their overall suitability for the site and their appropriateness to the management objectives. In order to enhance the conservation of biological diversity, native species are preferred over exotic species in the establishment of plantations and the restoration of degraded ecosystems. Exotic species, which shall be used only when their performance is greater than that of native species, shall be carefully monitored to detect unusual mortality, disease, or insect outbreaks and adverse ecological impacts.
For a definition of native species see glossary.

10.4.a. Species, planting stock, and seed sources are appropriate for the site based on ecological and economic criteria compatible with the landowner's management objectives and published guidelines for species selection. (see also 6.3).

For example:

- *The selection of hardwood and/or conifer species is based on ecological and economic criteria compatible with the landowner's management objectives and published guidelines for species selection.*
- *Planting stock is selected based on the best information available relative to genetics and seed source. (SE V10.0)*

10.4.b Only native species (see Glossary) are used to establish or re-establish tree plantations. *(SE V10.0)*

10.5. A proportion of the overall forest management area, appropriate to the scale of the plantation and to be determined in regional standards, shall be managed so as to restore the site to a natural forest cover.

Applicability Note: The forest management area is defined as the portion of total property being assessed for certification (e.g., agricultural land is not included).

Protected forest areas may be included as part of the natural forest cover required to be maintained or restored. A forest management area that has more than these minimum designated percentages in natural or semi-natural forests, may not convert these areas to plantations (see 6.3.a.8). (SE V10.0)

10.5.a A percentage of the total forest management area is maintained as and/or restored to natural and semi-natural forest cover. The minimum required percentage are:

- for 100 acres or less, at least 10 percent.
- for 101 - 1,000 acres, at least 15 percent.
- for 1,001 to 10,000 acres, at least 20 percent.
- for > 10,000 acres, at least 25 percent

For example, restoration plans are included in the management plan. (SE V10.0)

10.5.b Areas of forest and/or plantation to be maintained in and/or restored to natural conditions are chosen through a landscape analysis that focuses on enhancing ecological integrity and habitat connectivity.

For example:

- *Forest owners or managers designate site(s) for natural forest maintenance and restoration.*
- *The management plan includes a prescription for restoring and maintaining these sites. (SE V10.0)*

10.5.c. The areas of natural forest cover to be maintained or restored are identified on the ownership map. *(SE V10.0)*

10.5.d. Areas of forest and/or plantation to be maintained as natural or semi-natural forests are managed to provide the diversity of community types, wildlife habitats, and ecological functions native to the site. *(SE V10.0)*

10.6. Measures shall be taken to maintain or improve soil structure, fertility, and biological activity. The techniques and rate of harvesting, road and trail construction and maintenance, and the choice of species shall not result in long-term soil degradation or adverse impacts on water quality, quantity, or substantial deviation from stream course drainage patterns.

Note: see criterion 6.5 and its indicators.

10.6.a. Site preparation on commercial plantations is conducted according to the management plan while balancing economic and environmental concerns (see 6.5). Methods are used that encourage survival of regeneration and improve yields while conserving the environmental integrity (e.g., ground cover, hydrology, nutrient cycles) of the site.

For example:

- *The decision to use fire, mechanical, or chemical site preparation methods for plantation establishment is made based on terrain, soil conditions, native ground cover, intensity of vegetative competition, anticipated response of the planted trees, and is justified in the forest management plan.*
- *Mechanical site preparation is done with the minimal soil movement necessary to achieve the planned site preparation objectives and in accordance with Best Management Practices (see 6.5).*
- *Chemical site preparation is conducted following a prescription consistent with the methodology of integrated pest management (see 6.6).*
- *Non-target areas are minimally disturbed by machine damage, movement of sediment, or drifting herbicides.*
- *Intensive site preparation such as windrowing and/or bedding, are used only when absolutely necessary and justified. (SE V10.0)*

10.6.b. Tree planting minimizes soil damage while maximizing seedling survival.

For example:

- *The decision to use hand or machine planting is based on slope, soil conditions, amount of debris on the site, local experience, cost, and available labor and is justified in the management plan.*
- *Planting tools and equipment are selected to avoid soil damage while benefiting seedling survival.*
- *Recently established plantations have no evidence of soil erosion channels that originated in planting rows.*
- *On slopes greater than five percent, tree planting with a furrow type machine is/was done on the contour.*
- *There is no evidence of on-site soil erosion or sedimentation of waterways.*
- *The planting surface is sufficiently clear to allow planting in mineral soil. (SE V10.0)*

10.6.c Thinning is implemented according to the management plan and state or regional BMPs and published guidelines in a fashion that avoids site disturbance and damage to the residual stand.

For example:

- *Slash and other debris are left dispersed in the stand, when possible.*
- *Thinning is avoided during wet soil conditions and/or specialized equipment is used to minimize impact.*
- *Appropriate equipment and harvesting procedures are used.*
- *Damage to residual trees is minimal.*
- *There is no evidence of on-site erosion or sedimentation of waterways. (SE V10.0)*

10.6.d Fertilizer is applied only when justified by soil type, soil or foliar analysis, indicator plant species from the plantation, and/or scientific literature; when it improves the general nutrient balance of the site; when it is economically justified; and when adverse on- or off-site environmental impacts are minimal. If used, a prescription for fertilizer application is followed.

For example:

- *Soil classification or foliar analysis from the plantation indicates one or more nutrients have limited crop productivity.*
- *Fertilizer is applied according to a prescription and application records are on file.*
- *Data or scientific literature confirms that the response to fertilization is economically justified.*
- *If fertilizer is used, there is no runoff or leaching of the fertilizer into inherently low-nutrient systems, such as pitcher plant bogs and other such nutrient limited ecosystems. (SE V10.0)*

10.7. Measures shall be taken to prevent and minimize outbreaks of pests, diseases, fire, and invasive plant introductions. Integrated pest management shall form an essential part of the management plan, with primary reliance on prevention and biological control methods rather than chemical pesticides and fertilizers. Plantation management should make every effort to move away from chemical pesticides and fertilizers, including their use in nurseries. The use of chemicals is also covered in Criteria 6.6 and 6.7.

10.7.a Plantation vigor and growth is maintained and monitored to prevent outbreaks of pests and diseases.

For example:

- *Periodic inventories measure survival and growth rates (see 8.2).*
- *Silvicultural practices, such as thinning and harvesting, are scheduled and conducted to maintain plantation vigor and health.*
- *The landowner or manager is aware of the more significant potential pest problems typical for the plantation species and region, and has some knowledge of control procedures.*

- *Pest (e.g., insects, disease, animals, invasive species) surveys or observations are periodically conducted (see 8.2). (SE V10.0)*

10.7.b. A strategy is in place to prevent and control wildfire.

For example:
- *Natural breaks and/or fire lanes are present and functional.*
- *Periodic prescribed burning keeps plantation fuel loads low.*
- *Personnel are adequately trained and are aware of available assistance. (SE V10.0)*

10.7.c. Invasive exotic plant species (see Glossary) are kept out of plantations and treated as described in 6.11. Otherwise, invasive exotic species are controlled to limit their expansion and ecological damage.

For example:
- *Populations of invasive exotic plants in plantations are controlled, minimized, or eliminated.*
- *Records of efforts to control invasive exotic species are on file. (SE V10.0)*

10.8. Appropriate to the scale and diversity of the operation, monitoring of plantations shall include regular assessments of potential on-site and off-site ecological and social impacts (e.g., natural regeneration, effects on water resources and soil fertility, and impacts on local welfare and social well-being), in addition to those elements addressed in principles 4, 8, and 6. No species should be planted on a large scale until local trials and/or experience have shown that they are ecologically well-adapted to the site, are not invasive, and do not have significant negative ecological impacts on other ecosystems. Special attention will be paid to social issues of land acquisition for plantations, especially the protection of local rights of ownership, use or access.

10.8.a. Monitoring of the impacts of plantations, both on and off-site, is conducted in the same manner as the monitoring of natural forests, in accordance with Principles 4, 6, and 8. *(SE V10.0)*

10.9. Plantations established in areas converted from natural forests after November 1994 normally shall not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the certification body that the manager/owner is not responsible directly or indirectly for such conversion.

Applicability Note: The vast majority of landowners and managers in the Southeast United States have very little awareness of FSC and its Principles and Criteria. At the same time most landowners have been exposed to the prevailing ethos of plantation forest conversion and management. The exception to Criterion 10.9 embodied in Indicator 10.9.a is designed to deal realistically with plantations so as to encourage their restoration and a management approach that is more ecologically based, and to avoid having an owner or manager denied certification for something that occurred because of their lack of awareness or access to information. Indicator 10.9.1 allows landowners who have converted stands after 1993 to qualify for certification if they can demonstrate that they are actively pursuing restoration of the converted stand(s) toward natural forest conditions(SE V10.0)

10.9.a Plantation stands established through conversion between 1994 and 2001 may be considered for certification if a restoration plan covering all such stands is being implemented. Examples of activities that are carried out in restoration plantations include:

- Modification of the management plan from commercial to restoration;
- Enrichment plantings of native species;
- Management of soils and coarse woody debris to restore or enhance soil fertility;

- Restoration and/or enhancement of native wildlife habitats;
- Restoration and/or enhancement of structural diversity (see Glossary), by recruiting mid-story and/or understory components;
- Control of unwanted vegetation is limited to levels that allow restoration of native species;
- Restoration of the fire regime common to natural stands is implemented." *(SE V10.0)*

Note: Principle 10 was approved by the international FSC membership in November 1994. See Appendix C for further information on the Southeast Working Group's position on plantations and plantation management.

APPENDICES

Appendix A--Southeast Working Group Members

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Dr. Josh Dickinson	Florida	The Forest Management Trust
Don Handley	South Carolina	Handley Forestry Services
Edward Hicks	North Carolina	Hicks, Jowett & Wood, Inc.
Shoana Humphries	Florida	Social Forester
Robert Hutchinson	Florida	County Commissioner
Dr. James Johnson	Virginia	Extension Forester
Stephen Lindeman	Virginia	The Nature Conservancy
Dr. Alan Long	Florida	Cooperative Extension
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Dr. Kenneth McNabb	Alabama	School of Forestry, Auburn
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EC = economic chamber, EN = environmental chamber, SO = social chamber

Appendix B--Limits on the Use and Size of Clearcuts

The Southeast Working Group was strongly encouraged by the US Office of the Forest Stewardship Council to place maximum limits on clear-cut sizes for forest operations in the Southeast. The working group had a diversity of opinions on the issue of clear-cutting (ranging from not allowing clear-cutting to placing no limits on the use of clear-cuts) and on appropriate maximum size limits. During the 2001 SE Draft-US Standard harmonization meeting, the working group discussed at length whether to retain the existing SE language on the use and size of clear-cuts or to adopt the language of the National Indicators. The final decision was, for the time being, to adopt the national language and to closely monitor its interpretation by certification bodies and forest managers. Nevertheless, the following appendix has been retained in the Harmonized Draft in order to provide certification bodies and other stakeholders in forest certification with the spirit of the original, SE Regional Standard position on the use and size of clear-cuts. The guidelines describe below are not binding to the certification of forest management in the Southeastern United States.

First, the working group decided that forest type should both determine if clear-cutting is allowed and influence limits on size of clear-cuts. They came up with the following guidelines for each of the different forest types:

a. *Primary and natural forests:* clear-cutting is not allowed. Harvesting is not allowed at all in primary forests. For natural forests, the majority of the working group believes uneven-aged management techniques are more appropriate.
b. *Semi-natural forests: stands with trees greater than 100 years old:* clear-cutting is not allowed; *even-aged stands of hardwood and cypress*: clear-cutting is allowed; the size of openings should be conservative
c. *Even-aged stands of pine and pine/hardwood*: clear-cutting is allowed; the size of openings should not be higher than the limit for plantations and should be justified by natural regeneration requirements
d. *Plantations*: clearcutting is allowed; the limit for the size of openings is 40 acres. The working group chose 40 acres because, based on scientific literature and the personal experiences of the foresters and landowners in the Group, this was determined to be a size that would normally be economically operable.

The working group then identified a series of reasons for exceptions to these rules. Justification must be provided for any deviation from the rules. Exceptions are as follows:

1. Clear-cuts up to 80 acres are allowed in cases where a 40-acre stand would not provide enough timber volume to secure an economically operable timber sale, meaning that the sale would not attract a buyer and/or the landowner would not make a profit from the sale. Examples of such cases include stands that have been high graded and the most valuable species of trees have already been removed, or where a site has been planted with inappropriate, poorly growing species and the landowner/manager wants to clear and restore the site. This exception cannot be used when a 40-acre clear-cut would be economically operable and a landowner wants to cut 80 acres simply to make a greater profit.

2. Clear-cuts up to 80 acres are allowed in cases where harvesting a stand in 40 acre blocks would cause unnecessary environmental disturbance to the area surrounding the stand. This applies to plantations that are surrounded by ecologically sensitive areas (e.g., seasonally wet areas), which must be passed through or otherwise impacted in order to harvest the plantation. In such cases, harvesting up to 80 acres is allowed if it would result in less of an impact on ecologically sensitive areas (e.g., harvesting the stand once instead of dividing it and revisiting the stand for the rest of the timber at a later date).

3. An exception to all of the limits on the use and size of clear-cuts was made in cases of ecologic necessity. Some may question the legitimacy of this exception, but it was advocated by the more environmentally active segment of the working group. They wanted this exception so that clear-cutting could be used in natural forest stands--where appropriate and necessary--as a tool for maintaining ecosystems that are dependent on large, contiguous openings. The primary motivation was the sand pine scrub ecosystem, which supports the ecologically significant Florida scrub jay and is currently being managed with large, contiguous clear-cuts. Ecologists urge the use of large clear-cuts in the sand pine scrub ecosystem to mimic the stand-replacing, catastrophic fires that historically maintained the ecosystem. The working group made it clear that this exception could only be used when supported by scientific literature.

Some issues could not be resolved through exceptions. For example, there was great deal of discussion regarding fragmentation. The working group recognized that smaller clear-cuts contribute to fragmentation, as do requirements for large age differences between adjoining stands. In addition, if a stand happens to be 45 acres, but does not meet any of the exceptions that would allow an 80-acre clear-cut, the landowner/manager is at a disadvantage. Such cases, as well as additional exceptions to the Standard will need to be discussed and resolved with the certification body.

Appendix C-Note for Principle 10: The Management of Plantations

In addressing the management of plantations, the Southeast working group had to deal with the following concerns:

1. A significant percentage of the region's timberland is in plantations. This is a result of several factors, but notably it is the result of the deforestation of most of the Southeast by early, European settlers, followed by harvest of most of the remaining virgin forests between the Civil War and World War II. The construction of kraft paper mills just prior to and after World War II created a market for the lower quality timber left after the sawmills moved west. The paper companies began replanting cutover lands and abandoned agricultural lands to ensure a future supply of raw materials for their paper mills. The federal government began offering programs to farmers that encouraged converting severely eroded agricultural lands to plantations as a measure to conserve soil. As timber resources grew, markets for solid wood products returned, but adapted to using smaller logs. Today, approximately 15% of the timberland in the Southeast is in plantations.

2. Because of the agricultural history of much of the land now in plantations, a great deal of the original native ground cover is absent from these plantations. However, some of the plantations established on cutover second growth sites still have significant components of the original ground cover present.

3. If the FSC standards are to have a significant impact on forest conditions and practices in this region, they must reasonably address the management of a wide range of plantation conditions, as well as the economics of individual ownerships and existing markets. In other words, improving the management of plantations must be a primary goal in this region. To achieve this goal, the cost of certification and of conforming to certification standards cannot exceed the potential financial return. Appropriate guidelines and standards for plantation management will allow a financial return sufficient to permit less intensive management of existing and recoverable natural and semi-natural forests.

4. A plantation is defined by its origin (e.g., was it planted or not), as opposed to its characteristics or purpose of establishment. The prevalent connotation, however, is that a plantation is characterized by intensive management and short rotations. The working group determined that it would be helpful to define commercial plantations as those established primarily for the purpose of timber production, even though a wide range exists in the levels of management intensity, the types of ground cover present, and the intended products within this classification. Restoration plantations are defined as those established for the purpose of restoring a site to a natural forest condition. In so stating, we are recognizing that a plantation could eventually result in a stand having the characteristics of a semi-natural, natural, or eventually, a primary forest condition. We realize that other objectives exist for the establishment of plantations, but believe that for certification purposes, an existing plantation must be categorized into one of these two types.

Appendix D

International treaties and agreements to which the U.S. is a signatory or a party:

0. Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere (Washington, 1940)
1. Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR) (2 Feb 1971)
2. Convention for the Protection of the World Cultural and Natural Heritage (16 Nov 1972)
3. Convention concerning the Protection of the World Cultural and Natural Heritage (Paris, 1972)
4. Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973)
5. International Plant Protection Convention (1979 Revised Text) (Rome, 1979)
6. Convention on the Conservation of Migratory Species of Wild Animals (23 Jun 1979)
7. Amendment to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Art.XI) (Bonn, 1979)
8. Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991)
9. Convention for the Conservation of Anadromous Stocks (Moscow, 1992)
10. Agenda 21, United Nations Convention on Environment & Development (UNCED), Rio de Janeiro, 1992. Forest Principles, UNCED, 1992.
11. Convention on Biological Diversity (5 Jun 1992)
12. Framework Convention on Climate Change, UNCED, 1992.
13. International Tropical Timber Agreement (Geneva, 1994)

Withdrawn, Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto, 1997)

GLOSSARY

Terms specific to the FSC-US Southeastern United States Forest Certification Standard

Note: A number of definitions included in the Forest Certification Standard for the Southeastern United States are additions to, or alternatives for, definitions included in the Glossary of the Forest Stewardship Council's Principles and Criteria for Forest Management.

Age-class: A distinct aggregation of trees originating from a single natural event or management activity.

Allottee(s): Person(s) owning an Indian allotment. An Indian allotment is private land owned by one or more individuals (rather than a tribe) but held in trust by the federal government.

Buffer: A strip of vegetation that is left or managed to reduce the impact of a treatment or action of one area on another.

Canopy*: The foliar cover in a forest stand consisting of one or several layers.

Chlorinated hydrocarbons: A specific chemical family of insecticides identified by EPA and USDA in "Applying Pesticides Correctly: A Guide for Private and Commercial Applicators," which includes insecticides such as lindane and chlordane.

Commercial plantation: A stand established through artificial regeneration for the commercial production of forest products, usually at the shortest practical rotation, with a single species, and at regular spacing in rows. Although commercial plantations may assume the characteristics of a semi-natural forest, these plantations should continue to fall under the guidelines set for Principle 10.

Community*: An assemblage of plants and animals living together and occupying a given area.

Community type: A generalized category comprising a number of similar units or stands of vegetation and including animal life.

Conservation zones: Areas managed with the objective of protecting specific characteristics. The management of these areas are be based on the following primary goal: to protect these ecosystems by maintaining and enhancing, where necessary, the health, distinctive characteristics, and functions of the native ecosystems. All management activities necessary to achieve this goal are carried out. In addition, all management activities and economic uses that do not conflict with the primary purpose, including logging when appropriate, are permitted.

Critical situations (as pertain to the definition of a High Conservation Value Forest; see Principle 9): Critical situations are those where conditions exist with all of the following characteristics:

1) The forest area deemed critical is sufficiently different from surrounding forests and can be easily delineated.

2) The forest area performs one or more functions of such a nature that specialized management is required to maintain those functions.
3) The critical nature of the situation can be documented.
4) The effectiveness of the proposed management treatments, or the potential harm caused by forbidden treatments, is documented in peer-reviewed literature.
5) The forest area provides resources basic to human survival (e.g., fresh drinking water).

Degraded semi-natural forest: A subset of semi-natural forests with some of the principle characteristics and key components of native ecosystems; a return to a semi-natural forest is unlikely to occur in a reasonable amount of time (i.e., decades) without human intervention.

Desirable species: Any organism held to be beneficial, having pleasing or useful qualities or properties that humans decide to advance or retain by their management activities.

Endangered species*: Any species of plant or animal defined through the Endangered Species Act of 1976 as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.

Endemic species: A species whose entire native range is particular to a restricted geographic area.

Erosion*: The wearing away of the land surface by rain, running water, wind, ice, gravity, or other natural or anthropogenic agents.

Even-aged management: A system of forest management in which stands are produced or maintained with relatively minor differences in age.

Even-aged stand: For hardwood (including upland and bottomland) and cypress forests, a stand in which the ages of 90% of the canopy trees vary by no more than plus or minus 20% of the average age. For other (including pine and pine/hardwood) forests, a stand in which the ages of 90% of the canopy trees vary by no more than plus or minus five years from the average age. Clear-cutting, seed trees, and shelter-wood regeneration systems result in even-aged stands.

Exotic species: An introduced species not native or endemic to the area in question (FSC). For the Forest Certification Standard for the Southeastern U.S., terrestrial exotic species are further defined as species not native or endemic to the Southeastern United States.

Forest: An ecosystem that, when intact, is characterized by tree cover usually consisting of stands varying in characteristics, such as species, structure, composition, age class, and commonly including streams and wildlife. While forest ecosystems are not bound by property lines, for the purpose of this document, "forest" may be delimited by ownership or other qualifying characteristics.

Forest Owner or Manager:_Any person or persons who is (are) responsible for forest management decisions. This term replaces the commonly used terms: "Forest Management Unit*" (FMU); "Forest Management Operation*" (FMO); "The Manager," and other equivalent terms.
* Only when FMU/FMO is used as an active noun, such as "The FMO provides instructions for loggers…")

Forest Management Area: For the Forest Certification Standard for the Southeastern U.S., the overall forest management area is defined as the portion of total property being assessed for certification (i.e., agricultural land is not included).

Genetically modified organisms: The modification of the genetic characteristics of a microorganism, plant or animal by inserting a modified gene or a gene from another variety or species. Genetically modified organisms (GMOs) may be microorganisms designed for use as bio-pesticides or seeds that have been altered genetically to give a plant better disease resistance or growth. For the Forest Certification Standard for the Southeastern U.S., genetically modified organisms are further defined to exclude the products of traditional tree breeding methodology.

Group selection: An uneven-aged harvest and regeneration system of selecting small groups and single trees in order to create openings for full sunlight to reach the forest floor. This system is suitable for species that must have direct sunlight to regenerate.

High grading: The removal of the most commercially valuable trees (high-grade trees) leaving a residual stand composed of trees of poor condition or species composition. Note: High grading may have both genetic implications (i.e., dysgenic effects) and long-term economic or stand-health implications.

Intact old-growth forest: A forest that is unroaded or lightly roaded, with no evidence of previous logging, that is of sufficient size and configuration to maintain ecological integrity – 500 acres or larger in size. Such forests differ from unentered old-growth stands (see Glossary) in that they are not only rare, but are also large enough to maintain significant biological diversity, genetic diversity, and a broad array of ecological functions on given acres through long periods of time.

Integrated Pest Management (IPM): A sustainable approach to managing pests by combining biological, silvicultural, and chemical tools in a way that minimizes economic, health, and environmental risks.

Invasive exotic plant species: A non-native plant that is able to invade and multiply in healthy native plant communities to the extent that it can result in the decline or elimination of populations of native plants and/or animals.

Managed old-growth: Old growth stands under management that maintains old-growth characteristics. Such management may include but is not limited to prescribed fire, low impact logging (e.g., single tree and small group selection), and exotic plant removal.

Native ground cover: A community of herbaceous and woody plants (grasses, ferns, forbs, and small shrubs), generally less than one meter in height, and native to the region and the particular forest ecosystem. (An example demonstrating the importance of native ground cover is pineland ecosystems, where most of the plant and animal biodiversity is associated with the native ground cover the health of which depends on periodic fire).

Native species: A species indigenous to the area covered by the Southeast Region as delineated by The Forest Stewardship Council.

Native to the site: A plant species that is or was part of the plant community typically occurring on a site due to soil characteristics, topography, climate or disturbance pattern that would have occurred at the time of European contact or prior to first logging activities, conversion to agriculture, or suppression of the natural fire regime.

Natural forest: A forest ecosystem with most of the principal characteristics and key elements of native ecosystems, such as complexity, structure and diversity. Natural forests may lack the abundance of mature trees and freedom from human disturbance that characterize primary forests.

Old-growth forest: Ecosystems distinguished by old trees and related structural and functional attributes. Generally a forest of sufficient age to have obtained the following characteristics of the original forests of this same type: A diverse, patchy and multi-leveled canopy dominated by large overstory trees; some with broken tops, cavities and other indications of old and decaying wood; numerous large snags; and heavy accumulations of wood, including large logs on the ground. A diversity of native subcanopy, shrub, and ground cover species, as well as a diversity of associated native fauna. Additional attributes generally include patchiness from tree fall gaps and a well-developed soil profile.

Plantation: see Commercial plantation or Restoration plantation.

Primary forest: A forest ecosystem with the principal characteristics and key elements of native ecosystems, such as complexity, structure, diversity, an abundance of mature trees, and relatively undisturbed by human activity. Human impacts in such forest areas have normally been limited to low levels of hunting, fishing, and harvesting of forest products. Such ecosystems are also referred to as "mature," "old-growth," or "virgin" forests.

Restoration*: The process of returning ecosystems or habitats to their original structure and species composition.

Restoration plantation (Restoration planting): A stand established through artificial regeneration with the primary purpose of returning a site to a natural forest condition. Secondary forest: The FSC definition of secondary forests was found to be confusing and therefore it will not be included in the Glossary of the Forest Certification Standard for the Southeastern U.S.

Refugium (pl. refugia)*: Locations and habitats that support populations of organisms that are limited to small fragments of their previous geographic range.

Riparian zone*: A terrestrial area, other than a coastal area, of variable width adjacent to and influenced by a perennial or intermittent body of water. Riparian zones provide a functional linkage between terrestrial and aquatic ecosystems through the input of coarse and fine organic matter, bank stability, regulation of water temperature, regulation of sediment and nutrient flow, maintenance of unique wildlife habitat, and in limiting or mitigating non-point source pollution.

Semi-natural forest: A forest ecosystem with many of the characteristics of native ecosystems present. Semi-natural forests exhibit a history of human disturbance (e.g., harvesting or other silvicultural activities), are very common in the Southeastern United States, and include a considerable amount of unmanaged and most of the managed forest land other than plantations.

Silviculture*: The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

Single-tree selection: An uneven-aged harvest and regeneration system of selecting individual trees. Trees of any or all sizes are selected for harvest based on their individual merits, as compared to their closest counterparts. This system is suitable for species that regenerate under partially open canopies, where filtered sunlight reaches the floor.

Small forest: A forest less than or equal to 5,000 acres, except for the purposes of FSCUS's Family Forest Program (SLIMF) Streamlined Certification Procedures (FSC-POL-20-101 at http://www.fscus.org/documents/Family_Forests_Program_Procedures.pdf) under which a small forest is defined as less than or equal to 2,470 acres.

Snag: A standing dead tree from which the leaves and most of the limbs have fallen.

Social impacts: Intended and unintended effects on the human population and the surrounding environment.

Stand: A contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure and growing on a site of sufficiently uniform quality to be a distinguishable unit.

Structural diversity: The diversity in a plant community resulting from the variety of physical forms of the plants within the community (such as the layering or tiering of the canopy of a forest from the ground to the tops of the tallest trees).

Tenure: Socially defined agreements held by individuals or groups, recognized by legal statutes or customary practice, regarding the "bundle of rights and duties" of ownership, holding, access, and/or usage of a particular land unit or the associated resources therein (such as individual trees, plant species, water, minerals, etc).

Threatened species: Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Unentered old-growth stand: A stand of trees that is unroaded or lightly roaded, with no evidence of logging, up to 500 acres, and of sufficient size and configuration to maintain specific ecological functions. Such stands differ from intact old-growth forests in that they are too small to maintain significant biological diversity, and/or genetic diversity on given acres through long periods of time, but as a collection of various sized acreages, contribute to a landscape scale safety net in which a mosaic of biological diversity, genetic diversity, and ecological functions are maintained in space through various scales of time.

Uneven-aged management: A system of forest management designed to maintain and regenerate a stand with three or more age classes.

Uneven-aged stand*: A stand with trees of three or more distinct age classes, either intimately mixed or in small groups.

Use rights: The right to use forest resources as defined by local custom, mutual agreements, or prescribed by other entities holding access rights.

Water quality: The quality of water determined by a series of standard parameters-turbidity, temperature, bacterial count, pH, and dissolved oxygen.

Woody debris: All woody material, from whatever source, that is dead and lying on the forest floor.

*Helms, John A., et. al. 1998. The Dictionary of Forestry. Bethesda, Maryland: The Society of American Foresters.

Terms specific to FSC-US National Indicators

Aquatic habitat: Habitat that occurs in free water (as opposed to water that is unavailable for habitat).

Canopy closure: The progressive reduction of space between tree crowns as they spread laterally.

Configuration: The shape or outline of a forest stand or plant community; the degree of irregularity in the edge between forest stands or communities; varying from simple to mosaic.

Integrity: The state of being unimpaired; soundness; completeness; unity.

Intensive forestry: The practice of forestry to obtain a high level of volume of wood products per unit of area; accomplished through the application of the best techniques of silviculture and management.

Large forest: A forest that is at least 50,000 acres in size.

Managed forest: A forest that has been brought under management to accomplish specified objectives.

Mid-Sized Forest: A forest between 5000 and 50,000 acres in size.

Nutrient cycling: The circulation of elements, such as nitrogen and carbon, via specific pathways from abiotic to biotic portions of the environment and back again; all mineral and nutrient cycles involving human, animals, and plants—such as the carbon cycle, phosphorous cycle, and nitrogen cycle.

Pathogen: Any agent that causes disease, especially microorganisms, such as bacteria or fungi.

Plant community: A vegetative complex unique in its combination of plants; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site—such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax vegetation, such as ponderosa pine or bunchgrass, from which several plant community types may be derived on the basis of characteristic lesser vegetation.

Public land: Any land, including public forestland, held in government ownership in trust for the citizens of a city, county, state, or nation.

Rancheria: A small reservation, usually only a few acres, of a federally or state recognized Indian tribe. Also the legally recognized designation of the tribe, as in "Big Lagoon Rancheria."

Sediment: Material suspended in liquid or air; the deposition of that material onto the surface underlying this liquid or air.

Slope: The incline of the land surface measured in degrees from the horizontal or in percent as determined by the number of units change in elevation per 100 of the same measurement units; also characterized by the compass direction in which it faces.

Small forest: A forest less than or equal to 5,000 acres, except for the purposes of FSCUS's Family Forest Program (SLIMF) Streamlined Certification Procedures (FSC-POL-20-101 at http://www.fscus.org/documents/) under which a small forest is defined as less than or equal to 2,470 acres.

Soil: Earth material so modified by physical, chemical, and biological agents that it will support rooted plants (American Geological Institute 1962).

Species: A unit of classification on plants and animals consisting of the largest and most inclusive array of sexually reproducing and cross-fertilizing individuals that share a common gene pool; the most inclusive Mendelian population.

Species composition: The species that occur on a site or in a successional or vegetative stage of a plant community.

Terms as defined in FSC International Principles and Criteria

Biological diversity: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. (see Convention on Biological Diversity, 1992)

Biological diversity values: The intrinsic, ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components. (see Convention on Biological Diversity, 1992)

Biological control agents: Living organisms used to eliminate or regulate the population of other living organisms.

Chain of custody: The channel through which products are distributed from their origin in the forest to their end-use.

Chemicals: The range of fertilizers, insecticides, fungicides, and hormones, which are used in forest management.

Criterion (pl. Criteria): A means of judging whether or not a Principle (of forest stewardship) has been fulfilled.

Customary rights: Rights, which result from a long series of habitual or customary actions, constantly repeated, which, have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

Ecosystem: A community of all plants and animals and their physical environment, functioning together as an interdependent unit.

Forest integrity: The composition, dynamics, functions and structural attributes of a natural forest.

Forest management/manager: The people responsible for the operational management of the forest resource and of the enterprise, as well as the management system and structure, and the planning and field operations.

Indigenous lands and territories: The total environment of the lands, air, water, sea, sea-ice, flora and fauna, and other resources which indigenous peoples have traditionally owned or otherwise occupied or used. (Draft Declaration of the Rights of Indigenous Peoples: Part VI)

Indigenous peoples: "The existing descendants of the peoples who inhabited the present territory of a country wholly or partially at the time when persons of a different culture or ethnic origin arrived there from other parts of the world, overcame them and, by conquest, settlement, or other means reduced them to a non-dominant or colonial situation; who today live more in conformity with their particular social, economic and cultural customs and traditions than with the institutions of the country of which they now form a part, under State structure which incorporates mainly the national, social and cultural characteristics of other segments of the population which are predominant." (Working definition adopted by the UN Working Group on Indigenous Peoples).

High Conservation Value Forests: High Conservation Value Forests are those that possess one or more of the following attributes:
a) forest areas containing globally, regionally or nationally significant:
concentrations of biodiversity values (e.g., endemism, endangered species, refugia); and/or large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance
b) forest areas that are in or contain rare, threatened or endangered ecosystems
c) forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)
d) forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Landscape: A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area.

Local laws: Includes all legal norms given by organisms of government whose jurisdiction is less than the national level, such as departmental, municipal and customary norms.

Long term: The time-scale of the forest owner or manager as manifested by the objectives of the management plan, the rate of harvesting, and the commitment to maintain permanent forest cover. The length of time involved will vary according to the context and ecological conditions, and will be a function of how long it takes a given ecosystem to recover its natural structure and composition following harvesting or disturbance, or to produce mature or primary conditions.

Natural cycles: Nutrient and mineral cycling as a result of interactions between soils, water, plants, and animals in forest environments that affect the ecological productivity of a given site.

Non-timber forest products: All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products.

Other forest types: Forest areas that do not fit the criteria for plantation or natural forests and which are defined more specifically by FSC-approved national and regional standards of forest stewardship.

Precautionary approach: Tool for the implementation of the precautionary principle.

Principle: An essential rule or element; in FSC's case, of forest stewardship.

Succession: Progressive changes in species composition and forest community structure caused by natural processes (nonhuman) over time.

Appendix E

Description of the FSC-US Southeast Region

Prepared by Greg Blomstrom, Forest Analyst
December 19, 2003

The FSC-US Southeast region is composed of all or portions of the States of Alabama, Arkansas, District of Columbia, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Texas and Virginia all within the United States of America. Within these states, all of the following counties are within the region. The map on the last page shows the general location of the states and counties within the region.

The region was defined using a combination of earlier work previously describing the region and posted on the FSC-US website, ecosystem boundaries from Ricketts and then intersecting the former regional boundaries, ecosystem boundaries and US counties in ArcView. A county was included in the region if more than ½ of the county was within the regional boundary.

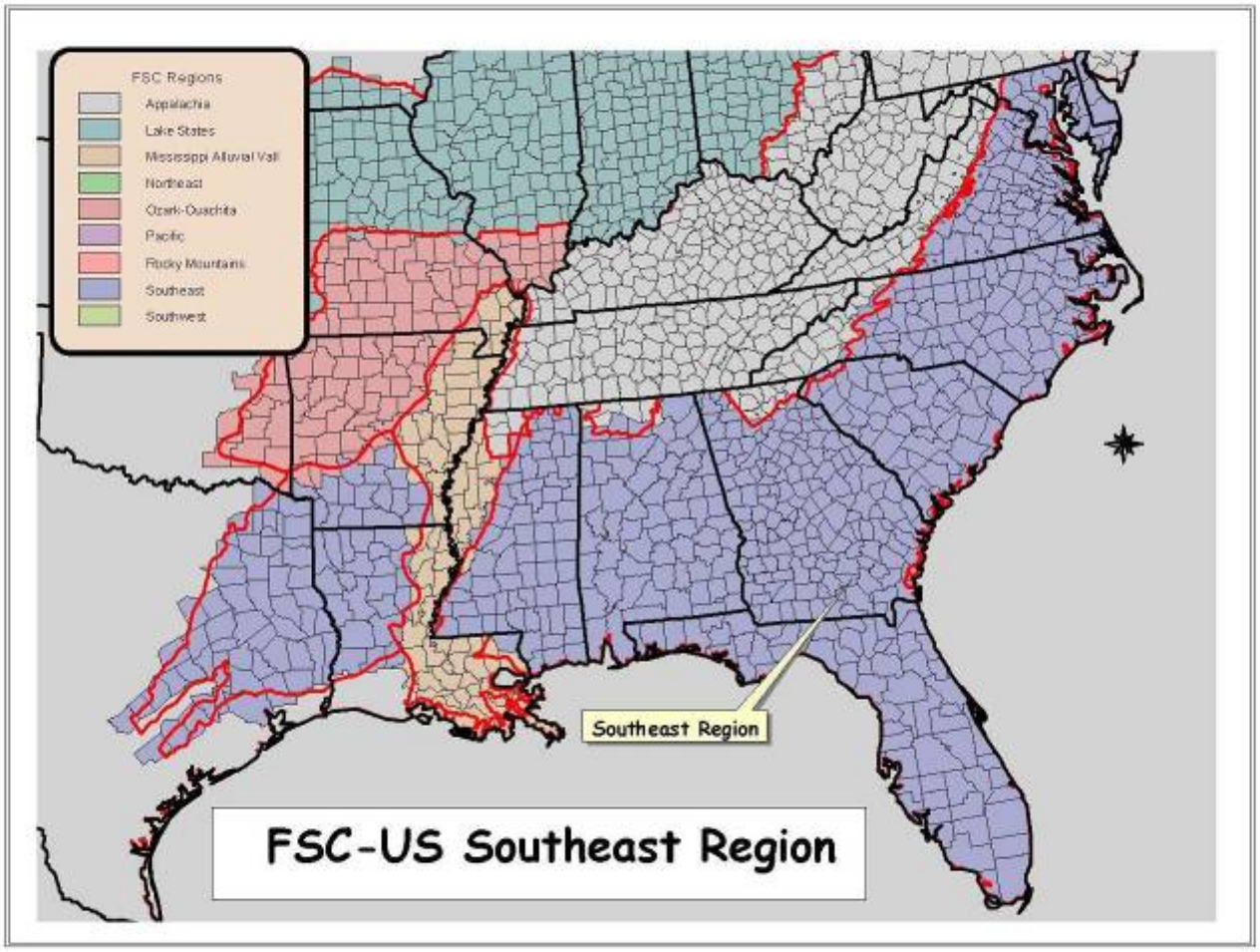
Southeast	Alabama	Autauga	Southeast	Alabama	Marshall
Southeast	Alabama	Baldwin	Southeast	Alabama	Mobile
Southeast	Alabama	Barbour	Southeast	Alabama	Monroe
Southeast	Alabama	Bibb	Southeast	Alabama	Montgomery
Southeast	Alabama	Blount	Southeast	Alabama	Morgan
Southeast	Alabama	Bullock	Southeast	Alabama	Perry
Southeast	Alabama	Butler	Southeast	Alabama	Pickens
Southeast	Alabama	Calhoun	Southeast	Alabama	Pike
Southeast	Alabama	Chambers	Southeast	Alabama	Randolph
Southeast	Alabama	Cherokee	Southeast	Alabama	Russell
Southeast	Alabama	Chilton	Southeast	Alabama	Shelby
Southeast	Alabama	Choctaw	Southeast	Alabama	St. Clair
Southeast	Alabama	Clarke	Southeast	Alabama	Sumter
Southeast	Alabama	Clay	Southeast	Alabama	Talladega
Southeast	Alabama	Cleburne	Southeast	Alabama	Tallapoosa
Southeast	Alabama	Coffee	Southeast	Alabama	Tuscaloosa
Southeast	Alabama	Conecuh	Southeast	Alabama	Walker
Southeast	Alabama	Coosa	Southeast	Alabama	Washington
Southeast	Alabama	Covington	Southeast	Alabama	Wilcox
Southeast	Alabama	Crenshaw	Southeast	Alabama	Winston
Southeast	Alabama	Cullman	Southeast	Arkansas	Ashley
Southeast	Alabama	Dale	Southeast	Arkansas	Bradley
Southeast	Alabama	Dallas	Southeast	Arkansas	Calhoun
Southeast	Alabama	De Kalb	Southeast	Arkansas	Clark
Southeast	Alabama	Elmore	Southeast	Arkansas	Cleveland
Southeast	Alabama	Escambia	Southeast	Arkansas	Columbia
Southeast	Alabama	Etowah	Southeast	Arkansas	Dallas
Southeast	Alabama	Fayette	Southeast	Arkansas	Drew
Southeast	Alabama	Franklin	Southeast	Arkansas	Grant
Southeast	Alabama	Geneva	Southeast	Arkansas	Hempstead
Southeast	Alabama	Greene	Southeast	Arkansas	Lafayette
Southeast	Alabama	Hale	Southeast	Arkansas	Little River
Southeast	Alabama	Henry	Southeast	Arkansas	Miller
Southeast	Alabama	Houston	Southeast	Arkansas	Nevada
Southeast	Alabama	Jackson	Southeast	Arkansas	Ouachita
Southeast	Alabama	Jefferson	Southeast	Arkansas	Union
Southeast	Alabama	Lamar	Southeast	Delaware	Kent
Southeast	Alabama	Lawrence	Southeast	Delaware	New Castle
Southeast	Alabama	Lee	Southeast	Delaware	Sussex
Southeast	Alabama	Lowndes	Southeast	District of Columbia	Washington
Southeast	Alabama	Macon	Southeast	Florida	Alachua
Southeast	Alabama	Marengo	Southeast	Florida	Baker
Southeast	Alabama	Marion	Southeast	Florida	Bay

Southeast	Florida	Bradford	Southeast	Georgia	Bartow
Southeast	Florida	Brevard	Southeast	Georgia	Ben Hill
Southeast	Florida	Broward	Southeast	Georgia	Berrien
Southeast	Florida	Calhoun	Southeast	Georgia	Bibb
Southeast	Florida	Charlotte	Southeast	Georgia	Bleckley
Southeast	Florida	Citrus	Southeast	Georgia	Brantley
Southeast	Florida	Clay	Southeast	Georgia	Brooks
Southeast	Florida	Collier	Southeast	Georgia	Bryan
Southeast	Florida	Columbia	Southeast	Georgia	Bulloch
Southeast	Florida	Dade	Southeast	Georgia	Burke
Southeast	Florida	De Soto	Southeast	Georgia	Butts
Southeast	Florida	Dixie	Southeast	Georgia	Calhoun
Southeast	Florida	Duval	Southeast	Georgia	Camden
Southeast	Florida	Escambia	Southeast	Georgia	Candler
Southeast	Florida	Flagler	Southeast	Georgia	Carroll
Southeast	Florida	Franklin	Southeast	Georgia	Catoosa
Southeast	Florida	Gadsden	Southeast	Georgia	Charlton
Southeast	Florida	Gilchrist	Southeast	Georgia	Chatham
Southeast	Florida	Glades	Southeast	Georgia	Chattahoochee
Southeast	Florida	Gulf	Southeast	Georgia	Chattooga
Southeast	Florida	Hamilton	Southeast	Georgia	Cherokee
Southeast	Florida	Hardee	Southeast	Georgia	Clarke
Southeast	Florida	Hendry	Southeast	Georgia	Clay
Southeast	Florida	Hernando	Southeast	Georgia	Clayton
Southeast	Florida	Highlands	Southeast	Georgia	Clinch
Southeast	Florida	Hillsborough	Southeast	Georgia	Cobb
Southeast	Florida	Holmes	Southeast	Georgia	Coffee
Southeast	Florida	Indian River	Southeast	Georgia	Colquitt
Southeast	Florida	Jackson	Southeast	Georgia	Columbia
Southeast	Florida	Jefferson	Southeast	Georgia	Cook
Southeast	Florida	Lafayette	Southeast	Georgia	Coweta
Southeast	Florida	Lake	Southeast	Georgia	Crawford
Southeast	Florida	Lee	Southeast	Georgia	Crisp
Southeast	Florida	Leon	Southeast	Georgia	Dade
Southeast	Florida	Levy	Southeast	Georgia	De Kalb
Southeast	Florida	Liberty	Southeast	Georgia	Decatur
Southeast	Florida	Madison	Southeast	Georgia	Dodge
Southeast	Florida	Manatee	Southeast	Georgia	Dooly
Southeast	Florida	Marion	Southeast	Georgia	Dougherty
Southeast	Florida	Martin	Southeast	Georgia	Douglas
Southeast	Florida	Monroe	Southeast	Georgia	Early
Southeast	Florida	Nassau	Southeast	Georgia	Echols
Southeast	Florida	Okaloosa	Southeast	Georgia	Effingham
Southeast	Florida	Okeechobee	Southeast	Georgia	Elbert
Southeast	Florida	Orange	Southeast	Georgia	Emanuel
Southeast	Florida	Osceola	Southeast	Georgia	Evans
Southeast	Florida	Palm Beach	Southeast	Georgia	Fayette
Southeast	Florida	Pasco	Southeast	Georgia	Floyd
Southeast	Florida	Pinellas	Southeast	Georgia	Forsyth
Southeast	Florida	Polk	Southeast	Georgia	Franklin
Southeast	Florida	Putnam	Southeast	Georgia	Fulton
Southeast	Florida	Santa Rosa	Southeast	Georgia	Glascock
Southeast	Florida	Sarasota	Southeast	Georgia	Glynn
Southeast	Florida	Seminole	Southeast	Georgia	Gordon
Southeast	Florida	St. Johns	Southeast	Georgia	Grady
Southeast	Florida	St. Lucie	Southeast	Georgia	Greene
Southeast	Florida	Sumter	Southeast	Georgia	Gwinnett
Southeast	Florida	Suwannee	Southeast	Georgia	Habersham
Southeast	Florida	Taylor	Southeast	Georgia	Hall
Southeast	Florida	Union	Southeast	Georgia	Hancock
Southeast	Florida	Volusia	Southeast	Georgia	Haralson
Southeast	Florida	Wakulla	Southeast	Georgia	Harris
Southeast	Florida	Walton	Southeast	Georgia	Hart
Southeast	Florida	Washington	Southeast	Georgia	Heard
Southeast	Georgia	Appling	Southeast	Georgia	Henry
Southeast	Georgia	Atkinson	Southeast	Georgia	Houston
Southeast	Georgia	Bacon	Southeast	Georgia	Irwin
Southeast	Georgia	Baker	Southeast	Georgia	Jackson
Southeast	Georgia	Baldwin	Southeast	Georgia	Jasper
Southeast	Georgia	Banks	Southeast	Georgia	Jeff Davis
Southeast	Georgia	Barrow	Southeast	Georgia	Jefferson

Southeast	Georgia	Jenkins
Southeast	Georgia	Johnson
Southeast	Georgia	Jones
Southeast	Georgia	Lamar
Southeast	Georgia	Lanier
Southeast	Georgia	Laurens
Southeast	Georgia	Lee
Southeast	Georgia	Liberty
Southeast	Georgia	Lincoln
Southeast	Georgia	Long
Southeast	Georgia	Lowndes
Southeast	Georgia	Macon
Southeast	Georgia	Madison
Southeast	Georgia	Marion
Southeast	Georgia	McDuffie
Southeast	Georgia	McIntosh
Southeast	Georgia	Meriwether
Southeast	Georgia	Miller
Southeast	Georgia	Mitchell
Southeast	Georgia	Monroe
Southeast	Georgia	Montgomery
Southeast	Georgia	Morgan
Southeast	Georgia	Muscogee
Southeast	Georgia	Newton
Southeast	Georgia	Oconee
Southeast	Georgia	Oglethorpe
Southeast	Georgia	Paulding
Southeast	Georgia	Peach
Southeast	Georgia	Pierce
Southeast	Georgia	Pike
Southeast	Georgia	Polk
Southeast	Georgia	Pulaski
Southeast	Georgia	Putnam
Southeast	Georgia	Quitman
Southeast	Georgia	Randolph
Southeast	Georgia	Richmond
Southeast	Georgia	Rockdale
Southeast	Georgia	Schley
Southeast	Georgia	Screven
Southeast	Georgia	Seminole
Southeast	Georgia	Spalding
Southeast	Georgia	Stephens
Southeast	Georgia	Stewart
Southeast	Georgia	Sumter
Southeast	Georgia	Talbot
Southeast	Georgia	Taliaferro
Southeast	Georgia	Tattnall
Southeast	Georgia	Taylor
Southeast	Georgia	Telfair
Southeast	Georgia	Terrell
Southeast	Georgia	Thomas
Southeast	Georgia	Tift
Southeast	Georgia	Toombs
Southeast	Georgia	Treutlen
Southeast	Georgia	Troup
Southeast	Georgia	Turner
Southeast	Georgia	Twiggs
Southeast	Georgia	Upson
Southeast	Georgia	Walker
Southeast	Georgia	Walton
Southeast	Georgia	Ware
Southeast	Georgia	Warren
Southeast	Georgia	Washington
Southeast	Georgia	Wayne
Southeast	Georgia	Webster
Southeast	Georgia	Wheeler
Southeast	Georgia	Whitfield
Southeast	Georgia	Wilcox
Southeast	Georgia	Wilkes
Southeast	Georgia	Wilkinson
Southeast	Georgia	Worth
Southeast	Louisiana	Allen
Southeast	Louisiana	Beauregard
Southeast	Louisiana	Bienville
Southeast	Louisiana	Bossier
Southeast	Louisiana	Caddo
Southeast	Louisiana	Caldwell
Southeast	Louisiana	Claiborne
Southeast	Louisiana	De Soto
Southeast	Louisiana	Evangeline
Southeast	Louisiana	Grant
Southeast	Louisiana	Jackson
Southeast	Louisiana	La Salle
Southeast	Louisiana	Lincoln
Southeast	Louisiana	Natchitoches
Southeast	Louisiana	Ouachita
Southeast	Louisiana	Rapides
Southeast	Louisiana	Red River
Southeast	Louisiana	Sabine
Southeast	Louisiana	Union
Southeast	Louisiana	Vernon
Southeast	Louisiana	Washington
Southeast	Louisiana	Webster
Southeast	Louisiana	Winn
Southeast	Maryland	Anne Arundel
Southeast	Maryland	Baltimore
Southeast	Maryland	Baltimore City
Southeast	Maryland	Calvert
Southeast	Maryland	Caroline
Southeast	Maryland	Carroll
Southeast	Maryland	Cecil
Southeast	Maryland	Charles
Southeast	Maryland	Dorchester
Southeast	Maryland	Frederick
Southeast	Maryland	Harford
Southeast	Maryland	Howard
Southeast	Maryland	Kent
Southeast	Maryland	Montgomery
Southeast	Maryland	Prince Georges
Southeast	Maryland	Queen Annes
Southeast	Maryland	Somerset
Southeast	Maryland	St. Marys
Southeast	Maryland	Talbot
Southeast	Maryland	Wicomico
Southeast	Maryland	Worcester
Southeast	Mississippi	Adams
Southeast	Mississippi	Alcorn
Southeast	Mississippi	Amite
Southeast	Mississippi	Attala
Southeast	Mississippi	Benton
Southeast	Mississippi	Calhoun
Southeast	Mississippi	Carroll
Southeast	Mississippi	Chickasaw
Southeast	Mississippi	Choctaw
Southeast	Mississippi	Claiborne
Southeast	Mississippi	Clarke
Southeast	Mississippi	Clay
Southeast	Mississippi	Copiah
Southeast	Mississippi	Covington
Southeast	Mississippi	Forrest
Southeast	Mississippi	Franklin
Southeast	Mississippi	George
Southeast	Mississippi	Greene
Southeast	Mississippi	Grenada
Southeast	Mississippi	Hancock
Southeast	Mississippi	Harrison
Southeast	Mississippi	Hinds
Southeast	Mississippi	Holmes
Southeast	Mississippi	Itawamba
Southeast	Mississippi	Jackson
Southeast	Mississippi	Jasper
Southeast	Mississippi	Jefferson

Southeast	Mississippi	Jefferson Davis
Southeast	Mississippi	Jones
Southeast	Mississippi	Kemper
Southeast	Mississippi	Lafayette
Southeast	Mississippi	Lamar
Southeast	Mississippi	Lauderdale
Southeast	Mississippi	Lawrence
Southeast	Mississippi	Leake
Southeast	Mississippi	Lee
Southeast	Mississippi	Lincoln
Southeast	Mississippi	Lowndes
Southeast	Mississippi	Madison
Southeast	Mississippi	Marion
Southeast	Mississippi	Monroe
Southeast	Mississippi	Montgomery
Southeast	Mississippi	Neshoba
Southeast	Mississippi	Newton
Southeast	Mississippi	Noxubee
Southeast	Mississippi	Oktibbeha
Southeast	Mississippi	Pearl River
Southeast	Mississippi	Perry
Southeast	Mississippi	Pike
Southeast	Mississippi	Pontotoc
Southeast	Mississippi	Prentiss
Southeast	Mississippi	Rankin
Southeast	Mississippi	Scott
Southeast	Mississippi	Simpson
Southeast	Mississippi	Smith
Southeast	Mississippi	Stone
Southeast	Mississippi	Tippah
Southeast	Mississippi	Tishomingo
Southeast	Mississippi	Union
Southeast	Mississippi	Walthall
Southeast	Mississippi	Wayne
Southeast	Mississippi	Webster
Southeast	Mississippi	Wilkinson
Southeast	Mississippi	Winston
Southeast	Mississippi	Yalobusha
Southeast	Mississippi	Yazoo
Southeast	North Carolina	Alamance
Southeast	North Carolina	Alexander
Southeast	North Carolina	Anson
Southeast	North Carolina	Beaufort
Southeast	North Carolina	Bertie
Southeast	North Carolina	Bladen
Southeast	North Carolina	Brunswick
Southeast	North Carolina	Burke
Southeast	North Carolina	Cabarrus
Southeast	North Carolina	Caldwell
Southeast	North Carolina	Camden
Southeast	North Carolina	Carteret
Southeast	North Carolina	Caswell
Southeast	North Carolina	Catawba
Southeast	North Carolina	Chatham
Southeast	North Carolina	Chowan
Southeast	North Carolina	Cleveland
Southeast	North Carolina	Columbus
Southeast	North Carolina	Craven
Southeast	North Carolina	Cumberland
Southeast	North Carolina	Currituck
Southeast	North Carolina	Dare
Southeast	North Carolina	Davidson
Southeast	North Carolina	Davie
Southeast	North Carolina	Duplin
Southeast	North Carolina	Durham
Southeast	North Carolina	Edgecombe
Southeast	North Carolina	Forsyth
Southeast	North Carolina	Franklin
Southeast	North Carolina	Gaston
Southeast	North Carolina	Gates
Southeast	North Carolina	Granville
Southeast	North Carolina	Greene
Southeast	North Carolina	Guilford
Southeast	North Carolina	Halifax
Southeast	North Carolina	Harnett
Southeast	North Carolina	Hertford
Southeast	North Carolina	Hoke
Southeast	North Carolina	Hyde
Southeast	North Carolina	Iredell
Southeast	North Carolina	Johnston
Southeast	North Carolina	Jones
Southeast	North Carolina	Lee
Southeast	North Carolina	Lenoir
Southeast	North Carolina	Lincoln
Southeast	North Carolina	Martin
Southeast	North Carolina	Mecklenburg
Southeast	North Carolina	Montgomery
Southeast	North Carolina	Moore
Southeast	North Carolina	Nash
Southeast	North Carolina	New Hanover
Southeast	North Carolina	Northampton
Southeast	North Carolina	Onslow
Southeast	North Carolina	Orange
Southeast	North Carolina	Pamlico
Southeast	North Carolina	Pasquotank
Southeast	North Carolina	Pender
Southeast	North Carolina	Perquimans
Southeast	North Carolina	Person
Southeast	North Carolina	Pitt
Southeast	North Carolina	Polk
Southeast	North Carolina	Randolph
Southeast	North Carolina	Richmond
Southeast	North Carolina	Robeson
Southeast	North Carolina	Rockingham
Southeast	North Carolina	Rowan
Southeast	North Carolina	Rutherford
Southeast	North Carolina	Sampson
Southeast	North Carolina	Scotland
Southeast	North Carolina	Stanly
Southeast	North Carolina	Stokes
Southeast	North Carolina	Surry
Southeast	North Carolina	Tyrrell
Southeast	North Carolina	Union
Southeast	North Carolina	Vance
Southeast	North Carolina	Wake
Southeast	North Carolina	Warren
Southeast	North Carolina	Washington
Southeast	North Carolina	Wayne
Southeast	North Carolina	Wilkes
Southeast	North Carolina	Wilson
Southeast	North Carolina	Yadkin
Southeast	South Carolina	Abbeville
Southeast	South Carolina	Aiken
Southeast	South Carolina	Allendale
Southeast	South Carolina	Anderson
Southeast	South Carolina	Bamberg
Southeast	South Carolina	Barnwell
Southeast	South Carolina	Beaufort
Southeast	South Carolina	Berkeley
Southeast	South Carolina	Calhoun
Southeast	South Carolina	Charleston
Southeast	South Carolina	Cherokee
Southeast	South Carolina	Chester
Southeast	South Carolina	Chesterfield
Southeast	South Carolina	Clarendon
Southeast	South Carolina	Colleton
Southeast	South Carolina	Darlington
Southeast	South Carolina	Dillon
Southeast	South Carolina	Dorchester
Southeast	South Carolina	Edgefield
Southeast	South Carolina	Fairfield
Southeast	South Carolina	Florence

Southeast	South Carolina	Georgetown
Southeast	South Carolina	Greenville
Southeast	South Carolina	Greenwood
Southeast	South Carolina	Hampton
Southeast	South Carolina	Horry
Southeast	South Carolina	Jasper
Southeast	South Carolina	Kershaw
Southeast	South Carolina	Lancaster
Southeast	South Carolina	Laurens
Southeast	South Carolina	Lee
Southeast	South Carolina	Lexington
Southeast	South Carolina	Marion
Southeast	South Carolina	Marlboro
Southeast	South Carolina	McCormick
Southeast	South Carolina	Newberry
Southeast	South Carolina	Oconee
Southeast	South Carolina	Orangeburg
Southeast	South Carolina	Pickens
Southeast	South Carolina	Richland
Southeast	South Carolina	Saluda
Southeast	South Carolina	Spartanburg
Southeast	South Carolina	Sumter
Southeast	South Carolina	Union
Southeast	South Carolina	Williamsburg
Southeast	South Carolina	York
Southeast	Texas	Anderson
Southeast	Texas	Angelina
Southeast	Texas	Austin
Southeast	Texas	Bastrop
Southeast	Texas	Bowie
Southeast	Texas	Brazos
Southeast	Texas	Burleson
Southeast	Texas	Caldwell
Southeast	Texas	Camp
Southeast	Texas	Cass
Southeast	Texas	Cherokee
Southeast	Texas	Colorado
Southeast	Texas	De Witt
Southeast	Texas	Franklin
Southeast	Texas	Freestone
Southeast	Texas	Gregg
Southeast	Texas	Grimes
Southeast	Texas	Guadalupe
Southeast	Texas	Hardin
Southeast	Texas	Harris
Southeast	Texas	Harrison
Southeast	Texas	Henderson
Southeast	Texas	Hopkins
Southeast	Texas	Houston
Southeast	Texas	Jasper
Southeast	Texas	Lavaca
Southeast	Texas	Lee
Southeast	Texas	Leon
Southeast	Texas	Liberty
Southeast	Texas	Limestone
Southeast	Texas	Madison
Southeast	Texas	Marion
Southeast	Texas	Milam
Southeast	Texas	Montgomery
Southeast	Texas	Morris
Southeast	Texas	Nacogdoches
Southeast	Texas	Newton
Southeast	Texas	Panola
Southeast	Texas	Polk
Southeast	Texas	Rains
Southeast	Texas	Red River
Southeast	Texas	Robertson
Southeast	Texas	Rusk
Southeast	Texas	Sabine
Southeast	Texas	San Augustine
Southeast	Texas	San Jacinto
Southeast	Texas	Shelby
Southeast	Texas	Smith
Southeast	Texas	Titus
Southeast	Texas	Trinity
Southeast	Texas	Tyler
Southeast	Texas	Upshur
Southeast	Texas	Van Zandt
Southeast	Texas	Walker
Southeast	Texas	Waller
Southeast	Texas	Wood
Southeast	Virginia	Accomack
Southeast	Virginia	Albemarle
Southeast	Virginia	Alexandria
Southeast	Virginia	Amelia
Southeast	Virginia	Amherst
Southeast	Virginia	Appomattox
Southeast	Virginia	Arlington
Southeast	Virginia	Bedford
Southeast	Virginia	Bedford City
Southeast	Virginia	Brunswick
Southeast	Virginia	Buckingham
Southeast	Virginia	Campbell
Southeast	Virginia	Caroline
Southeast	Virginia	Charles City
Southeast	Virginia	Charlotte
Southeast	Virginia	Charlottesville
Southeast	Virginia	Chesapeake
Southeast	Virginia	Chesterfield
Southeast	Virginia	Colonial Heights
Southeast	Virginia	Culpeper
Southeast	Virginia	Cumberland
Southeast	Virginia	Danville
Southeast	Virginia	Dinwiddie
Southeast	Virginia	Emporia
Southeast	Virginia	Essex
Southeast	Virginia	Fairfax
Southeast	Virginia	Fairfax City
Southeast	Virginia	Falls Chruch
Southeast	Virginia	Fauquier
Southeast	Virginia	Fluvanna
Southeast	Virginia	Franklin
Southeast	Virginia	Franklin City
Southeast	Virginia	Fredericksburg
Southeast	Virginia	Gloucester
Southeast	Virginia	Goochland
Southeast	Virginia	Greene
Southeast	Virginia	Greensville
Southeast	Virginia	Halifax


FSC Regions
Appalachia
Lake States
Mississippi Alluvial Vall
Northeast
Ozark-Ouachita
Pacific
Rocky Mountains
Southeast
Southwest
Southeast Region
FSC-US Southeast Region

APPENDIX 5
ACKNOWLEDGEMENTS

Gainesville Regional Utilities wishes to thank the following individuals who volunteered their time and efforts. Their knowledge, insights and local natural resource experience greatly assisted us in the development of this program.

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