Center for Forest and Wood Certification

Forest Management Section Policies & Procedures

Revised 2/10/2025

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Forest Management Certification

Forest management (FM) certification is a voluntary process of forest management review by an independent, third-party to determine compliance with recognized standards of forestry. These standards provide for a forest ownership or enterprise to undergo a formal assessment and verification of its forest management plan and activities. Forest certification promotes the continual improvement in forestry practices consistent with the best standards of practices grounded in the latest scientific understanding of forest management.

Certification is a tool for landowners to assure that their forests are being well-managed and continually improved to meet long term ecological, economic, and social goals. Forest product consumers and the public can have confidence that products from certified forests are produced from forests that are being protected and managed to maintain their health and/or productivity.

1. Overview of Group Certification

Group certification is bringing multiple forest owners under a group certificate that is managed by one entity. Group certification is designed to make certification practical and affordable by centralizing and streamlining many of the administrative processes related to certification. As Group Manager, the Center will act as a source of information for certification and organizes the process to get forest owners certified under the group certificate and provides a source of Cooperating Foresters that are trained and approved to assist forest owners with the certification process. The Center is also responsible for establishing rules for admission into the group certification program, voluntary removal or expulsion from the group, and for monitoring compliance with the certification standards. The Center is directly accountable to those

certification systems approved by the Center for all activities on member properties and for the Center to maintain group certification the Center must ensure that each member meets all certification standards.

2. Internal Operations

The Center can currently (2017) handle up to 75 family forest land holdings and 25 public and large commercial Group Members based upon the present management system and personnel and technical capabilities.

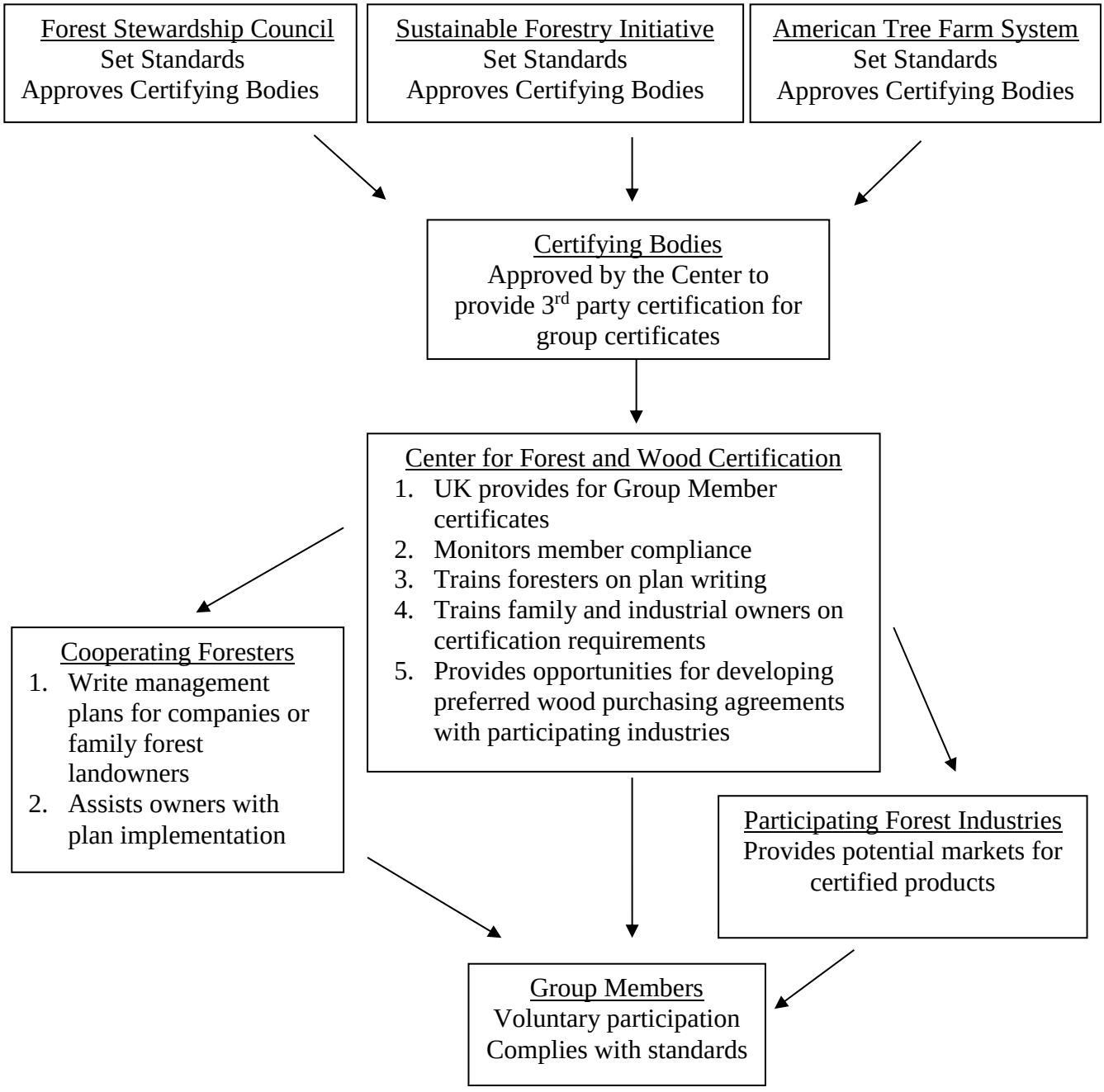
Under the American Tree Farm System's group certification system the Center's group certificate will be a category 3 designation. As a government entity group members may knowingly and affirmatively delegate full or partial authority for management and decision-making to the center or the owner may retain all management authority. The Center will perform some of the functions required for conformance to the ATFS Standards.

Under the Forest Stewardship Council's group certification systems the Center's group certificate is a Type I group with shared responsibilities between the group entity and the group members. These vary from administrative tasks to planning, silviculture, harvesting, and monitoring with shared responsibilities between the group entity and the group members.

The Forest Section Administrator will act as Group Manager and maintain the records of the group, process applications for membership in the group, conduct pre-inspections (scoping) of prospective Group Members, conduct ongoing monitoring of conformance of the Group Members with the Standards, applies for Group Certification, selects an accredited Certification Body to conduct the certification audit, represent the group organization throughout the audit process, maintain the Group Certificate on behalf of the Center, and control the claims that the

group organization can make. The Section Administrator is also responsible for ensuring timely reporting and payment of fees to supported certification systems.

3. Group Forest Management Organizational Chart



4. Certification Systems

The Center's managing partners have approved standards that encompass several certification systems. The Center will seek various group certificates based on market demands. The managing partners will approve the certification systems required. Once approved the Center is committed to the standards and principals of the approved systems and will endeavor to ensure that all group members are abiding by the appropriate standards and principals. A list of the approved forest management group certification certificates Appendix A.

5. Scale and Intensity

The certification systems approved by the CWFC recognize and are sensitive to scale and the variability of the intensity of forest management operations allowing for case by case evaluation and comparison of the forest management activities to the standards. The Center is open to ownerships of all sizes. Consistent with provisions in the standards public and larger ownerships will be required to develop and implement a greater degree of planning and monitoring than most family forest ownerships. As long as the management plan and activities are sufficient to provide evidence of sustainability, certification can generally be achieved. The Center's forest management section and Cooperating Forests can help advise on scale and intensity issues.

6. Group Manager and Certificate Holder

The FM Certificate(s) will be held by the University of Kentucky, Department of Forestry Cooperative Extension Service. Management and coordination of the group(s) will be undertaken by the Center's Forest Management Section Administrator. The Center's managing

partners set all membership criteria and are ultimately responsible for final membership approval. Each Group Member will have their own unique identification number under the group's certificate.

7. Membership Eligibility

Membership into Center is open to all public and private forest owners with a minimum acreage of 10 forested acres, involvement with Cooperating Forester, and a Center approved management plan in Kentucky, Missouri, Tennessee, Virginia, West Virginia, Indiana, Ohio, Illinois, and Mississippi. During the application and scoping period the Center will assist applicants in determining what type of membership category that they must apply for. The Center works to dual certify landowners in both FSC and ATFS. However, members may wish to enroll, or may only be qualified to enroll, in one system FSC and ATFS. The Center will help make determination of eligibility during the scoping process according to the most recent eligibility requirements for FSC and ATFS.

7.1. Family Forests

The Center defines Family Forest owners as those who own private non-industrial private forests and both FSC and ATFS certification is available to all Family Forest owners. For the purposes of FSC group membership family forest owners who own 2,470 acres or less of forestland qualify for the FSC Family Forest standards (not applicable for ATFS group membership). Family Forest owners will generally have lower requirements for management plan detail, monitoring, and inventory requirements because of the relatively low probability of influencing or impacting landscape level forest systems.

7.2. Large Forests

For the purpose of FSC group membership large forest owners are those who own greater than 2,470 acres of forestland for non-industrial purposes. These landowners will generally have higher requirements for inventory and forest management planning than FSC family forests. However, the Center will work to facilitate reducing the complexity and costs associated with many aspects of inventory and monitoring.

7.3. Public Forests

Public forests are defined as forests of any size that are owned by a public entity including cities, counties, municipalities, states, universities, and federal lands. Public forests are generally held to a high standard of management planning compared to family forests and low intensity commercially owned timberland. Public ownerships will be expected to solicit and consider stakeholder input to a greater degree than most family and industrial ownerships.

8. Certification Process

The following outlines the steps associated with application for membership through final approval of forest management candidates (as indicated in chart below).

8.1. Applying for membership

Forest owners or their representatives will submit a Forest Management Application Form (CFWC-FM-01) to the Center's FM Section Administrator. The FM Section Administrator will review eligibility and if eligible to join the applicant will be recognized as a

Candidate. The FM Section Administrator will notify the Candidate and schedule a meeting (face-to-face, phone, or virtual) between the Candidate, the Candidate's Cooperating Forester or representative if appropriate, and the FM Section Administrator or representative will present the Candidate a copy of the FM Agreement Form (CFWC-FM-03) and a copy of the Center's Standards and a list of Cooperating Foresters. The FM Section Administrator or representative and applicant will review the management plan for the perspective property as well. The process will facilitate that the FM Candidate member:

1. Has or will select a Cooperating Forester
2. Has or will have an appropriate FM plan
3. The FM Plan Scoping Checklist (CFWC-FM-02) has or will be completed and indicates general compliance with the Center's Standards (optional)
4. Establish timeframe for formal assessment

8.2. Initial Assessment

Once the application process has been completed with the submission of a signed FM Agreement Form and payment of initial fee to the Center, an assessment will be completed by the FM Section Administrator. This assessment will be completed onsite or electronically based upon the member's Cooperating Forester. The first group member brought in by a Cooperating Forester will be assessed by the FM Section Administrator onsite at the group member's forest. Each successive group member will be audited electronically and will focus on compliance of the management plan. For the first group member from a Cooperating Forester the FM Section Administrator will conduct a field inspection using the appropriate Standards Monitoring Checklist (CFWC-FM-04):

- CFWC-FM-04FF Family Forest Standards Monitoring Checklist – for dual certificate family forests. If FM requests only one certificate use appropriate section of 04FF.
- CFWC-FM-04LP Standards Monitoring Checklist – for dual certificate large private ownerships (NIPF and Industrial) and public forests.

to document compliance with the Center's FM standards and indicate compliance with group certification standards supported by the Center's FM standards. No checklist will be completed for desk assessments. Compliance with the Center's FM plan signifies that the applicant is actively implementing, achieving, and has a long-term commitment to the Center's approved certification standards. The initial assessment will indicate the condition of forest management relative to the CFWC's FM standards as contained on the Standards Monitoring Checklist (CFWC-FM04). Each indicator will be scored as full conformance, partial conformance, no conformance, non-applicable, or deferred conformance.

- Full Conformance – indicator has been fully met
- Partial Conformance – progress towards full conformance is clearly identifiable
- No Conformance – no evidence of indicator conformance
- Non-applicable – forest management plan, its implementation on forest, landscape, or social conditions on scale and intensity of operations do not warrant addressing in the forest management plan
- Deferred Conformance – indicator is addressed through the use of approved certified forest operators

Non-conformance or partial conformance requires the development of an observation. Three levels of observations will be noted during each assessment including:

- General Observations – Provides basic information on assessment conditions, notations of exemplary conformance, information of unique situations found during the assessment, and other relevant comments providing guidance to the forest owner, Cooperating Forester, Participating Logger, and CFWC partners and staff.
- Improvement Observations – Required to document and provide information on issues of partial conformance or issues of non-conformance that do not meet the critieria for a critical observation (see below). Improvement observations are required to be addressed and improvements found during the next scheduled assessment.
- Critical Observations – Indicate an issue if left unattended will result in ecologic, social, or environmental harm. Examples include but are not limited to: violations of law or immediate personal or worker safety issues; threatening the health and welfare on the public, or forest welfare; activities or conditions (under control of the forest owner) that will lead to unrecoverable or long-term damage to critical habitats or species of concern; unrecoverable or long-term degradation of water or other forest resources. Critical observations are also generated from the lack of conformance to previous improvement observations unless sufficient evidence exists to warrant continued improvement observations.

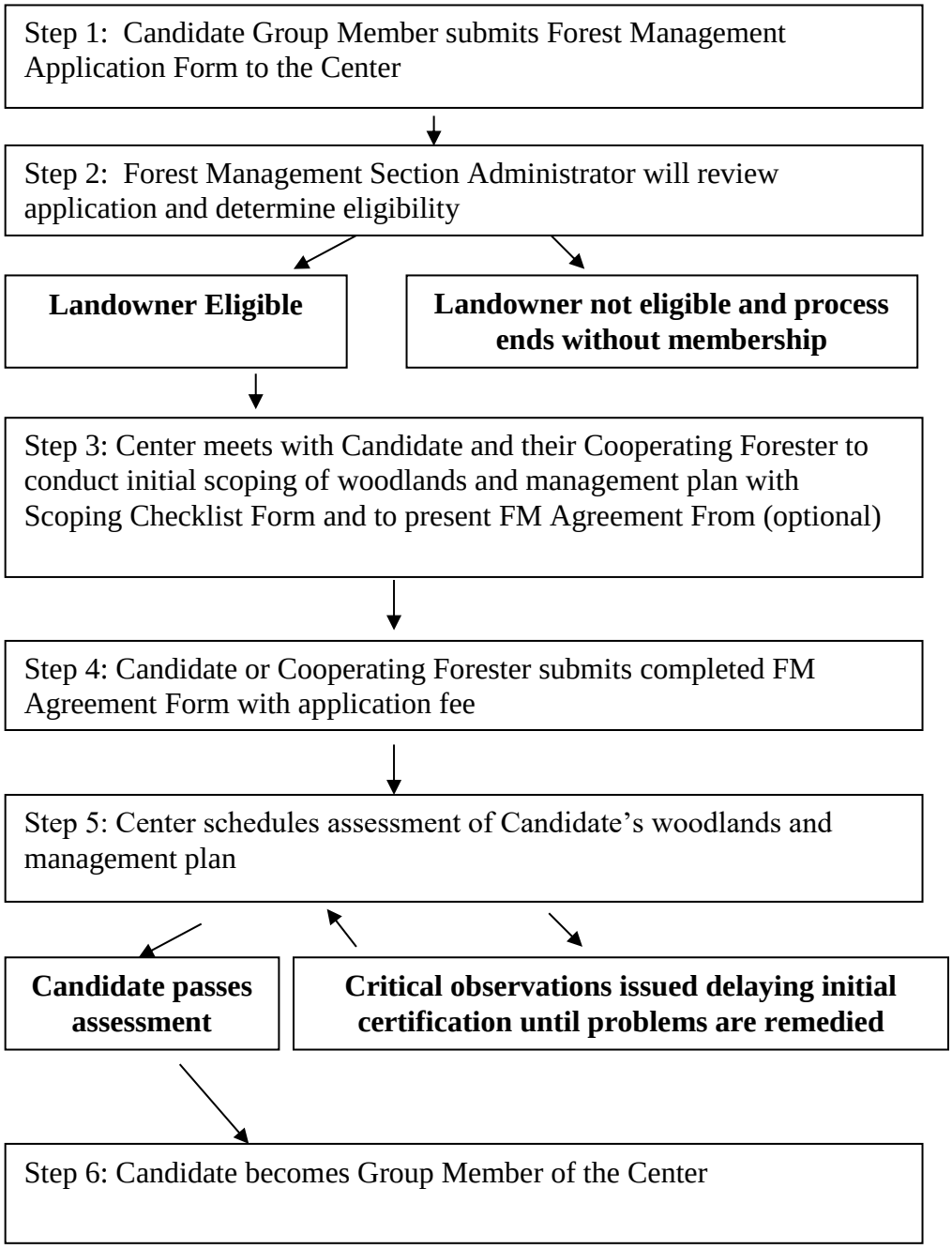
Observations are documented on the FM Observations Form (CFWC-FM-05). Candidates should be instructed to address each of the improvement observations and complete the section of the Observation Form that addresses the improvement observation and provides information on how they will be addressed. The Observation Form will be reviewed, approved, and signed by the FM Section Administrator or representative and the Candidate. Critical observations must be corrected before the Candidate is approved as a forest management member. The FM Section

Administrator will schedule a critical observation verification assessment to determine if the corrective action has been implemented.

8.3. Acceptance as Group Member

Upon completion of the initial verification or assessment the completed Standards Monitoring Checklist, Observation Form, approved management plan, and any other relevant will be reviewed by the FM Section Administrator. The FM Section Administrator will formally accept the applicant as a CFWC FM Group Member, assign the appropriate certificate number(s), add their name or organization to the CFWC FM Group Member Roster, notify the applicant of their acceptance as a CFWC FM Group Member, and update the internal database as well as the appropriate certification system's database to the new Group Member obtaining certification.

8.4. Certification Process Chart



8.5. Stakeholder review

Stakeholder review is dependent on the scale and intensity of the forest management activities. Family forest landowners will not be required to consult with stakeholders in the development of management planning. Public forest landholdings such as land held by government, non-profit organizations, or universities and large landowners must set up a method to solicit stakeholder consultation during their short-term and long-term management planning as well as when seeking certification. At minimum public ownerships should make their management plans available for public comment for at least 30 days. All ownership groups must apprise likely affected neighbors and other stakeholders of significant management operations; the landowner or manager may post signs or other measures that are readily noticeable by likely affected stakeholders but direct communications are not required. The Center will facilitate stakeholder input by hosting a section of the website dedicated to stakeholder input including copies of publicly available management plan, current harvesting activities, and mechanisms for stakeholders to solicit their input at any time regarding any Group Member or the Center itself.

8.6. Access to property

All landowners must make their property and forest management records available for inspection by the Center and the Center's Certifying Body with reasonable notification. Onsite visits occur when a landowner applies to become a group member and on a periodic basis to ensure compliance with certification standards. Center personnel must be able to access the property for these visits and is part of the agreement to become and maintain status as a Group Member. Continued non-conformance or significant delays in allowing access that impedes

conformance assessments or annual assessments will be reviewed by the FM section administrator and could lead to immediate expulsion from the Center.

8.7. Group Member Information Availability

Because of the requirements of certification systems, certifying bodies, and overall goals of the Center for Forest and Wood Certification certain information regarding Group Member's woodlands or forest is made available to the public or other Center members as follows:

- Name
- Acreage
- County(ies) of forestland
- Summary of management plan
- General types of forest products generated from lands (ex. hardwood sawtimber, pulpwood)
- Contact Information (only for public and large Group Members)
- Management plan (only for public Group Members)

Center Group Members will not have access to other Group Member's specific property information. The Center will pool all Group Member timber resources listed by county for these available product lists. The main purpose of these lists is to inform possible Chain-of-Custody candidates of the current availability of certified timber in their procurement areas.

All contact information for small family forest Group Members, including specific address and telephone numbers, are kept confidential. Public and large Group Members must make their contact information publicly available for potential stakeholder consultations.

9. Management Planning

Each property enrolled as a Group Member in the Center's group certification certificate must have its own management plan that meets the standards, written by a trained Cooperating Forester, and approved by the Center. A thorough management plan helps landowners, foresters, loggers or other contractors, and anyone else concerned about the property better understand management policies, and insure consistency in these policies even when the personnel involved change. In addition, a comprehensive plan written in cooperation with the landowner increases the value of the property to the landowner and to the greater community.

Management plans are tools that teach landowners about their property and about sustainable forest management, and empower them to effectively manage their lands in ways that both meet their long-term goals and preserve the forest health for future generations. The plans must not only be clearly written, but also structured in a way that makes them useful and usable for everyone involved from landowner to logger.

Management plans are collaborative documents that represent a joint effort between the forester and the landowner. The Center encourages landowners to participate actively in the planning process as much as possible based on their desires and interests, including not only developing objectives, but also gathering information about the history of their property, recording observations about resources, damages, management activities, and related information necessary to ongoing sustainable management.

Management plans are living documents that can change over time as new information emerges, new environmental demands arise, and Group Member's needs change. Group Members and foresters are engaged in constant process of observing and recording information, and that information continually shapes planned management activities. In addition, every

management plan should be reviewed annually and updated every 5-10 years to respond to new information and developments.

The two most important steps in the management planning process are completing a forestland assessment and developing management goals. A forestland assessment should provide Group Members with information about their forestland. The detail that is required is based on the scale and intensity of the operations or proposed operations. The assessment should include an inventory of species or species group of plants and animals, an inventory of timber and non-timber (where applicable) forest products, identification of ecologically significant areas, and as assessment of forest health and restoration needs. An assessment can also describe your forest's relationship to the larger landscape (especially important for large public or private forests), and identify important connections between the management of your forest and the overall health of your community's forest and watersheds.

Group Members should consider their management objectives and work with their forester to develop management goals. Well-informed, specific, and practical management goals create a framework for management that will ensure that Group Members maximize desired benefits from the forest, are prepared to respond quickly to changing conditions, and improve forest health and productivity over time.

The level of detail of Group Member's management plans will depend on the condition and size of the forest activities and operations. For instance, Group Members who occasionally harvest timber or carry out restoration activities to improve forest health are able to operate under a simpler plan than industry operations who harvest larger volumes of timber on a more frequent basis. The Center will advise Group Members and Cooperating Foresters on the level of management planning required for their forest.

Below is a summary list of items that must be included in the management plan:

1. Description of the property in terms of location, acreage, proof of legal ownership status, deed location, history of past management, and key topographic features
2. Description of the forest resource including information for silvicultural operations and fragile or protected areas that require significant controls on silvicultural treatments
3. A forest inventory to provide sufficient information to define stands describing stand structure, species composition, basal area, volumes of various grades or products, soil and site conditions, forest health conditions (insect, fire, and disease), wildlife habitat conditions, presence of invasive species, and other parameters that are needed to describe the stand
4. Management goals for the property
5. A plan for regular monitoring to update the forest inventory and management plan
6. Silvicultural recommendations that reflect the landowner's goals, improve stands, and protect the growing site and unique attributes such as amounts of coarse woody debris, niche habitats, and buffer zones
7. A rational for control of harvesting levels (Sustained Yield/Annual Allowable Cut)
8. A schedule of work for 10-15 years to covers specific management activities such as harvesting, site preparation, road construction, mechanical operations, maintenance of high conservation value forests, restoration activities, management of protected areas, prescribed burning, fire management plan, monitoring procedures, and integrated pest management activities
9. Presence of rare, threatened, or endangered species and outlines of activities to conserve and/or protect them

10. Presence of historical, archaeological, architectural, cultural, and other special sites and outlines to conserve and/or protect them
11. Presence of high conservation value forests and outlines to conserve or/protect them
12. Chemical usage including what is being used, application method, and justification for usage
13. Non-timber forest products management (where non-timber forest products are being managed for)
14. Maps describing the forest resource base including:
    a. Protected areas such as wetlands, rare and endangered species and plant communities, streamside management zones, archaeological sites, cultural sites, and special areas
    b. Relevant landscape-level factors such as mountains, rivers, lakes, property boundaries, areas of ownership, area being certified, important adjacent ownerships, roads, trails, and structures
    c. Stands with forest type and area
    d. Soils and site conditions
    e. High Conservation Value Forests and special sites, if present
    f. Scale, north arrow, legend, date of preparation and name of the forester preparing the plan
15. For large and public Group Members only:
    a. Description of purpose, condition, and maintenance need of transportation network
    b. Description of stakeholder consultation process

9.1. Inventory Requirements

The Center has no specific inventory requirements but inventories must have enough detail to provide information needed to build prescriptions. Sampling intensity and inventory intensity and scope is based upon the size and scale of the operations and the needs associated with prescription development. The Center will rely on the judgment of the Cooperating Forester. At a minimum a descriptor of the species composition or forest cover type, size class, and soil or productivity assessment, forest health conditions (insect, fire, disease, age) and any special habitat conditions must be provided for each stand, management unit, or tract. Regeneration prescriptions require an inventory and/or assessment of the regeneration potential. Intermediate prescriptions require inventory and/or assessment of stocking. Inventories where harvesting will occur requires volumes of various grades or products and inventory information required to develop the prescription resulting in a harvest prescription. Management plans must detail the parameters gathered during the inventory and Justification of the sampling and inventory intensity and scope must be in the management plan.

9.2. Sustained Yield/Annual Allowable Cut

The Center will accept calculation of the annual allowable cut for lands under its management using a range of factors:

- Only the number of managed acres that are productive
- Volume growth or productivity of the forest
- Standing volume on the productive acres
- Changes to the number of acres, volume, and growth

Acceptable methods for calculating sustained yield depend the Group Member type and on the size and scope of the forest operations. The Center will assist Group Members and participants in the calculation of their annual allowable cuts. Large commercial, large family forests, and public forest owners are encouraged to use a repeated measure inventory (Continuous Forest Inventory) but an initial inventory combined with using a generally accepted growth model, such as the U. S. Forest Service Forest Vegetation Simulator, is acceptable to determine annual allowable cut.

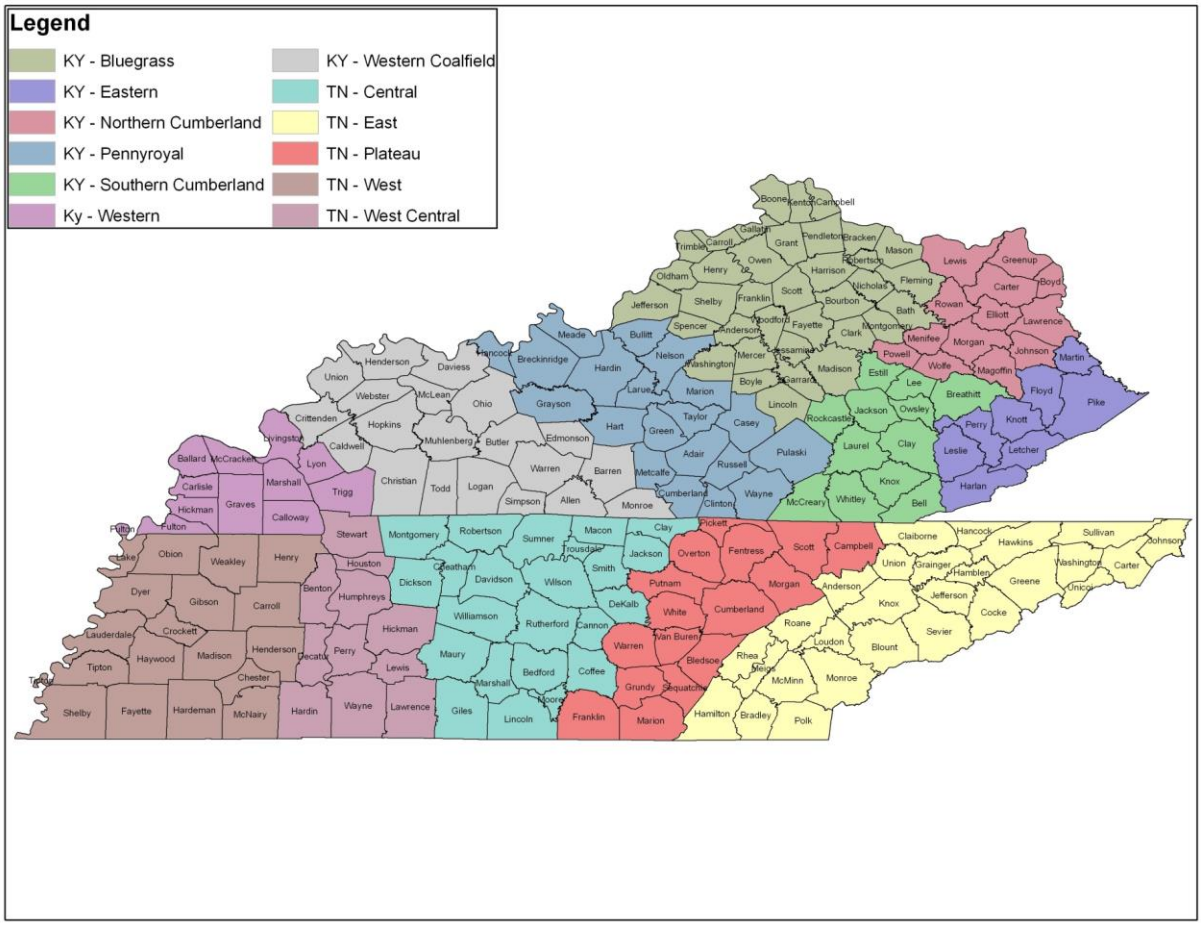
For large landholdings average annual harvest levels, over rolling periods of no more than 10 years, cannot exceed the calculated sustained yield harvest level. The method used to establish the volume growth and maintain the balance of standing volume depends on the current condition of the property's timber resources. Each management plan includes not only the sustained yield itself, but also a detailed explanation of how it is calculated.

For family forest owners, harvest levels and rates do not exceed growth rates over successive harvests, contribute directly to achieving desired future conditions as defined in the forest management plans, and do not diminish the long term ecological integrity and productivity of the site. Family Forests will primarily be managed for forest and ecosystem health using accepted silvicultural control systems. For family forests using a soil survey, local site index information, or regional growth data is acceptable. If requested the Center will provide annual allowable cut information to family forest owners for their region based upon the Forest Service's Forest Inventory and Analysis growth data (Table 1). If a landowner's property spans two regions the annual allowable cut regional growth shall be calculated by weighing the values based upon the acreage in each region.

Table 1. Regional Annual Allowable Cut within the CFWC's Focus Area

State	Region	International-¼ BF/Acre/Year
Kentucky	Bluegrass	189.61
	Eastern	221.87
	North Cumberland	236.73
	Pennyroyal	239.61
	South Cumberland	224.70
	Western	380.26
	Western Coalfield	345.38
Illinois	Claypan	201.16
	Prairie	180.97
	Southern	196.54
Indiana	Knobs	296.98
	Lower Wabash	384.15
	Northern	247.95
	Upland Flats	238.98
Mississippi	North	116.3 (ft^3)
Missouri	Eastern Ozarks	345.38
	Northwestern Ozarks	131.86
	Prairie	106.78
	Riverborder	151.22
	Southwestern Ozarks	172.80
North Carolina	Mountains	370.04
	Piedmont	378.85
Ohio	East-central	239.43
	Northeastern	264.45
	Northwestern	301.32
	South-central	191.20
	Southeastern	233.93
	Southwestern	297.92
Tennessee	Central	229.22
	East	209.02
	Plateau	203.07
	West	277.07
	West Central	248.83
Virginia	Coastal Plains	304.81
	Northern Mountains	187.87
	Northern Piedmont	276.42
	Southern Mountains	248.22
	Southern Piedmont	272.41
West Virginia	Northeastern	245.26
	Northwestern	200.39
	Southern	269.84

Figure 1. Sustainable Yield Regions in Kentucky and Tennessee



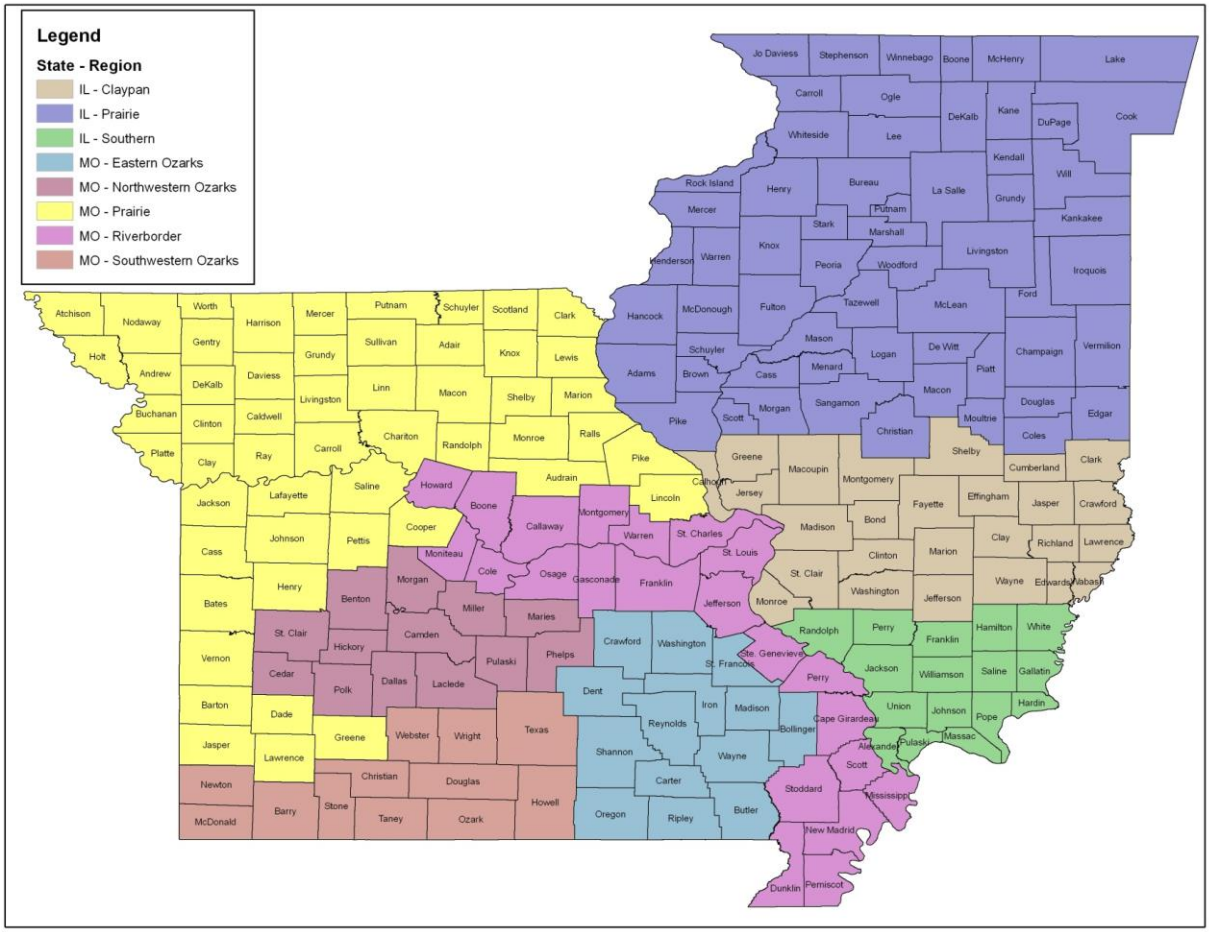


Figure 2. Sustainable Yield Regions in Missouri and Illinois

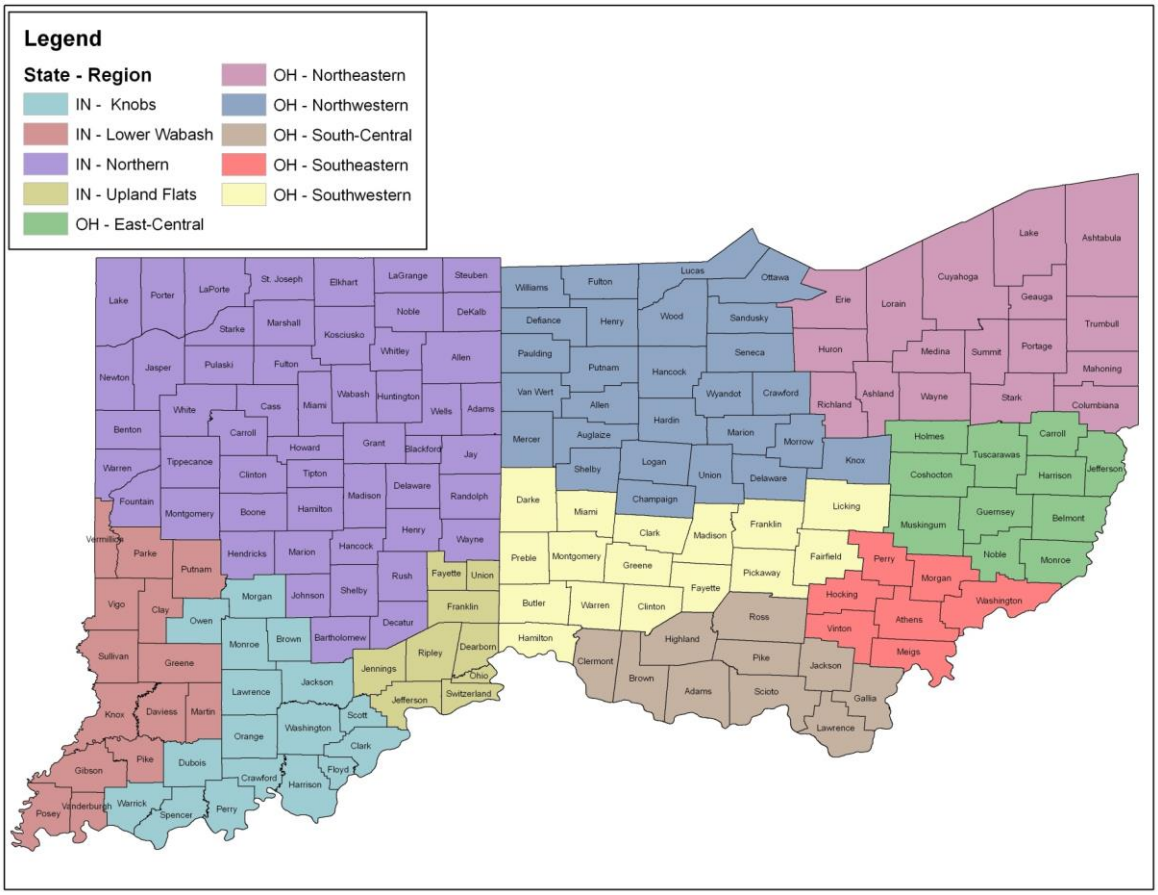


Figure 3. Sustainable Yield Regions in Indiana and Ohio

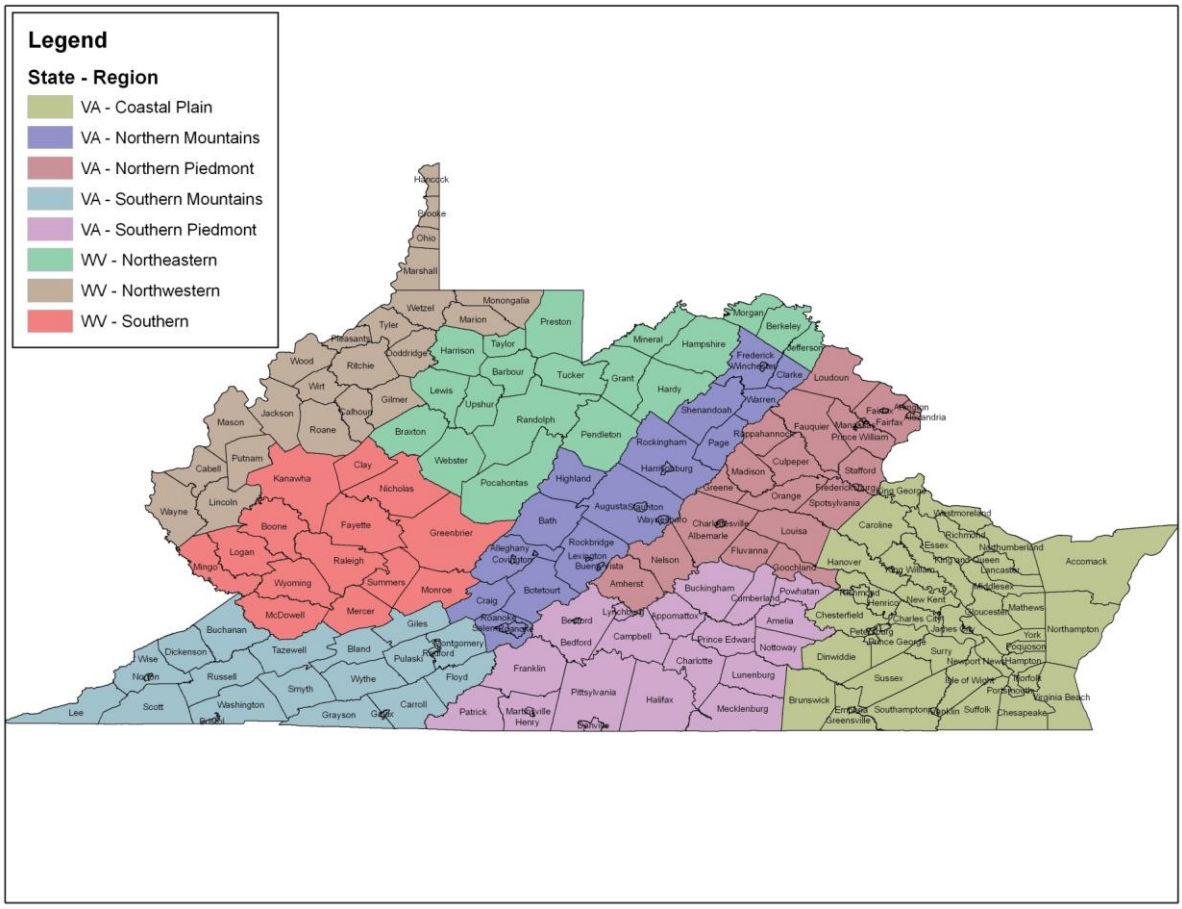


Figure 4. Sustainable Yield Regions in West Virginia and Virginia

9.3. Rights to the land

Group Members are required to have evidence of long-term use of their land and submit copies of this evidence to the Center as a condition of certification. This evidence may include but is not limited to deeds, long-term lease agreements, evidence of fee ownership, or a contractual agreement to manage the forest. Group Members must also identify and document use and access rights held by other parties such as deed restrictions, long-term leases, timber rights, mineral rights, rights to harvest, conservation easements, rights-of-way, hunting and fishing rights, and recreational uses. The Center will assist any Group Member in dealing with possible disputes over land and tenure claims by providing basic information and direction to those parties who can directly assist them. The Center cannot be directly involved with disputes but must ensure that disputes are settled or in the process of being completed. Multiple disputes or disputes significant magnitude could disqualify a Group Member from being accepted or maintaining certification.

The Center will contact the Bureau of Indian Affairs as required for any tribal lands or claims within the Center's focus area and alert affected Group Members. If any tribal resources are found, they must be mapped and forest management activities cannot threaten or diminish the resources or tenure rights.

The Center will contact Native American tribes that have interest in counties in the Center's focus area based upon searching the Native American Consultation Database. The Native American tribes that have indicated to the Center that they wish to be informed of activities in their areas are listed in Appendix C. Those that do not respond or indicated they do not want updates on the Center's activities in their areas will be contacted every five years.

9.4. Rare, Threatened, and Endangered Species

The Center will provide lists and maps of state, federal, and global rare, threatened, and endangered (RTE) species for the areas of Group Members' landholdings to Cooperating Foresters from agency websites including, but not limited to, U. S. Fish and Wildlife Services and state agencies within the Center's focus area. If an RTE species is specifically identified, it must be documented in the forest management plan. The management guidelines must be species and site specific and comply with the most current available knowledge about the habitat or management requirements of the identified resources and any applicable regulation. The Center will assist Cooperating Foresters and Group Members in the management requirements for any specific RTE species. The management plan, recommendations, and eventual treatment designs must include guidance for species-specific protection, conservation, or restoration of critical habitat elements where RTE species exist. The appropriate state or federal agencies will be notified as required by law and the certification standards when RTE species are identified. The Center works with the NatureServe database for general queries on locations of RTE species and the state agency contacts in determining specific sites of RTE species as well as rare communities on Family Forest Group Member's properties. Specific database searches listed in Appendix D.

9.5. Historical, Archaeological, Architectural, Cultural, and other Special Sites

The Center recognizes that historical, archaeological, and other special sites are important and must be protected on Group Member properties. These sites include but are not limited to caves, wetlands, historical sites, archaeological sites, rockshelters, cultural finds, and cliff lines. The Center will train Cooperating Foresters to learn to recognize specific geographical features

and on-the-ground clues that mark potential special sites. The Center will contact appropriate state agencies to confirm new finds in the Center's focus area and Group Member landholdings. If sites are identified on the property or in a nearby location that may be affected by management on the property, the location of the resource must be recorded in the plan, and the resource described. Management or protection of the resource must be detailed in the management plan and in subsequent site disturbing activities. All protection measures must comply with Best Management Practices or site level guidelines (both mandatory and voluntary). All applicable laws must also be followed and the state archaeologist must be notified in the event that a burial site or human remains are found or suspected to be present. The Center works with the following state agency contacts in determining historical, archaeological, cultural, and other special sites listed in Appendix E.

9.6. High Conservation Values and Forests of Recognized Importance

High Conservation Value (HCVs) and Forests of Recognized Importance (FORIs) are those that possess one of more of the following attributes:

- Contains globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia), including RTE species and their habitats;
- Contains globally, regionally or nationally significant 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
- Contain rare, threatened or endangered ecosystems;

- Provide basic services of nature in critical situations (e.g., watershed protection, erosion control, drinking water – (ATFS – large metropolitan areas only);
- FSC only - Fundamental to meeting basic needs of local communities (e.g., subsistence, health); or,
- FSC only - Critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

The designation of HCV and/or FORI on family forests are rare. Landowners and foresters of small forests that practice low-intensity forestry may meet this requirement with brief, informal assessments. More extensive and detailed assessments are expected by owners and managers of large forests and/or those who practice more intensive management. Examples of ecologically important HCV and FORI types in the Center's focus area regions are as follows:

- Appalachia
    - Mixed mesophytic cove sites on the Cumberland Plateau
    - Limestone glades in Tennessee and Kentucky
    - Pocosins (evergreen shrub bogs) and other mountain bogs in Virginia Tennessee, and North Carolina
    - Unique and sensitive geophysical features, such as caves and rock outcrops; and forested wetlands or glades, such as springs, fens, and seeps
    - Spruce-fir (Picea rubens-Abies fraseri) forests in southern Appalachia
    - Atlantic white-cedar (Chamaecyparis thyoides) stands Red spruce (Picea rubens) forests in central Appalachia
- Ozark Ouachita

    - Unique and sensitive geomorphic features, such as caves and rock outcrops and buffers designed to protect their integrity
    - Forest wetlands or glades, including springs, fens, and seeps
- Lake States
    - Central Hardwoods
        - Old forests/mixed aged stands that include trees > 160 years old
        - Intact forest blocks in a agriculturally dominated landscape (refugia)
        - Intact forests >1000 ac (valuable to interior forest species)
        - Protected caves
        - Savannas
        - Glades
        - Barrens
        - Prairie remnants
    - North Woods/Lake States
        - Old forests/mixed age stands that include trees >120 years old
        - Block of contiguous forest, >500 ac, which host RTEs
        - Oak savannas
        - Hemlock-dominated forests
        - Pine stands of natural origin
        - Contiguous blocks, >500 ac, of late successional species, that are managed to create old growth
        - Fens, particularly calcareous fens

- Other non-forest communities, e.g., barrens, prairies, distinctive geological land forms, vernal pools
- Other sites defined by GAP anakysis, Natural Heritage Inventory, and/or the World Wildlife Fund's Forest Communities of Highest Conservation Concern

The Center will use FSC-US HCV Assessment Framework document and AFF Forests of Recognized Importance Guidance for help in determining HCVs and FORIs in the Center's Group Member landholdings. Lists of HCV and FORI types in a perspective Group Member's area will be provided by the Center. To assess regional resource conservation priorities and define potential HCV or FORI attributes in areas of the Center's focus, we review and consult websites, publications, and personnel from the appropriate public and private agencies, organizations and programs, representing numerous stakeholders, including:

- Local land trusts and conservation organizations
- The Nature Conservancy
- Natural heritage programs
- State departments of natural resources
- State biological surveys
- State fish and game departments
- State environmental protection agencies
- University of Kentucky Personnel

Management activities in HCV and/or FORI must maintain or enhance the attributes which define such forests. The Center requires that forest management plans identify HCV and FORI and provide information about the location, size, and composition. The management plan must

also provide guidance for appropriate management that is in compliance with the standards and the most current and reliable knowledge about effect protection, restoration, or maintenance of the identified habitat. The Center will assist Group Members and Cooperating Foresters with information regarding the maintenance and protection of specific HCV and FORI types when they are located.

9.7. Representative Sample Areas

Representative sample areas are ecological viable representative samples designated to serve one of more of three purposes:

1. To establish and/or maintain reference condition; or
2. To create or maintain an under-represented ecological condition; or
3. To serve as a set of protected areas or refugia for species and communities

These areas must be identified on maps and objectives and specifics for their management included in the written management plan. Harvesting in these areas is only permitted to restore or create conditions to meet the objectives of the representative sample area. Road building must also only take place where it is documented that it will contribute to minimizing the overall environmental impacts within the representative sample areas.

Family forest owners will generally not have designated representative sample areas. Other areas of the standard including rare, threatened, and endangered species and plant community and High Conservation Value Forest identification will generally cover any potential representative sample areas. Industrial, medium, large, and public forests will also have low probably of identified representative sample areas. Using specific state and national agency databases to identify rare, threatened, and endangered species and requirements to maintain these

areas will remove most areas from consideration from representative sample area status. Using detailed inventory requirements will help these larger Group Members identify forest types that match the unique forest type identified in the regional High Conservation Value Forests standards. Other High Conservation Value Forest types will also preclude many areas from being designated as representative sample areas.

9.8. Invasive Species

The Center recognizes the potential devastating impact that invasive species can have on forest health and productivity and high economic cost of removing every single invasive plant on Group Member properties. Management plans are expected to note the presence of any invasive species on a Group Member's properties and plans on how to manage them. These plans may include no action because of the low risk to forest health and productivity and high economic cost of treatment. No exotic invasive species may be established on Group Member certified forests for any reason, including restoration projects, erosion control, or on degraded properties. Lists of exotic invasive species will be provided to Cooperating Forests and Group Member for their areas from natural resource websites and professionals.

9.9. Chemical Usage

The aim of managers of certified forests, whether in plantations or natural forests, should be to ensure appropriate control of disease, pest insects and animals, or unwanted competitive or invasive plants when necessary. The Center recognizes the need for chemical pesticide use including fungicides, insecticides, or herbicides especially for controlling exotic invasive

species. A program of reduction of chemical use should be used when cost effective Integrated Pest Management and other non-chemical alternatives exist.

If a Group Member uses chemicals for control of pests or weeds, the following are required:

- Completion of Chemical Usage Form (CFWC-FM-09) that details all chemicals used and how, and where, they are applied to ensure that they are used correctly according to the label, the use is appropriate, and that proper protection is provided for the environment
- Records of application maintained by Group Member as well as copies provided to the Center
- Adherence to all labeled restrictions and legal requirements, including administration by a licensed applicator for all chemicals
- Secure storage of chemicals and equipment to protect workers and the environment
- Post-application monitoring to ensure the prescription was completed and met the goals of the silvicultural prescription

A list of prohibited pesticides is provided in Appendix B.

9.10. Genetically Modified Organisms

Group Members are not allowed to plant any type of genetically modified organism for any reason on certified forest ground. The Center recognizes the difference between plants that have been altered at the genome level versus plants selected for their expressed traits during traditional breeding practices. Examples of techniques that are not approved include recombinant DNA techniques using viral or bacterial vectors, direct infusion of DNA into an

organism by microinjection, or cell fusion. An example of an approved plant produced during traditional breeding practices is the available 15/16 or 31/32 cross of the American and Asian chestnut.

9.11. Biological Control Agents

Biological control agents are only used as a part of an Integrated Pest Management strategy for the control of invasive plants, pathogens, insects, or other animals when other pest control methods are ineffective, or are expected to be ineffective. Such use is contingent upon peer-reviewed scientific evidence that the agents in question are non-invasive and are safe for native species. The use of biological control agents must be approved by the Center and all evidence to support their use must also be provided.

If biological control agents are approved they must be applied by trained workers using proper equipment. Their use must be documented, monitored, and strictly controlled in accordance with state and national laws and internationally accepted scientific protocols. A written plan must be developed and implemented justifying such use, describing the risks, specifying the precautions workers will employ to avoid or minimize such risks, and describe how potential impacts will be monitored. These plans must also be presented to the Center before biological control agents are used.

9.12. Non-Timber Forest Products

Non-timber forest products can be listed and labeled as coming from certified forests but must be documented in the Group Member's management plan. At a minimum, management plans must list the expected non-timber forest products to come from the certified land base and how the Group Member plans on managing the supply sustainably without damaging forest

health and productivity. Examples of possible non-timber forest products from certified forests include but are not limited to ginseng, goldenseal, mushrooms, maple syrup, carbon credits, recreation opportunities, hunt leases, and pine straw.

9.13. Soils

Because soil quality is vital to forest health and productivity, the Center will help foresters to actively protect and develop this valuable resource as they manage Group Member's forestland. We recognize that protecting soil not only enhances timber quality and production, but also protects and maintains water resources by guarding against soil erosion and sedimentation.

To protect and improve soil health, Cooperating Foresters will take the following steps when developing and implementing management plans and activities:

- When states release soils data in a new electronic format, incorporate that into management plans and databases to simplify mapping of and access to significant information
- Evaluate soil conditions on the ground and/or using soil surveys to identify areas with high erosion potential, poor drainage, extreme rockiness, high potential windthrow, equipment limitations and other characteristics that require special management considerations.
- Include soils map and descriptions with every management plan to make sure all management activities appropriately address and protect soil resources
- To protect stream banks and minimize runoff, define and protect Streamside Management Zones (SMZs)

- Develop appropriate strategies to protect special soil areas when developing stand prescriptions and harvest plans
- When planning and conducting timber harvests, minimize impacts to the soil and safeguard soil health as follows:
    - Fully implement Best Management Practices when planning harvest areas, SMZs, locating and building forest roads, and closing harvest jobs
    - Design and build roads, skid trails, and landing properly
    - Evaluate soil conditions before bringing in or operating heavy equipment
    - Stop road building, skidding, and logging if conditions are too wet
    - Leave crowns, coarse woody debris, and other unmerchantable material distributed in the forest to help restore the forest floor
    - Close out roads and landings properly
    - Monitor roads and trails during operations
    - Correct operations that are causing excessive disturbance

9.14. Fire!

The Center recognizes that fire can play an important and necessary role in the management of forests but can also be an extremely destructive force. Group Members are not required to suppress wild or arson fires that take place on their lands. Instances of destructive fire must be mentioned in stand history section of management plans. Group Members that want to use fire as a silvicultural tool are required to consult professional assistance during management planning and implementation. All local laws and regulations (burning bans,

notification of local fire departments, etc) are required and stressed when the use of prescribed fire is used.

9.15. Aesthetics (Visual Quality Management)

The Group Member should be aware of visual quality and implement practices to lessen the visual impact of forestry operations where appropriate.

9.16. Plantations

Existing plantations can continue to be managed in accordance with the FSC Standards. Plantation occurrence should be reduced where feasible and consistent with forest management goals and objectives. Plantations can be established on the following sites: former plantations, agricultural lands, surface mines, and non-forested lands that were historically naturally forested but have been used for non-forested purposes before 1994. New plantations cannot be established on rare or threatened non-forest habitats or ecosystems. The Center will use the guidelines of the Forest Stewardship Council for certification of plantations. See appendix F for specific plantation requirements and guidance if plantations are present on group member's forestlands.

9.17. Applicable National and State Laws

The Center requires all Group Members to adhere to all applicable federal, state, and local laws regarding forest management activities. The following is a list of the most commonly applied laws that affect forest management in the Center's focus area and noncompliance to these laws could jeopardize a Group Member's certification. It is not meant as the definitive

source of local laws and regulations. Please contact your Cooperating Forester and Group Member's legal representatives for specific questions.

9.17.1. National Forest Management Laws and Regulations

Federal Water Pollution Control Act Amendments of 1972, Section 404 (U. S. Clean Water Act)

The U. S. Army Corps of Engineers regulates all filling or draining of wetlands, streams, lakes, or other bodies of water. Normal ongoing silvicultural activities, including building and maintaining forest roads, do not require individual permits, providing certain conditions are met, including adherence to the federal baseline BMPs for forest roads. This legislation also regulates the discharge of dredged or fill material into the waters of the United States. Discharge of fill material includes road fills at stream crossings. Most logging road stream crossings are exempt from permitting under Section 404 because they are classified as "minor road crossing fills."

Endangered Species Act

The United States Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The law requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited. The U. S. Fish

and Wildlife Service administer the federal Endangered Species Act of 1973, as amended in 1990, and the 1991 Candidate Review.

9.17.2. State Forest Management Laws and Regulations

State forest laws will be detailed as property's in new states apply for certification.

Current states are as follows:

Kentucky

Right to Practice Forestry

KRS 413.072 establishes the circumstances under which agricultural and silvicultural operations may be deemed to be a nuisance or interfered with by local ordinances or legal actions. It is the declared policy of the Commonwealth to conserve, protect, and encourage the development and improvement of its agricultural land and silvicultural land for the production of food, timber, and other agricultural and silvicultural products. Silvicultural operations often become the subject of nuisance suits or legal actions restricting operations. As a result, agricultural and silvicultural operations are sometimes either curtailed or forced to cease operations. Investments in farm and timber improvements may be discouraged. This law is essentially a right to practice forestry throughout Kentucky.

Forest Conservation Act

The Forest Conservation Act requires loggers to follow legislatively mandated and defined BMPs. The Act establishes the Master Logger program, a logger education program, and requires at least one individual on every harvesting operations site to complete the program.

The Act establishes provides for bad actor provision for repeat offenders and defines civil penalties if loggers or operators fail to comply with the Act's provision.

Activities Near High-quality Waters and Outstanding National Resources Waters

Kentucky water quality standards require the use of BMPs to protect high-quality waters and outstanding national resources waters listing in 401 KAR 5:030. In addition, outstanding resource waters that support federally listed threatened and endangered species require protection.

Kentucky Wild Rivers Act

The Act and associated regulations give special protection to streams designated as "wild rivers," including regulation of silvicultural activity. Before undertaking any silvicultural activity in a corridor of a designated wild river, the landowner or logger should contact the Wild Rivers Program of the Kentucky Division of Water for applicable regulations and instructions.

Floodplains

The Kentucky Division of Water has authority over the placement of debris, including logging slash, in floodplains of perennial streams that have a drainage area larger than one square mile. The Division of Water advises that as long as BMPs for Streamside Management Zones and logging debris are followed, loggers and Group Members will be considered in compliance with floodplain regulations that address debris. All structures (bridges, berms, or other constructions that could obstruct flows) that are to be constructed in the floodplain of a perennial stream that drains more than one square mile require a floodplain permit from the Kentucky

Division of Water. If these BMPs are not followed, the Kentucky Division of Water can institute enforcement proceedings.

Kentucky Cave Protection Act

The Kentucky Cave Protection Act offers protection to any sinkhole, pit, karst window, and/or sinking stream that has an opening large enough for a person to enter a black zone. The Federal Cave Protection Act is used to manage nonrenewable cave resources on federal lands. Management techniques include buffer zones around sinkhole and cave entrances to provide food sources for cave life, regulate thermal variations, and prevent sedimentation. Extremely sensitive karst systems can include the entire recharge as a buffer zone.

9.18. International Laws and Agreements

The Center has reviewed and commented on international treaties and agreements and has found no gaps in implementing the Center's FM standards. Further details of the treaties and agreements reviewed please see appendix G.

9.19. Payment of Taxes

The Center is housed at the University of Kentucky Department of Forestry Cooperative Extension Service and is local, state, and federal tax exempt. The Center requires that all Group Members pay their applicable property, severance, and any other related taxes in order to maintain membership.

9.20. Boundaries

The Center encourages landowners to visit their properties regularly and have strong relationships with neighboring landowners. It is highly recommended that Group Members mark or post signs denoting where their property boundaries are located. Many disputes can be avoided and resolved quickly when boundaries are marked and neighbors consulted. Foresters are available, at cost to Group Members, to locate and mark previously surveyed boundaries. The Center does not require all Group Member's boundaries to be completely surveyed.

The Center encourages Group Members to visit their property periodically to check for illegal and unauthorized activities that might include hunting, fishing, collecting, theft, dumping, and prohibited recreation use, including motorized vehicle use on closed roads, closed trails, and closed off trail areas. When unauthorized activities are found the Group Member must implement measures to prevent the activity from continuing. Such measures include clear marking of boundaries, signage and gates, communication with neighbors and other forest users, or notification of proper authorities. Group Members are not expected to jeopardize their safety or property when encountering trespass but cannot ignore illegal and unauthorized activities on their forests.

10. Monitoring

Certification is a tool to determine if forests are being well-managed as indicated by prescriptions that are successful and desired future conditions and management objectives of stands are being met. Monitoring is used to determine the success or failure of silvicultural prescriptions and maintenance of forest attributes critical to forest management objectives. A monitoring plan is required in a Group Member's management plan. After a timber harvest,

chemical application, thinning, or any other type of timber stand improvement activity some form of post activity monitoring must take place to evaluate the implementation of the silvicultural prescription. This type of monitoring is dependent on the type and scale of management activity and the Center recognizes the professional opinion of the Cooperating Forester to determine the type of monitoring necessary. For example, a silviculture prescription of killing sapling sized invasive trees that are interfering with natural stand development would require a follow up visit a few months after herbicide application to ensure appropriate mortality of treat stems. A small sampling of plots within the treatment area of mortality rates would be sufficient to meet the requirements. Monitoring after a timber harvest would entail assessment of the appropriate trees removed, damage of residual trees, and checking that Best Management Practices for preventing non-point source pollution from harming water resources have been properly implemented. For FMU that are large and/or intensively managed quantitative monitoring may be required. Observational and qualitative monitoring may suffice for some monitoring and may be appropriate for a number of activities conducted on family forests with low intensity operations.

Monitoring is also required across the forest to determine if disturbances (natural or anthropogenic) have occurred that could affect forest attributes necessary for meeting management objectives and that could affect the ability of the FMU to meet certification standards. The Center recognizes the fiscal and resource load associated with monitoring and expects overall monitoring be conducted according to the scale, intensity, and potential risk.

10.1 Monitoring Documentation

Monitoring is a critical part of good forest management and appropriate monitoring documentation is required to help ensure effective monitoring and to verify its completion. The Center requires that activities are monitored and appropriate documentation developed including documentation retained by the FMU as well as documentation submitted to the Center as listed below and further discussed in subsequent sections.

- **Activity Inspection Form** (CFWC-FM-10) submitted to the Center for all activities completed in the year they were implemented.
- **Annual Reporting Form** (CFWC-FM-6) submitted annually for the FMU.
- **Specific monitoring documentation** maintained by the FMU for activities such as harvest monitoring (BMP inspection reports and other appropriate inspection documentation), chemical applications and other similar intensive operations.
- **Harvest Data** - annual harvest volume reports must be submitted to the Center.

10.1.1 Activity Inspection Form: Activities that are required to be reported on an Activity Inspection Form (CFWC-FM-10) are harvests and any other silviculture activity. Further infra-structure or administrative operations should be reported if they can affect significant forest or stand attributes. Examples of the latter include new road construction and stream crossing installation. Activities are do not need to be reported including routine road and right-of-way maintenance, boundary marking and other operations that do not reasonably impact stand or forest attributes. Cooperating Foresters and FMU owners may fill out Activity Inspection Forms and submit to the Center, but the Cooperating Forester is required to ensure that all activities are monitored and reporting completed. The Activity Form provides notification of activity and that appropriate monitoring has been completed.

10.1.2 Annual Reporting Form - serves several purposes and **submission of the Annual Reporting Form and dues payment are required for renewal of membership in the Centers FM group**. The Annual Reporting Form is used to:

1. Verify group members contact information.

2. Verify that the Activity Inspection Forms are correct and new ones submitted if needed.

3. Reporting of information on other issues that can negatively impact the forest attributes necessary to meet forest objectives including storm damage, outbreaks of insect and disease, trespass, new invasive species colonization, degradation of special sites, neighbor or stakeholder issues.

4. Changes that were made in the forest management plan.

FMU owners and Cooperating Foresters may fill out the Annual Reporting Form.

10.1.3 Other Monitoring Documentation may be required for certain operations including harvests where documentation of BMP use is required and silvicultural operations that include chemical use should have chemical use documentation. There can be other operations and or disturbances that also require specific inspection and monitoring and documentation should be retained for these situations. These specific monitoring records should be retained for the FMU and made available for auditing. The FMU or Cooperating Forester may use their own forms or documentation for this purpose. The Center maintains forms that can also be used.

10.1.4 Harvest Volumes – Annual reporting of timber volumes removed from the FMU is required. This documentation is FMU dependent and can include documentation from mill or

self-generated documents, sale prospectus, contracts, etc. as well as CFWC-FM-07b "Timber Volume Report". Volumes for all harvested completed in a calendar year are required to be reported.

11. Harvesting Activities

When timber harvesting takes place on a Group Member's land it is recommended that they use a Certified Master Logger. If a CML is not used, the logger selected must be adequately trained (e.g. Master Logger/Game of Logging Program). The timber buys and/or contractors should carry adequate work's compensation and liability insurance for the size of their operation; be adequately insured and provide a certificate as evidence and/or post a cash bond to protect landowner assets, sign contracts to protect the Center and landowner against third-party claims, adhere to required Best Management Practices, and be familiar with the requirements of forest management certification.

11.1. Harvesting Process and Documentation

Timber harvesting is an important component of certification and maintenance of silvicultural systems. The process of selling timber on certified land is detailed in this section and summarized in the next section's flow chart. Group Member's management plans are required to provide the silvicultural justification for the harvest. Group Members or Cooperating Foresters should inform (phone call, letter, or email) the Forest Management Section Administrator before beginning a harvest. Harvests can be delayed for short-term economic considerations but long-term timber price fluctuations are not acceptable reasons to postpone timber harvests if the

postponement threatens the effectiveness of the silvicultural prescription or management goals and objectives.

Further the Cooperating Forester should ensure that harvesting provisions and appropriate forest protection measures are discussed with the logger. CFWC-FM-7a "Timber Pre-Harvest Checklist" can be used for his purpose. The Timber Pre-Harvest Checklist is required when landowners do not specify safety requirements in their contracts. This form includes a checklist for a pre-harvest conference with logger that includes the requirement to sort non-certified material out from certified material; any special considerations for HCVs and FORIs, archaeological areas, RTE species, or any other special areas that would not be in a standard timber harvest; discussion of required safety equipment and personal protection equipment; discuss sale boundaries, skid trails, and landing layouts; trash and lubricant disposal; and any other considerations that are required of a certified timber sale. The inventory section of Timber Harvest Report Form should also be completed that details the species and product types sold to the buyer/logger. An attachment of a timber buyer prospectus is sufficient to meet the requirements of inventory reporting to the Center.

The sale is marked or loggers trained by a Cooperating Forester familiar with the Group Member's management plan and the silvicultural goals of the timber harvest. Sales can be marked with 100% tally or sale boundaries marked with leave or cut trees marked or appropriately designated within the boundary. During or after this marking an inventory of the timber to be sold must be completed.

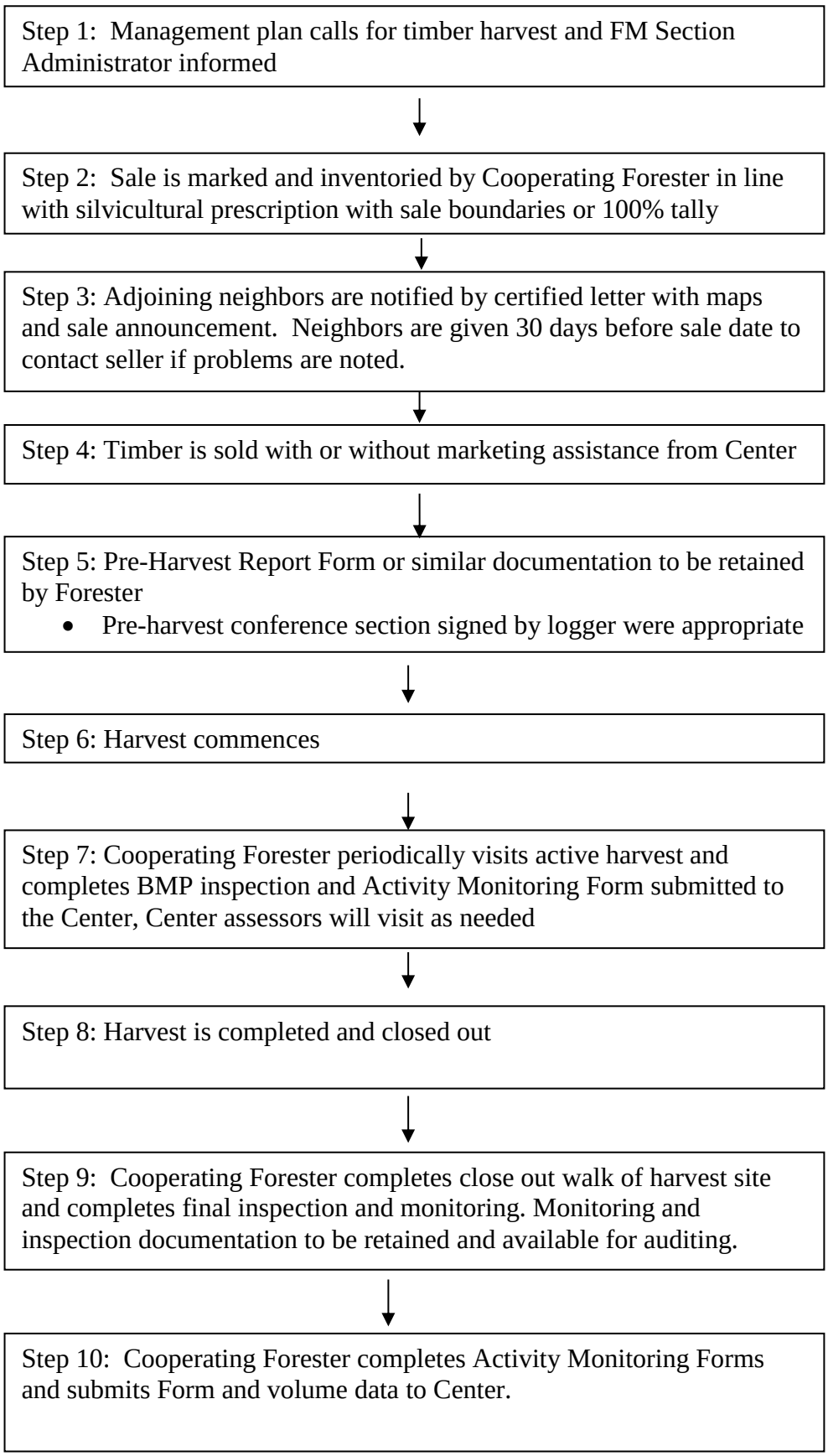
Reporting of timber volumes is required (see section 10.1.4). The Center's Timber Harvest Volume Report Form (CFWC-FM-07b) can be used as well as forest industry generated documentation or sale documentation developed by the Cooperating Forester.

The harvest may commence with the Cooperating Forester visiting periodically to the active site to inspect Best Management Practices and to ensure that the silvicultural goals of the harvest are being completed. During these visits documentation should be generated describing BMP use, the Centers Harvest BMP Evaluation form can be used (CFWC-FM-08). Once the harvest is completed and final close out/retirement Best Management Practices are completed by the logger the Cooperating Forester can visit the site and complete the Harvest BMP Evaluation Form.

The Center expects this final visit to be completed as soon as possible to avoid potential problems with improperly installed Best Management Practices or continuing conditions that are creating major pollution problems that require the return of the logger to the site. The BMP Evaluation Form or other BMP documentation is retained by the Cooperating Forester.

Each harvest is required also to be monitored for other important attributes, appropriate to objectives, and reported using CFWC-FM-10 "Activity Monitoring Form" see section above. This is normally completed by the Cooperating Forester to ensure that the silvicultural prescription and goals of the timber harvest were completed and the remaining overstory and understory cohorts are not significantly damaged. Examples of monitoring include using plots to determine if predetermined levels of basal area were removed or remaining. The size and scale of monitoring is dependent on the goals of the prescription. The Center will work with Cooperating Foresters to adequately determine the level of monitoring on a case by case basis.

11.1.1. Timber Harvest Process Flowchart



11.2. Safety

Workers involved in forest management activities including, but not limited to, harvesting, timber stand improvement, or chemical use will obey all Occupational Safety and Health Administration rules. This includes wearing all personal protective equipment. Crews must also maintain communications between workers by use of CB radios or walkie talkies. These requirements will be covered in the pre-harvest conference and noted on the Harvest Report Form. The form is required if safety is not specifically mentioned in the contract. Workers using chemicals must wear as a minimum the PPE indicated on the label and dispose of chemicals and other fluids properly per label directions.

11.3. Chain of Custody

A very basic form of chain-of-custody certification is automatically included in the Center's group certification for forest management. This allows landowners in the group to process logs from their own land, using the own or borrowed or rented equipment, and sell the products as certified. However, Group Members do need additional chain of custody certification if they process wood from anywhere other than their own land. Any commercial logging operation that occurs on Group Member's land must have a separate chain of custody certificate to further process certified wood.

In order to maintain chain-of-custody requirements, landowners or Cooperating Foresters should include the landowner's certificate code, certification system claim, and general product types such as hardwood sawlogs or softwood pulpwood.

11.4. Region Specific Requirements

Specific regional differences are required by the Center in the standards in regards to streamside management zone widths and harvest size openings. The locations of these regions are designated in Figure 5.

11.4.1. Harvest Opening Size

The Center will rely mainly on the FSC guidelines for the Appalachian and Lake States Regions unless specifically sound evidence is available providing alternatives and this evidence is provided to the Center. Please see appendix G for guidelines for other regions within the Center's focus area.

When even-aged silviculture (e.g., seed tree, regular or irregular shelterwood), or deferment cutting is employed, live trees and native vegetation are retained and opening sizes are created within the harvest unit in a proportion and configuration that is consistent with the characteristic natural disturbance regime in each community type, unless retention at a lower level is necessary for restoration or rehabilitation purposes. Harvest openings with no retention are limited to 10 acres. Even-aged silviculture is used only where naturally occurring species are maintained or enhanced. Retention within harvest units can include riparian and streamside buffers and other special zones. In addition, desirable overstory and understory species may be retained outside of buffers or special zones while allowing for regeneration of shade-intolerant and intermediate species consistent with overall management practices. Where stands have been degraded, less retention can be used to improve both merchantable and non-merchantable attributes.

When uneven age silviculture techniques are used (e.g., individual tree selection or group selection), canopy openings are less than 2.5 acres. Uneven age silvicultural techniques are used when they maintain or enhance the overall species richness and biologic diversity, regenerate shade-tolerant or intermediate-tolerant species, and/or provide small canopy openings to regenerate shade-intolerant and intermediate species. Uneven-age techniques are generally used to develop forests with at least three age classes and appropriate prescription developments is required to ensure that uneven-aged techniques do not result in unjustified high-grading and/or diameter limit cutting.

Figure 5. Center for Forest and Wood Certification Regions

11.4.2. Streamside Management Zones

The Center has determined that state mandated or voluntary BMPs adequately mitigate environmental damage in low-quality streams in the FSC Appalachian and Lake States regions based upon a review of conclusive scientific evidence. FSC SMZs are required for high-quality streams. Landowners located in the Southeast FSC region will continue to use their state BMPs as there are no regional FSC guidelines. The Center can help group members and Cooperating Foresters determine if their streams are classified as high or non-high quality waters. Please see appendix G for streamside management guidelines for other regions within the Center's focus area.

Scientific literature cited:

Kentucky

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Carroll, G., S. Schoenholtz, B. Young, and E. Dibble. 2004. Effectiveness of forestry streamside management zones in the sand-clay hills of Mississippi: early indications. Water, Air, and Soil Pollution. 4 (1): 275-296.

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Virginia

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Overall

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Perennial High-quality waters

Stream Zone	**Slope Category**				
	1-10%	11-20%	21-30%	31-40%	41% <
Inner	25	25	25	25	25
Middle	35	35	35	35	35
Outer	20	40	70	75	105
Total	80	100	130	135	165

High quality waters are defined for the Center's focus area include, but are not limited to, Cold Water Aquatic Habitats, Wild Rivers, Outstanding Natural Resources Waters, High Quality Waters, and those waters with known RTE species present. The Center will maintain a periodically updated list of these waters for all states in the Center's focus area and provide them to Group Members. The inner SMZ for perennial non-high quality waters extends 25 feet from

the high water mark. Single-tree or small group (2-5 trees) removals is allowed in the inner SMZ, provided that the integrity of the stream bank is maintained and canopy reduction does not exceed 10 percent (90 percent canopy maintenance). Trees are directionally felled away from streams where feasible and debris removed where not feasible. The inner SMZ is designed as a virtual no-harvest zone, while allowing the removal of selected high-value trees.

The middle SMZ is limited to single-tree and group removal, while maintaining at least 75 percent of the overstory. Roads, skid trails, landings, and other similar silviculturally disturbed areas are constructed outside of the middle SMZ, except for designated stream crossings or when placement of disturbance-prone activities outside of the SMZ would result in more environmental disturbance than placing such activities within the SMZ.

Harvesting in outer SMZs for perennial high quality waters is limited to single-tree and group removal, while maintaining at least 50 percent of the overstory. Roads, skid trails, landings, and other similar silviculturally disturbed areas are constructed outside of the outer SMZ as well, except for designated stream crossings or when placement of disturbance-prone activities outside of the SMZ would result in more environmental disturbance than placing such activities within the SMZ. Exceptions may be made for stream restoration.

11.5. Landings

The size and location of landings depend on several factors:

- Size of harvest
- Size of the logging operation (number and size of skidders, loaders, and log trucks using the landing at any one time)
- Skills and abilities of equipment operators, particularly in small areas

- Available area and terrain suitable for landings
- Tract access to public roads

The landing design and the closing out process must address the severe compaction and subsequent run-off problems associated with consistent, heavy traffic. Importantly, because landings are often the most visible part of any harvest and often form the basis of public judgments, loggers must maintain landings in good condition to make the best possible impression as well as increase productivity, lower clean-up costs, and improve safety.

Specifications:

- Locate landings sites before designing and building roads
- Located landings outside of Streamside Management Zones
- Locate landings on well-drained soils, which dry out quickly, or on dry places like ridgetops or small flats
- Construct landings with 2-5% slope for drainage
- Make landings large enough so that loggers do not need to pile waste wood within any adjacent Streamside Management Zone
- When landings border SMZs precautions such as hay-bale barriers, silt fences, or other barriers to prevent runoff directly into stream channels
- Lessen the aesthetic impact of landings by making them only as large as necessary, shielding them from major highways, buildings, and other sensitive areas, reducing mess and clutter by careful organization, and minimizing waste wood piles

11.6. Haul Roads

Whether permanent or temporary, haul roads must support the size and weight of loaded log trucks (often tractor-trailers).

Specifications:

- Locate major haul roads on sunny south and west slopes whenever possible because these dry more quickly than shady north and east slope
- Locate haul roads on topographic conditions that are conductive to proper road construction and maintenance of proper drainage
- Roads designed to follow the contour of the land as much as possible, with 2-10% grades. Use steeper gradients (exceeding 15%) only for distances less than 200 feet
- Change gradient frequently to minimize erosion problems; water is difficult to control on long, steep, straight, continuous grades because options for drainage structures are limited
- Minimize cuts and fills as much as possible during design and construction
- Properly stabilize slopes exposed by road construction to prevent erosion and runoff. If necessary for stability and successful revegetation, backslope tall cut slopes to 3:1 slope
- At entrance to state and county roads, use gravel, wooden mats, geotextile fabrics, or other measures to keep trucks from tracking mud onto hardtop or state road
- Make roads wide enough to accommodate the expected traffic safely
- Construct drainage structures sufficient to move surface water off of the road bed, especially on steep grades
- Locate and construct stream crossings properly
- Cut tree back along the road to allow full sunlight on its surface and ensure better drying conditions after wet weather

- Leave large, attractive trees along the road for aesthetics
- Create openings for scenic views or wildlife habitat

11.7. Skid Trails

Skid trail layout must consider disturbance to the root mat and organic layer on the forest floor and natural regeneration. Group Members and Cooperating Foresters must consider skid trail layouts that limit the amount of mineral soil exposed, including requiring extra cable lengths on skidders or using cable yarding systems.

Specifications:

- Skid trail gradients must be minimized and maintained to allow for proper drainage
- If a trail does require steeper grades, sufficient drainage measures must be installed along the trail to keep concentrated water flow from reaching streams
- Approach landing at the lowest grade possible to minimize water flow into a landing
- Space skid trails as far apart as practical
- Climb upslope on a slant or zigzag pattern to break the grade whenever possible
- Use fender logs, bumper trees, or high stumps on the edge of skid roads on steep slopes, at turns and on switchbacks to prevent logs from rolling off the skid trail (causing more side casting of spoil) and to protect adjacent standing timber
- Minimize the number of skid trails by bunching logs to trail instead of driving the machine to each individual stump
- Locate and construct proper stream crossings. Avoid skidding logs through intermittent or perennial streams

- Construct drainage structure sufficient to move surface water off of the road bed using the following spacing recommendations for reverse grade structures:

Distances between Reverse Grade Structures for Retirement of Skid Trails	
Skid Trail Percent	Spacing (slope distance in feet)
1	400
2	245
5	125
10	78
15	58
20	47
25	40
30	35
35	32
40	29
*Modified from Kentucky Best Management Practices Handbook	

11.8. Stream Crossings

Stream crossings are the most direct conduit of sediment into the hydrologic system. Improved and/or elevated stream crossings are the best way to mitigate sediment directly reaching the streams and are required on all perennial streams. Streams that contain fish must also be free from obstructing the natural flow of fish from one side of the crossing to the other.

Specifications:

- Avoid stream crossings whenever possible through careful planning
- Cross streams at right angles
- Install culverts, bridges, pipe bundles, or pole crossings at perennial and recommended at intermittent streams and seeps if topographically possible
- Construct proper drainage for roads leading to stream crossings to avoid dumping water into the stream

- Do not skid logs through flowing streams
- Equipment crossing the stream should not have significant fluid leaks

Culverts

Most culverts are temporary although permanent culvert crossings may be installed if necessary and at Group Members request and expense. All temporary culverts are removed after harvest to prevent water quality problems. Culvert size depends on purpose, duration required, season installed, and the size of the watershed being drained. The Center will assist foresters, loggers, and Group Members for selection of culverts for acceptable size for upstream drainage area.

Bridges

Bridges are the most preferred stream crossing type because they require no in-stream work and have less direct impact on the stream channel itself. In addition, portable, temporary bridges typically require less time to install, remove, and retire and can be used many times making them more cost-effective than many other stream crossing types. Temporary bridges adhere to the following specifications:

- The stream at the crossing should be straight and unobstructed, with uniform, well-formed banks
- Keep approaches stable and at a right angle
- Immediately after installation stabilize exposed soil that is not part of the trail system including, but not limited to, approaches and stream edges with vegetation as needed to keep soil out of the stream

- Keep approaches straight to limit safety hazards and prevent logs, soil, and other debris from being deposited into stream by logs sliding over the edge of the bridge
- Stabilize approaches with rock extending at least 50 feet from both sides of the stream edge, if necessary
- Remove temporary bridges when logging is complete
- After logging, stabilize all approaches and stream edges with vegetation

Fords

Although natural rock fords are acceptable, they are the least desirable because they create direct and continued stream disturbance. If used fords must adhere to the following specifications:

- Streambed must have a firm natural rock base
- Use fords temporarily and for low-traffic area
- Water depth should be no more than 1 foot
- Make crossing at right angle to the stream
- Locate fords at low stream banks with stable approaches
- Stabilize approaches with rock or similar material the entire length of the approach on both sides of the stream

11.9. Retirement

To promote effective revegetation and minimize erosion, the Center will enforce that loggers retire or close each road and skid trail as soon as weather permits and it is no longer needed to remove timber (i.e. rather than waiting until the entire job ends), and retires landings

and other disturbed sites as soon as possible after the job ends, according to the following guidelines.

Landing Guidelines:

- Smooth and grade for drainage, utility, and appearance
- Install necessary water-diversion and erosion-control measures that do not drain directly into streams or channels
- Plant cover crop on all exposed soil, using soil amendments as needed; if soil compaction is severe, scarify and fertilize the landing before planting

Haul Road and Skid Trail Guidelines:

- Smooth and grade for drainage and utility
- Clean permanent ditches and culverts
- Pull out temporary crossings; make sure natural drainages are flowing across, not down, the road
- Reshape the streambank if necessary; remove any loose debris from streambed and streambanks
- At state road access points prevent public vehicle access
- On roads closed to vehicle use, install reverse grade structures at recommended intervals for proper drainage, be sure the waterbars span the entire road and the outlet ends are open
- On gentle slopes, remove raised shoulders and outslope instead of installing waterbars

Revegetation:

- Use revegetation to stabilize areas with exposed soil that can erode to adjacent streams

- Use revegetation to stabilize soil on areas exceeding 15% slope or on highly erodible soils
- Stabilize bare areas immediately following road close out using the following recommendations:
    - Prior to seeding, install all necessary water control structures such as waterbars, broad base dips, and turn outs
    - Select a seed mix appropriate for regional conditions and future objectives for future use. The Center will help Group Members and foresters select seed mix.
    - To control erosion, seeds must be able to germinate and grow, which in turn requires adequate seedbed preparation. To ensure good contact between soil and seed, disk the subsoil, back drag bulldozer blade, or drag brush or chain across the area as needed.
    - Broadcast seed using a broadcast seeder, drill, or hydro seeder.
    - When broadcasting in dry summer months and fall, apply mulch to help germination and growth.

12. Maintaining Certification

Certification is not a onetime process of preparing a management plan and getting certified. It is a long-term commitment to uphold the standards in this document and of approved certification systems. Although no management plan will perfectly meet the standards it important that all Group Members work toward the goal through continual improvement. This will require management plans to be updated at least every ten years. This does not mean that there has to be a full scale revision every ten years. A Group Member checking in with their

Cooperating Forester and stating nothing has changed in ownership patterns or management objectives could satisfy this requirement. Annual requirements for Group Members are detailed in the next section and randomly chosen Group Member properties will be reassessed at no cost to the Group Member.

12.1. Annual Reporting

Group Members will be mailed and are required to complete the Annual Report from Group Member (CFWC-06) when paying their annual fees. This form will list any management activities, changes to the management plan, or changes in ownership information over the past year.

12.2. Periodic Assessment

Periodic assessment is required by the Center of its Group Members. When an individual certification requires annual assessment, membership in the Center's group certification streamlines this process. Group Members will be reassessed every one to five years. The re-assessment will include a review of the management plan, any activities that have taken place since the last assessment, and a site visit. Annual reassessment sample size will at minimum meet internal monitoring guidelines for FSC and ATFS group standards. Priority will be determined based on property size, active management, and risk. Group members that were awarded certification through a desk audit and have completed or started a harvest will be assessed during this period. These reassessments are required to maintain certification and are at no cost to the Group Member. These internal assessments generally take place during the summer.

12.3. Costs

The Center will charge fees associated with maintaining a Group Member's certification or membership to the Center. The Center reserves the right to raise fees if necessary by giving 90 days' notice. Group Members are responsible for inventory, management planning preparation, management activities, and any associated costs with timber harvesting or any timber stand improvement activities.

12.3.1. Initial Fees

Initial fees cover the application process, scoping, stakeholder consultation, and site visit (travel) for the initial certification of a Group Member. The fee is based upon the type of landholding and acreage being certified.

12.3.2. Annual Fees

Group Members are responsible for fees that are due annually on March 15 of every year a certification is to remain valid. The annual fees will be used help cover the Center's continuing cost of certification including annual audits and fees to approved certification systems and certifying bodies.

12.3.3 Center Membership Fees

$25 annual fee for landowners owning <500 acres, must meet certification requirements, the property will not be enrolled into the certification groups and timber cannot be sold as certified. Landowners can opt into the certification group by notifying the Center.

12.3.3. Fees Chart

	Kentucky Family Forest <500 acres	Kentucky Family Forest >500 acres	Out-of-State Family Forest <500 acres	Out-of-State Family Forest >500 acres	Corporate/ Public <10,000 acres	Corporate/ Public >10,000 acres
Group Membership Fee	$100	$250	$250	$500	$2000	$3000
Center Membership Fee	$25	N/A	$25	N/A	N/A	N/A

12.4. Claims and Labeling

Once the assessment is completed and a successful certification decision issued, the Group Member may begin to make claims of certification. Any use of the Center, ATFS, SFI, or FSC's logos or trademarks must be approved by Center in conjunction with its Certifying Body. Use includes any on-product label and off-product advertisements including but not limited to labels or claims on websites, marketing materials, business cards, or any other material that is not certified material. Labels will be used in accordance with the specific certification labeling standards.

12.5. Expulsion

Group Members may be expelled for continued non-compliance to Critical Observations, non-payment of annual fees, or not adhering to their management plan. Thirty days after the estimated completion date of a Critical Observation listed on Observations Form the a Group Member will be informed in writing and by phone of their continued non-conformance to the

standards and possible expulsion from the group. Group Members must respond to the notice either by phone or mail to the Group Manager to indicate how the Group Member wishes to respond to the Critical Observation. If no agreement or response is made the Group Manager will expel the Group Member from the group by completing and mailing the Removal from Group Membership form (CFWC-FM-10) listing expulsion as the reason for Group Member removal. Any Group Member expelled must stop making claims of certification and return any signs to the Center upon receipt of the Removal from Group Membership form. An expelled Group Member has the right to appeal the decision of the Forest Management Section Administrator to the Center's Dispute Committee within 30 days of receiving the expulsion notice by informing the Section Administrator in writing. The Committee will consider the appeal and inform the complainant of its decision in writing, generally within two months. The Committee's decision can be appealed directly to the Center's Certifying Body.

12.6. Process for ending membership

The Forest Management Section Administrator will ensure that Group Members are committed to long-term forest management in conformance with the standards. This commitment is voluntary and Group Members may at any time decide to withdraw from the Center for whatever reason or if the Group Member elects to sell the property by completing the Removal from Group Membership form and providing it to the Section Administrator. The Section Administrator will remove the member from the Group Member roster. Any Group Member voluntarily leaving the group must immediately stop making claims of certification upon submission of the Removal from Group Membership form and return any signs to the center.

13. Maintenance of records

The Center will maintain electronic and/or hard copies of all Group Member records including but not limited to the Group Member's forest management plan, Forest Management Application (CFWC-FM-01), Scoping Checklist (CFWC-FM-02) Forest Management Agreement Form between the Center and Group Member (CFWC-FM-03), Standards Monitoring Check List (CFWC-FM-04) for each field inspection, all current and past Observations Form (CFWC-FM-05), each Annual Report from Group Member (CFWC-FM-06), any Timber Harvest Report (CFWC-FM-07), any Timber Harvest Site Visitation and Evaluation form (CFWC-FM-08), Chemical Usage forms (CFWC-FM-09), and Monitoring Forms (CFWC-FM-10). Any former Group Member's file will also include a Removal from Group form (CFWC-FM-11) to document their reason for removal from the Group Membership roster. Records will also include any disputes and complaints against group management, inspectors, Group Members, and the Group Manger including their resolutions. These records will be maintained for a minimum of least five years.

The Forest Management Section Administrator will be responsible for maintaining an up to date roster of Group Members, together with dates of entering and leaving the Center, reason for leaving, and the Group Member type; records of training to Cooperating Foresters or Center staff or the representatives, relevant to the implementation of the standards; a map of all Group Member properties; lists and all relevant documentation of all open and closed Improvement and Critical Observations; records of the estimated overall certified wood production and sales of the Center; and updating the relevant certification system's national database to changes in Group Member status. The Forest Management Section Administrator will also ensure that any annual

reporting and fees to the Certifying Body and approved certification systems are completed on time and in accordance with their standards.

Table 1. General Roles and Responsibilities of Participants

	Forest Management Section Administrator (The Center)	Group Member (Landowner)	Cooperating Forester (Primary Service Provider)	Forest Contractors	Chain-of-Custody Certificate Holder	Certification Body	Certification Systems (ATFS, FSC, and SFI)
CFWC	Develops structure and assures compliance of group certification	Agrees to membership policies. Signs agreement with the Center	Agrees to contract and service provider policies. Signs agreement with CFWC	Agrees to contract and service provider policies	N/A	Asses the Center and approves group certification	N/A
Policies & Procedures	Develops and assures they are followed and understood	Follows approved Management Plan	Follows Operations Manual	Follows Operations Manual and Standards	N/A	N/A	Sets Standards
Fee Structure	Sets operating fees, pays for costs of maintaining certificate	Pays initial and annual fees	Contracts for services	Contracts for Services through Group Members or the Center	Maintains C-O-C certificate, contracts for services	Charges the Center for auditing fees	N/A
Auditing	Audits Group Members for compliance to Standards	Monitors Operations (voluntary)	Monitors Operations	Monitors Operations to comply with Standards	Complies with C-O-C auditing requirements	Audits the Center and Group Members for compliance with Standards	N/A
Ecological and Forest Health Monitoring	Establish procedure and ensure implementation	Perform monitoring (voluntary)	Perform monitoring on behalf of Group Members or the Center	N/A	N/A	N/A	Sets standards for monitoring
Communication	Provides central point of communication between participants	Communicates with the Center regarding activities, operations, and needs.	Communicates with the Center regarding activities, operations, and needs	Communicates with the Center regarding activities, operations, and needs	Communicates with the Center regarding activities, operations, and needs	Communicates with the Center	Communicates with the Center on changes in Standards
Training	Identifies participants training needs and offers assistance in building skills	Participate in workshops and trainings (voluntary)	Completes training offered by the Center	Build and maintain skills to provide certification compliant services	Build and maintain skills to provide certification compliant services	N/A	N/A

Table 2. Specific Roles and Responsibilities

	Group Manager (CFWC)	Group Member (Landowner)	Cooperating Forester (Primary Service Provider)	Forest Contractors	Chain-of-Custody Certificate Holder	Costs Paid by	Documentation
Certification Enrollment	Support and recruit members	Follow enrollment process	Support client's goals	Supports client's goals	N/A	Group Member (Landowner)	Completed Membership Application
Agreement between CFWC and Group Members	Sign and follow	Sign and follow	Sign and follow	N/A	N/A	N/A	Signed Agreement between the Center and Group Member
Forest management plan development	Review and approve	Contract for services, review and approve	Contract and provide services, comply with policies	Contract and provide services, comply with policies	N/A	Group Member (Landowner)	Approved Forest Management Plan
Certification Inspection	Performs inspections	Participate (recommended)	Participate (required)	N/A	N/A	CFWC	Standards Monitoring Checklist
Service Provider Selection	Provide guidance	Select service provider	Demonstrate qualifications, comply with policies	Demonstrate qualifications, comply with policies	N/A	N/A	N/A
Harvest or operational plan development	Review and approve	Contract for services, review and approve	Contract and provide services, comply with policies	Contract and provide services, comply with policies	N/A	Group Member (Landowner)	N/A
Pre-Operation inspection	Provide guidance	Participate (optional)	Perform Inspection and required assessments	Participate (optional)	N/A	N/A	N/A
Contract and Timber Sale announcement	Provide Template if requested	Sign and follow	Develop, sign and follow	Develop, sign and follow	Sign and follow	Group Member (Landowner)	Timber Harvest Report Form
Harvest Monitoring	Provide guidance	Perform monitoring (voluntary)	Perform monitoring	N/A	N/A	N/A	Harvest Site Visitation and Evaluation Form
Post-Harvest Inspection	Provide guidance and participate on as needed basis	Participate (optional), comply with findings	Participate (optional), comply with findings	Participate (optional), comply with findings	N/A	N/A	Harvest Site Visitation and Evaluation Form and Monitoring Form
Annual Compliance Review	Perform review	Participate (required)	Participate (optional)	Participate (optional)	N/A	Group Member & CFWC	Annual Report from Group Member Form
Certification Body Audits	Participate	Participate (if requested)	Participate (if requested)	Participate (if requested)	Participate (if requested)	CFWC	Certification Body Audit Report

Appendix A. CFWC Details

Personnel

Director of Operations
Dr. Jeffrey Stringer
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Logging Section Administrator
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Danville, KY 40422
Email: chris@ckfm.net
Phone: (859) 516-1415

Hagan Wonn
Somerset Hardwoods
70 W. Racetrack Rd.
Somerset, KY 42503

Sustaining Partners

Mountain Association for Community Economic Development
Kentucky SFI Implementation Committee
Time Inc.

Supporting Partners

Kentucky Forest Industry Association
Kentucky-Tennessee Society of American Foresters
Kentucky Association of Consulting Foresters
Kentucky Division of Forestry
Kentucky Woodland Owners Association
The Nature Conservancy

Certifying Body

Scientific Certification Systems
200 Powell Street, Suite 600
Emmeryville, CA 94608
Phone: (510) 452-8000

Approved Certification Systems

Forest Stewardship Council – United States (FM and CoC)
212 Third Avenue North, Suite 504
Minneapolis, MN 55401
Phone: (612) 353-4511
Fax: (612) 208-1565
Email: info@fscus.org

American Tree Farm System (FM only)
111 19th Street, N.W.
Suite 780
Washington, DC 20036
Phone: (202) 463-2462
Email: info@treefarmsystem.org

Appendix B. Prohibited Pesticide List

To view the most current list of Highly Hazardous Pesticides please consult with the Center directly or download from FSC Website. The Center has adopted the Environmental and Social Risk Assessments developed by FSC U.S. for the six commonly used forest management pesticides. A list and details of the ESRAs can be found here, National Guidance ESRAs for the United States (fsc.org). If a group member wishes to use a highly hazardous chemical that a national ESRA has not been drafted and ESRA must be completed by the group member in consultation with the Center.

Appendix C. Native American Contacts

Native American Tribal contacts within the Center's focus area were contacted by mail on August 2, 2019, to date no contacts have indicated they wished to stay informed group member activities in their areas. Appendix C will be amended to include the stakeholder information should the Center be contacted prior to reaching out to those stakeholders in 2024.

Appendix D. Agency Contacts for RTE Species Sites

Kentucky
Ian Horn
Natural Heritage Program
Kentucky State Nature Preserves
801 Schenkel Lane
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Email: ian.horn@ky.gov

Mississippi
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Natural Heritage Program Coordinator
Mississippi Museum of Natural Science
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North Carolina
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North Carolina Natural Heritage Program
Office of Land and Water Stewardship
North Carolina Department of Environmental and Natural Resources
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Raleigh, NC 27699-1601
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South Carolina
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Heritage Trust Program
South Carolina Department of Natural Resources
P.O. Box 167
Columiba, SC 29202
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Tennessee
Stephanie Whitaker
TDEC – Division of Natural Areas
Natural Heritage Program
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2 Floor
Nashville, TN 37243
Phone: (615) 532-4799
Email: Stephanie.Whitaker@tn.gov

Appendix E. Agency Contacts for Archaeological and other Special Sites

Kentucky

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Appendix F. Plantation Management

Plantations are forest areas lacking most of the principal characteristics and key elements of native ecosystems as defined by national and regional standards of forest stewardship, which result from the human activities of planting, sowing, or intensive silvicultural treatments. The use of establishment or subsequent management practices in planted forest stands that perpetuate the stand-level absence of most principle characteristics and key elements of native forest ecosystems will result in a stand being classified as a plantation. Except for highly extenuating circumstances the following are classified as plantations:

- cultivation of exotic species or recognized exotic sub-species
- block plantings of cloned trees resulting in a major reduction of within-stand genetic diversity compared to what would be found in a natural stand of the same species
- cultivation of any tree species in areas that were naturally non-forested ecosystems

Certain management practices that could also contribute to the absence of native forest ecosystem attributes and the characterization of a stand as a plantation include:

- Rotation lengths short enough to prevent stands from development into understory reinitiation stages
- Systematic use of, and reliance on, chemical herbicides, pesticides and fertilizers
- Intensive chemical or mechanical site preparation
- Through planting, thinning, or other management practices, a single species is maintained as the primary forest type on sites normally occupied by multiple-species forests
- Use of even-aged silviculture for forest types that do not typically or regularly regenerate as even-aged stands naturally through stand-replacing events
- Preclusion of successional pathways

- Use of a silviculture system which purposefully results in a stand with dominant tree species different than dominant species representative of the native ecosystem that existed historically
- Use of even-aged regeneration units that lack retention and are uncharacteristic of the natural disturbance regimes
- Use of a silviculture system which shift the species composition away from natural historic regime

Plantations established in areas established from natural areas after November 1994 normally will not qualify for certification. Certification may be allowed in circumstances where sufficient evidence is submitted to the Center that the applying Group Member is not responsible directly or indirectly of such conversion. For plantations established in areas converted (not planted) after 1994, the Group Member will develop and implement a plan to restore the plantation stands to conditions characteristic of natural forests and to manage those stands in compliance with the standards outlined in this document. These plantations converted after November 1994 must also demonstrate that the Group Member was not responsible directly or indirectly for the conversion of the natural forest to the plantation.

New plantation establishment does not replace, endanger, or otherwise diminish the ecological integrity of any existing ecosystems on the forest, including primary, natural, or semi-natural forests. Restoration plantations may be established on degraded or semi-natural forests. Plantations can be established on the following sites: former plantations; agricultural lands; and non-forested lands that were historically naturally forested but have been used for non-forested purposes before 1994. New plantations cannot be established on rare or threatened non-forest habitats or ecosystems.

Harvest openings sizes in plantations with no retention cannot be larger than an average of 40 acres with a maximum size of 80 acres. The average for all size openings (with and without retention) does not exceed 100 acres. Departures from these limits for restoration purposes are permissible but must be justified by credible scientific analysis.

In all of the Center's focus regions, except the Southeast, before an area is harvested, regeneration in adjacent forest areas (either natural or plantation) on the management unit must be of the subsequent advanced successional habitat stage, or exceed ten feet in height, or achieve canopy closure along at least 50% of its perimeter. In the Southeast Region, 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 successional or groundcover adapted species to migrate across the early successional continuum.

On plantations established on soils capable of supporting natural forests, the Group Member maintains, conserves, and/or restores forest health and diversity, including wildlife habitat and soil productivity, by maintaining diversity of size, structures, age classes, species, and genetics across the plantation.

Species used for plantings shall be suitable and appropriate to the site and are consistent with maintaining forest health and productivity. Species native to the region are preferred to other species not native to the region. For the Ozark/Ouachita region the use of exotic species is contingent on credible scientific analysis confirming that the species in question is non-invasive, will not create a significant risk to forest health, and performs better tan species native to the

region. If exotic plants are used, their provenance and the location of their use are documented and their ecological effects are monitored.

In the Mississippi Alluvial Valley, Appalachian, and Southeast regions, the planting of exotic species is used only for site remediation. Justification for such plantings is provided. The species in question shall be non-invasive, shall not create risk to forest health, and shall perform better than native species. Their provenance and the location of their use are documented and their ecological effects are monitored.

In areas that support natural forest cover, a proportion of the overall management area shall be managed so as to restore the site to a natural forest cover. In cases where the plantation was established on non-forested ecosystems, restoration efforts should be focused on native ecosystems and prioritized to local conditions and environmental priorities. Areas to be restored to natural conditions are selected with the priority of achieving the greatest conservation gain but may include considerations of economic feasibility. Greatest conservation gain includes:

- Providing mature forest conditions and other ecological attributes that may be under represented across the forest landscape
- Implementing regional, state, and landscape-level forest ecosystem and native fish and wildlife habitat conservation and restoration plans and objectives
- Creating conservation zones that provide adequate interior forest habitat for native species
- Restoring riparian areas, migration corridors among areas of existing natural forest, and unstable slopes
- Providing social and cultural values associated with restoration to natural conditions

Areas to be restored to natural conditions are prioritized where the analysis indicates the greatest conservation gain and are designed for long-term restoration. Management plans should clearly state the extent and location of areas selected for such restoration, as well as the rationale for their selection. Where natural ecosystems were previously converted to plantations, a percentage of the total area of the forest must be maintained and/or restored to natural or semi-natural cover. The minimum percentage that is maintained and/or restored in natural or semi-natural state is:

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

All plantations on forest soils on public lands are managed to restore and maintain natural forest vegetation, structure, function, and habitats, and fully meet, at the earliest possible time, all aspects of the standards in this document.

Tree seedlings are planted in a way that minimizes damage to the soil, while facilitating seedling survival. Tree seedling species are selected appropriate for maintaining long-term site productivity. If mechanized tree planting is used on slopes greater than five percent, it is carried out on the contour. Thinning is implemented in a manner that minimizes site disturbance and damage to the residual stand of crop trees and other desired vegetation.

Fertilizer is applied only when all the following conditions are met:

- Soil classification or foliar analysis indicates one or more nutrients are a limiting factor for forest productivity
- Data and/or scientific literature suggest that the response to fertilization is economically justified

- Where necessary due to topography, soils, or other conditions, measures are taken to prevent damage from fertilizer runoff or leaching. This includes preventing influences on native low-nutrient ecological systems, such as pitcher plan bogs, or on ground and surface water quality.
- Fertilizer application maintains or enhances soil condition and site productivity.

Sufficient woody debris and other organic matter is retained within plantation stands to ensure adequate soil structure and nutrient recycling. This does not apply to plantations that use fire to achieve natural understory and soil conditions.

Outbreaks of pests and diseases are controlled by maintaining plantation vigor. Management regimes in plantation areas are designed to minimize forest damage from fire, pests, disease, wind, and other factors. Where applicable:

- Periodic thinnings are scheduled and conducted to reduce competition for light, water, and nutrients.
- The Group Member is aware of potential pest problems associated with the tree species in the plantation and region, and has some knowledge of control procedures.
- Habitat for predators of plantation pests is maintained within or adjacent to the plantation.
- Diversity of tree species is encouraged in the stand.
- Management techniques are used that minimize reliance on chemicals.

A strategy is in place to control fire damage. Where applicable, prescribed burns are conducted according to BMPs and with adequate planning, equipment, training, and weather conditions to maintain control of the burn within the burn plan area.

Monitoring of the impacts or plantations, both on and off-site, is conducted in the same manner as the monitoring of natural forests.

Appendix G. International Treaty and Agreement Review

Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere

No gaps were identified. The protocols of the Convention aim to preserve all species and genera of native American fauna and flora from extinction, and to preserve areas of extraordinary beauty, striking geological formations or aesthetic, historic or scientific value.

The Center is aligned with all of the goals of the Convention. The National Park and National Forest systems are set up in the United States to preserve unique areas. The Center and its members comply with the US Endangered Species Act in its management plans and practices. The definition and outlining of High Conservation Value Forests will also help the Center achieve the goals of the Convention.

Convention on Wetlands of International Importance Especially as Waterfowl Habitat

No gaps identified. The treaty is for the conservation and sustainable utilization of wetlands, to stem the progressive encroachment on and loss of wetlands, and to recognize the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value. Out of the Convention came the List of Ramsar Wetlands of International Importance.

The Center recognizes the importance of wetlands in the ecosystem in is management planning and activities. The Center is aware of the process to add significant wetlands to the List and will act to add Group Member wetlands to the list if the Group Member and managing partners decide to. At this time there is only one wetland on the list in the Center's focus area. The Olentangy River Wetland Research Park, managed by Ohio State University, is located in Ohio but no wetlands in Kentucky, Tennessee, Missouri, Indiana, Illinois, West Virginia, or

Virginia are on the List as of this time. The Center will periodically check the Rasmar List for additions in the Center's focus area.

United Nations Conference on the Human Environment

No gaps identified. The Center recognizes the importance of the Conference and its declarations specifically dealing with the impacts of humans can have on the environment through direct and indirect actions. The Center supports through its management planning policies and procedures the need to control pollution, protect endangered species, positively impact local economies, local community involvement in landscape level impacts, and scientific development.

The Center and its members do not possess, traffic, or test nuclear weapons or other weapons of mass destruction.

Convention Concerning the Protection of the World Cultural Heritage

No gaps were identified. The Convention set up the World Heritage Centre that is charged with designating sites classified as World Heritage Sites. These sites hold some sort of special cultural or natural characteristics of universal value that are outlined in the Convention and later documentation.

The Center supports the Convention and protects any World Heritage Site that is in Group Member properties. Current there are three World Heritage Sites with the Center's focus area; Mammoth Cave (Kentucky), the Great Smokey Mountain National Park (Tennessee), and Monticello (Virginia). Currently no Group Member's property has impact on a World Heritage

Site. The Center will continue to monitor the World Heritage Site list for any additions in the Center's focus area.

Convention on International Trade in Endangered Species of Wild Fauna and Flora

No gaps were identified. The Center does not recognize this agreement as relevant in its practices. The Center does not, as a matter of policy, trade endangered species and does not condone the trade in such species listed in appendices 1, 2, and 3.

In accordance with the ideals of the Convention on International Trade in Endangered Species, the Center recommends and adheres to the US Endangered Species Act in its management plans and practices. The management strategies and practices of the Center are outlined in this document.

International Plant Protection Convention

No gaps identified. The preamble states the need to recognize and control the spread of plants and plant products across international borders and their possible impacts on the environment and society.

The Center recognizes the importance of controlling non-native invasive species when they adversely affect forest health and timber production and has outlined policies and procedures in this document.

Convention on the Conservation of Migratory Species of Wild Animals

No gaps were identified. This convention aimed to conserve terrestrial, marine, and avian migratory species throughout their international ranges. Although the United States is not

a party or signatory to the agreement at this convention, the Center recognizes the importance of maintaining habitat for endangered species across their entire migratory range. The United States does have Memorandum of Understanding through a framework of the Convention regarding the protection of marine turtles and sharks. The Center will have no or limited impact on these species. Even though not a party to the Convention, the Center will maintain a current copy of the lists of protected animals (Appendices I and II of the Convention agreement) to provide information to Group Members on protection of possible endangered species.

In accordance with the ideals of the Convention on the Conservation of Migratory Species of Wild Animals, the Center recommends and adheres to the US Endangered Species Act in its management plans and practices. The management strategies and practices of the Center are outlined in this document.

Convention on Environmental Impact Assessment in a Transboundary Context

No gaps were identified. This agreement recognizes that environmental problems are not bounded by map boundaries and problems can create adverse environmental conditions across borders. This Convention set up an agreement between signors that contact will be made with possible affected countries during the planning stages of any project that might have significant environmental impact.

Although a signature, the United States has not ratified the treaty. The Center agrees with the goals of the Convention and has implemented the recommendations on a smaller scale. Group Members are required to notify their neighbors of management activities (harvesting or large scale herbicide use) that might impact their neighbors or community before the action takes

place. Stakeholder consultation is undergone for large, industrial, or public ownerships during the management planning phases.

Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean

The Center does not recognize this agreement as relevant in its practices. The Center's focus area is not in the vicinity of the North Pacific Ocean watershed.

Agenda 21

No gaps identified. Several elements in Agenda 21 do not apply to the Center's operations such as investing in financially strapped countries, increasing women's access to services, management of solid waste, and farming. But some do apply such as protection of the environment at large; protection of rare, threatened, and endangered species; protection of specials sites; and not contaminating waters with non-point and point sources of pollution

Forest Principles, UNCED

No gaps identified. Although non-binding the Center agrees with all of the Forest Principles outlined at the Earth Summit. The principles states that "Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural, and spiritual needs of present and future generations."

Rio Declaration on Environment and Development

No gaps identified. This declaration reaffirms the agreement of the United Nations Conference on the Human Environment.

Convention on Biological Diversity

No gaps were identified. The objective of the protocol outlined in this convention is to contribute to ensuring an adequate level of protection in the field of safe transfer, handling, and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health, and specifically focusing on transboundary movements.

Recognizing that the United States is not a party of the Convention, the Center does recognize the relevance of the Convention on its policies and practices. However, the Center is still aligned with the principles and practices of the Convention in its policies and procedures through sustainable forest management policies, designation and recognition of endangered species, habitat conservation, prohibition of genetically modified organisms, and openness to individual landowners and their objectives from the forests in their management plans.

International Tropical Timber Agreement (1994 and 2006)

No gaps were identified. The International Tropical Timber Agreement's Preamble has as its main goals, the strategy for achieving international trade in tropical timber from sustainably managed sources and desiring to strengthen the framework of international cooperation and policy development between members in finding solutions to the problems facing the tropical timber economy.

The Center does not recognize this agreement as relevant in its practices. The United States is a member of the Agreement as a "Consuming Country" of tropical timber, and the

Center recognizes the need for sustainable timber management in tropical timber producing countries but is not a consumer of tropical timber.

Appendix H. Regional Guidelines for Streamside Management Zones and Harvest Opening Sizes

Harvest Opening Size

Southeast

- Old-growth and natural forests: clearcutting is not allowed. Harvesting is not allowed at all in old-growth forests.
- Semi-natural forests (stands with trees greater than 100 years old): clearcutting is not allowed; even-aged stands of hardwood and cypress: clearcutting is allowed; the size of openings should be conservative.
- Even-aged stands of pine and pine/hardwood: clearcutting is allowed; the size of openings should not be higher than the limit for plantations and should be justified by natural regeneration requirements.

Clear-cuts up to 80 acre 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 Group Member 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 Group Member wants to clear and restore the site. This exception cannot be used when a 40 acre clearcut would be economically operable and a Group Member wants to cut 80 acres to simply make a greater profit.

Clearcuts 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.

An exception to all of the limits on the use and size of clearcuts can be made in cases of ecologic necessity. Clearcutting may be used in natural forest stands, where appropriate and

necessary, as a tool for maintaining ecosystems that are dependent on large, contiguous openings. An example is the sand pine scrub ecosystem, which supports the ecologically significant Florida scrub jay and is currently being managed with large, contiguous clearcuts. Ecologists urge the use of large clearcuts in the sand pine scrub ecosystem to mimic the stand-replacing, catastrophic fires that historically maintained the ecosystem. This exception may only be used when supported by scientific literature.

Ozark-Ouachita

Clearcuts and shelterwood cuts are limited to 10% of the timber-producing area per decade. Harvest openings with no retention (clearcuts) are limited to two acres. Harvest openings, in which at least 20-30% of the canopy is retained (shelterwood and variable retention cuts), are limited to 20 acres. Tree-species retention is representative of natural forest composition of the area.

Diameter-limit cuts are prohibited. High grading and complete removal of low-grade trees is not allowed.

Use of natural regeneration is required rather than plantings, except when necessary for restoring specific habitats, stand types, or species.

The Group Member must take into account maintenance of high quality seed trees in the stand, use of fire to promote regeneration of fire controlled species (pine), and presence of advanced regeneration (hardwoods) before harvest.

Mississippi Alluvial Valley

In openings within regeneration harvest units larger than 20 acres, live trees and native vegetation are retained in a proportion and configuration that are consistent with the characteristic natural disturbance regime in each community type, unless retention at a lower level is necessary for restoration or rehabilitation purposes. Almost all forest types in the Mississippi Alluvial Valley occur naturally in even-aged stands and can be managed easily by even-aged silvicultural methods. However, with the exception of the very shade intolerant species, such as cottonwood and black willow, all species can be managed in uneven-aged stands, i.e., stands containing at least three age or cohort classes. For most Group Members, ease of management and economics may favor the use of even-aged silvicultural methods, but uneven-aged methods may be used to enhance species richness, biological diversity, landscape diversity, and habitat for some species. To assure the structure and functions provided by uneven-aged stands, canopy openings should be less than 3 acres in size.

For natural forest management using even-aged methods, retention of live trees within regeneration harvest units larger than 2- acres is required to provide refugium for those species that would otherwise be lost. Clearcuts that are adjacent or nearly adjacent to each other are also required to contain retention elements. Retention elements may be comprised of a combination of clumped and dispersed trees that assures a viable habitat for target species while minimizing the susceptibility of the retained trees to windthrow.

Retention trees may include those left in riparian and streamside buffers and other special areas, those left in wildlife corridors, deferment trees left for 2-aged management purposes. As well as other trees selected in groups at random over the harvest are, with special consideration for selecting mast-bearing trees. The amount of retention should emulate typical natural disturbances (e.g., less than landscape scale) in the harvest area that permit establishment and

development of regeneration of the next stand. For most stand types, retention is 20-30%. For stands dominated by shade-intolerant species, less retention is appropriate. The size of the regeneration harvest area that contains retention may vary depending on stand conditions, stand shape or layout, and operational considerations but maintaining landscape diversity is a major consideration. The average regeneration harvest area is no larger than 40 acres.

Streamside Management Zones

Southeast

Streamside management zones are specifically designed and/or referenced in the management plan, included 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 slopes, 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.

Ozark-Ouachita

Streamside management zone widths are horizontal measure (per side) from the mean high water mark:

Streamside management zone widths for perennial and intermittent streams						
Slope (%)	0-9	10-19	20-29	30-39	40-49	>50
Sole erosion susceptibility	**SMZ width (ft)**					
Slight	75	75	80	105	130	155
Moderate	75	75	100	140	170	200
Severe	75	90	130	170	210	250

Streamside management zones are established for all perennial and intermittent streams. Single tree harvest may be carried out in SMZs, except in no cuts zones. A minimum of 80% crown cover is maintained throughout the SMZ. A 10-foot no cut zone (from each bank) is established to maintain stream bank stability for perennial and intermittent streams. Use of chemicals is prohibited in SMZs. Skid trails and operation of heavy equipments are prohibited in SMZs, except at designated crossings.

Mississippi Alluvial Valley

Streamside management zones are created and maintained in accordance with the following table:

Streamside management zone widths							
		Slope					
Stream Class	**Soil erosion susceptibility**	0%	10%	20%	30%	40%	50%
		Total SMZ width (ft) per side[b]					
Perennial	Slight	75	75	80	105	130	155
Perennial	Moderate	75	75	100	140	170	200
Perennial	Severe	75	90	130	170	210	250
Intermittent	All catagories	30	30	30	30	30	03

[a]Soil erosion susceptibility is defined as the series level by USDA-NRCS State Soil Surveys

[b]Distances are horizontal measures per side of stream, and are measured from the mean high water mark as evidenced by lack of terrestrial vegetation.

For perennial streams, the inner zone of the SMZ is defined as the area within 30 feet of the mean high water mark. Within that zone, timber harvest is limited to single-tree selection and canopy cover is sufficient to maintain shade adequate to moderate water temperature. Harvesting in this zone maintains the composition, structural complexity, and functions of the SMZ. Timber harvesting in the outer zone of the SMZ is limited to either single-tree selection or small group selection. Canopy cover and vegetation are maintained to provide filtration of runoff into a stream.

Within intermittent streams, regeneration harvest may be conducted provided other vegetation and/or ground cover remains to protect the forest floor and the stream bank in a manner that will maintain water quality.

Prescribed burning is allowed in SMZs when water quality and the structures and composition of the forest with the SMZ can be maintained.

Drains (ephemeral channels) do not require an SMZ. Operational limitations for drains are:

- Never use a drain as a skid trail or road
- Never leave logging debris in a drain channel
- Cross drains only at right angles
- Avoid blocking the flow of water
- Avoid rutting

Appendix I. Glossary of Forest Management Terms

Age class: Intervals into which the age range of a tree crop is divided; also the trees falling into such an interval.
Aquatic habitat: Habitat for plants and animals that has surface water essential to an organism's survival, as differentiated from wetland habitats characterized by saturated soils or riparian zones. Examples include streams, ponds, and vernal pools.
Best Management Practices (BMPs): A practice or combination of practices considered by a state (or authorized tribe) to be the most effective means (including technological, economic and institutional considerations) of preventing or reducing environmental or social impacts, including for water, roads, runoff, etc. BMPs are generally identified by states or tribal entities and, in the case of water quality, approved by the US Environmental Protection Agency.
Baseline Conditions: Ecological, economic, and social conditions at the beginning of a planning or management cycle.
Best available information: The most pertinent, thorough, and credible information that is publicly available and readily accessible to a forest owner or manager. Determining "best available" among a variety of sources may include comparing the nature of the source (e.g. stage agency, university, private company), the date of development of the information, and the applicability of the information itself.
Biological control agents: Living organisms used to eliminate or regulate the population of other living organisms.
Biological diversity (also Biodiversity): The variability among living organisms from all sources including interalia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which the are a part, including diversity within species, between species and of ecosystems (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 (Convention on Biological Diversity, 1992).
Buffer/buffer zone: A strip of vegetation that is left or managed to reduce the impact of a treatment or action of one area on another. See also Riparian Management Zone and Streamside Management Zone.
Chain of custody (CoC): The channel through which products are distributed from their origin in the forest to their end-use.
Chemicals (chemical pesticides): The range of insecticides, fungicides, fertilizers and hormones that are used in forest management.
Coarse woody debris: Dead trees left standing or fallen and the remains of branches on the ground in forests.
Conversion: The modifications to the structure and dynamics of a forest as a result of management activities, resulting in a significant reduction in the complexity of the forest system; or the transformation of a forest into a permanently non-forested area; or the transformation of a natural forest into a plantation.
Credible scientific analysis: Scientific opinions supported by data and explanations in articles published by peer-reviewed professional journals that deal with the natural or social sciences and judges to be relevant to the matter in questions. Credible scientific analysis may also include non-peer reviewed studies when conducted by qualified professionals in accordance with accepted scientific methods. Scientific credibility, as it applies to this Standard, is based on a body of scientific work and on the judgment of experienced professionals.
Culmination of Mean Annual Increment (CMAI): The peak average yearly growth in volume of trees or a forest stand, calculated by dividing the total volume by the age of the stand.
Cumulative effects/ impacts: Individual consequences of an action or repeated actions, which may or may not be observable, that reinforce one another as they occur over time until they cross a threshold and manifest as a stronger outcome than any of the individual consequences would be by themselves.

Desired Future Condition: A description of the forest and/or resource conditions that are believed necessary if goals and objectives are fully achieved. Desired Future Condition typically includes forest attributes such as forest structure, age class distribution, species composition, standing timber quality, and stand arrangement. For the purposes of this Standard, managing for desired future conditions implies that all other requirements in this Standard have been fully met.

Development Stage (development): The series of stand development stages characteristic of the forest community type and natural disturbance regime as measured by tree size and vertical stand structure. Stand development stages range from early regeneration through old growth.

Dispute: A dispute exists when the parties have exhausted consultative avenues to resolve their differences and the following occurs: a person or persons whose rights or interests are directly affected by the forest manager's activities gives written notice to the manager, indicating that they wish to pursue a dispute resolution process and specifying which rights or interests are affected, by which management activities, in which location, and what modifications are considered appropriate to avoid or mitigate impacts on the rights or interests; OR, the manager gives written notice to the disputant, in order to trigger the dispute resolution process and bring closure to the disagreement.

Downed woody debris: Wood from fallen trees or branches that lie on the forest floor, where it provides important microhabitats and performs the various functions of nutrient cycling. Downed woody debris is commonly categorized as large and/or coarse or fine woody debris.

Ecological Community: An area defined by its dominant vegetation using the International Classification of Ecological Communities; an Association or Alliance as used by NatureServe, or a Natural Community as used by some state 'natural heritage programs' (actual agency name may vary by state).

Ecosystem (also Ecological System): A group of plant community types that tend to co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. A given terrestrial ecological system will typically manifest itself in a landscape at intermediate geographic scales of 10s to 1,000s of hectares and persist for 50 or more years. Therefore, these units are intended to encompass common successional pathways for a given landscape setting. Note: "plant community types" refers to associations or alliances. (source: NatureServe, 2008, http://www.natureserve.org/explorer/classeco.htm#terr_ecological).

Ecosystem services: Functions performed by natural ecosystems that benefit human society, such as hydrological services (water supply, filtration, flood control), protection of the soil, breakdown of pollutants, recycling of wastes, habitat for economically important wild species (such as fisheries), and climate regulation.

Endangered species: A species officially designated by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, or a state wildlife program as having its continued existence threatened over all or a significant portion of its range.

Erosion: The displacement of soil from one place to another by any means; including water, wind, gravity, logging, and road building.

Even-aged silviculture: Silvicultural systems in which stands of trees of roughly the same age and size are grown and harvested simultaneously. Even-aged systems may involve intermediate entries that remove some trees before the final, or "regeneration" harvest, when a new even-aged class of trees is established. A regeneration harvest is designed to remove all or most of the trees within a defined age/size class, or to convert a stand containing trees having a variety of ages, sizes, or species to a more uniform stand. The timing of the regeneration harvest is termed the "rotation age" of the timber stand. Even-aged silvicultural systems include clearcut, seed-tree, shelterwood, two-age silviculture, and variable retention systems. Even-aged management units may contain more than one age/size class of trees on the site at any one time for silvicultural reasons or environmental enhancement. For instance, a variable retention system typically retains 10-25% of the vegetative cover present before harvest on site and intermixed with the new even-aged stand, to maintain structures and functions important for wildlife. Classic shelterwood and seed tree cuts retain mature trees from the harvested stand during the establishment of the next crop of

trees, but these are taken out during a “removal” harvest to leave one age/size class for future management.

Exotic species (exotic plant species): An introduced species not native or endemic to the area in question. For the purpose of this Standard, exotic plant species are those not native to the forest community type that would naturally be found there.

Family Forest (also Small Forest): A forest up to 2,470 acres in size, as defined by the FSCUS's Family Forest Program (SLIMF) Streamlined Certification Procedures (FSC-POL-20-101 at http://www.fscus.org/documents/).

Forest: (1) The property or portions of a property that is under certificate or being assessed for certification; the corresponding FSC International nomenclature is 'Defined Forest Area.'
(2) Generally, an ecosystem characterized by tree cover; more particularly, a plant community predominantly of trees and other woody vegetation that is growing closely together.

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

Forest Management Unit (FMU): A unit of forest under the FSC certificate managed under a single management plan. A forest management unit may consist of single or multiple parcels.

Forest management/manager: The person(s) 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.

Forest of Recognizable Importance (FORI): ATFS category representing globally, regionally and nationally significant large landscape areas of exceptional ecological, social, cultural or biological values. These forests are evaluated at the landscape level, rather than the stand level and are recognized for a combination of unique values, rather than a single attribute. FORIs may include but are not limited to landscapes with exceptionally high concentrations of one or more of the following:

1. protected, rare, sensitive or representative forest ecosystems such as riparian areas and wetland biotopes
2. areas containing endemic species and critical habitats of multiple threatened or endangered plant and animal species, as identified under the Endangered Species Act (ESA) or other recognized listings
3. recognized large - scale cultural or archeological sites including sites of human habitation, cities, burial grounds and in situ artifacts
4. areas containing identified and protected water resources upon which large metropolitan populations are dependent
5. areas containing identified unique or geologic features including geysers, waterfalls, lava beds, caves or craters

Forest owner: A person, group, corporation, public agency or other legal entity with legal title to a forest property.

Forest workers (workers): Employees of contractors, overlapping or third-party licensees, as well as employees of the applicant firm and subcontractors. Both union and non-union workers are included.

Genetically modified organisms: Biological organisms that have had their genetic material artificially altered in a way that does not occur naturally by mating or natural recombination or both. Examples of techniques covered by this definition include:
Recombinant DNA techniques using viral or bacterial vectors
The direct introduction of DNA into an organism, eg by microinjection
Cell fusion or hybridization
Clones, hybrids formed by natural pollination processes, or the products of tree selection, grafting, vegetative propagation or tissue culture are not GMOs, unless produced by GMO techniques.

Habitat: (1) Those parts of the environment (aquatic, terrestrial, and atmospheric) often typified by a dominant plant form or physical characteristic, on which an organism depends, directly or indirectly, in order to carry out its life processes. (2) The specific environmental conditions in which organisms thrive in the wild.

Harvest unit: a spatial unit of forest management that defines a single harvest prescription.

High Conservation Values (HCV): High Conservation Value possess one or more of the following attributes:

1. Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g., endemism, endangered species, refugia).
2. Forest areas containing globally, regionally or nationally significant 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.
3. Forest areas that are in or contain rare, threatened or endangered ecosystems.
4. Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control)
5. Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health).
6. Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

High grading (highgrade logging): the practice of removing higher quality trees in favor of removing lower quality trees.

Historic Conditions: Ecological conditions and processes existing prior to substantial modern human disturbance of the site, based on best available information.

Indigenous lands and territories: The total environment of the lands, air, water, sea, sea-ice, flora and fauna, and other resources that indigenous peoples have traditionally owned or otherwise occupied or used.

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; people 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. In the US, Indigenous peoples are recognized members of American Indian tribes, Native American, Nations, Bands, Rancherias, and Tribal Corporations, recognized by those particular tribes They may include groups that have not been officially recognized by the Federal government. Members may include persons who have either married into or been adopted by American Indian families.

Integrated Pest Management: A pest or weed management strategy that focuses on long-term prevention or suppression of pest or weed problems through a combination of techniques such as encouraging biological control, use of resistant varieties, and adoption of alternate cultural practices to make the habitat less conducive to pest development.

Invasive species: A species capable of rapid reproduction and spatial expansion, which may displace more specialized native species and/or is difficult to eradicate. Invasive species are of particular ecological concern if they are exotic to the area in question.

Landscape: For the purposes of this Standard, the term "Landscape" refers to a delineation of land area that captures similar environmental and ecological conditions including climate, geology, soils, and biology. USFS defined Ecological Sections (Cleland 2005, update of Bailey/USFS) or smaller units are recommended for use to define landscape for purposes of RSA establishment and assessment (discussion and map available at http://www.natureserve.org/explorer/eodist.htm#ecoregions). For many other purposes, "landscapes" will often occur at smaller scales than ecological sections. In some contexts, "landscape" as used in this Standard simply refers to consideration of the area surrounding a particular site.

Large forest (also large ownership): A forest greater than 50,000 acres in size.

Late successional: Forest in old-growth or mature seral stages.

Legacy Tree: A tree, usually mature or remnant of old growth, that provides a biological legacy. For the purposes of this Standard, it is an individual old tree that functions as a refuge or provides other important structural habitat values.

Local: Adjacent to the forest, or in other ways show significant impact from forest operations. On public lands, this also includes all citizens of the relevant entity (county, city, or state).
Local communities: Those communities that lie either within or adjacent to the FMU, or in other ways show significant impact from forest operations. On public lands, this also includes all citizens of the relevant entity (county, city, or state).
Local laws: 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. This may extend beyond the duration of a certificate.
Mid-Sized Forest: A forest between 2,475 and 50,000 acres in size.
Native species: Species that naturally occur within the forest community type; 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 disturbance regime: Disturbance processes such as wind, fire, insects, and pathogens that are characteristic of the forest ecosystem, site, and region. Disturbance regimes are typically characterized by the range of extent, intensity, and return interval of a similar event expected for a given site. For the purposes of this Standard, non-***catastrophic natural disturbance*** should be the focus of analyzing for natural disturbance.
Natural Forest: Natural forests include old growth and primary forests as well as managed forests where most of the principal characteristics and key elements of native ecosystems such as complexity, structure, wildlife and biological diversity are present. See also semi-natural forests.
Non-timber forest products (NTFP): 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.
Old growth: (1) the oldest seral stage in which a plant community is capable of existing on a site, given the frequency of natural disturbance events, or (2) a very old example of a stand dominated by long-lived early- or mid-seral species The onset of old growth varies by forest community and region. Depending on the frequency and intensity of disturbances, and site conditions, old-growth forest will have different structures, species compositions, and age distributions, and functional capacities than younger forests. Old-growth stands and forests include:

> **Type 1 Old Growth:** three acres or more that have never been logged and that display old-growth characteristics.
> **Type 2 Old Growth**: 20 acres that have been logged, but which retain significant old-growth structure and functions.

Pathogen: Any agent that causes disease, especially microorganisms, such as bacteria or fungi.
Perennial stream: A mapped or unmapped stream that contains water year round.
Pesticide: A substance used to kill or control harmful, competitive, or destructive organisms.
Planning Unit: The specific geographic area for which a sustained yield harvest level is being calculated. Planning Units should generally be comprised of land that contains similar or commonly associated forest types. Depending upon the scale of ownership, Planning Units may range in size from a single stand (for example small, private landowners) to entire watersheds. A Planning Unit may include the entire Forest Management Unit if not larger than watersheds.
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 (source: FSC-STD-01-001).
The use of establishment or subsequent management practices in planted forest stands that perpetuate the stand-level absence of most ***principle characteristics and key elements of native forest ecosystems*** will

result in a stand being classified as a plantation. The details addressing ecological conditions used in stand-level classification are outlined in related guidance. Except for highly extenuating circumstances the following are classified as plantations:

- cultivation of ***exotic species*** or recognized exotic sub-species;
- block plantings of cloned trees resulting in a major reduction of within-stand genetic diversity compared to what would be found in a natural stand of the same species;
- cultivation of any tree species in areas that were naturally non-forested ecosystems.

See Appendix F for: 1) guidance on the classification of plantations; 2) guidance on ***principle characteristics and key elements of native forest ecosystems***; and 3) guidance on management practices related to plantations.

Precautionary principle/approach: This principle establishes that a lack of information does not justify the absence of management measures. On the contrary, management measures should be established in order to maintain the conservation of the resources (http://www.fao.org/docrep/006/X8498E/x8498e04.htm); an approach to the management of risk when scientific knowledge is incomplete (http://www.croplifeasia.org/biotechnology-glossary.html).

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 that is relatively undisturbed by human activity. Human impacts in such forest areas have normally been limited to low levels of hunting, fishing, and very limited harvesting of forest products. Such ecosystems are also referred to as "mature," "old-growth," or "virgin" forests. See also old growth.

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

Protected areas: A portion of the forest of special biological, cultural or historical significance that is designated, mapped and managed principally to protect its biological, cultural or historic attributes. Management activities (including logging) for any purposed other than ecological improvements are prohibited in protected areas.

Public forest: Forestland held in government ownership in trust for the citizens of a city, county, state, or nation.

Rare ecological community (including plant community): Those ecological communities that have been identified by state or federal agencies, or natural heritage databases to be rare, consistent with the parameters for determining RTE species.

Rare, threatened and endangered species (RTE): species that are federally-listed (i.e., by the US Fish and Wildlife Service or National Marine Fisheries Service) or state-listed (i.e., by state natural heritage or other state agencies) as threatened, endangered, or sensitive; and species that are listed by the Natural Heritage Database or NatureServe as critically imperiled, imperiled, or vulnerable. This includes all G1-G3 and S1-S2 species. Some S3-ranked species, including all S3 species that are listed as candidates for federal or state listing will also be considered rare. Other S3 species may be considered rare based on the assessment by the landowner or manager conducted under Criterion 6.1.a.

Refugia: (plural) habitat in which a population can persist and from which it can disperse when the surrounding habitat becomes suitable for it to live in; locations and habitats that support populations of organisms that are limited to a small fragment of their previous geographic range.

Regeneration Harvest: Any removal of trees intended to assist regeneration already present or to make regeneration possible.

Restore (Restoration): The process of modifying a habitat or ecosystem to introduce or reintroduce composition, structures, and functions that are native to the site.

Restoration plantation (Restoration planting): A stand established through artificial regeneration that will be managed with a central goal of returning a site to a natural forest condition.

Representative Sample Areas: Ecologically viable representative samples designated to serve one or more of three purposes: 1) To establish and/or maintain an ecological reference condition; or 2) To create or maintain an under-represented ecological condition (i.e., includes samples of successional phases, forest types, ecosystems, and/or ecological communities; or 3) To serve as a set of protected areas or

refugia for species, communities and community types (e.g. developmental stages) not captured in other Criteria of this Standard (e.g. to prevent common ecosystems or components from becoming rare).
Retention: Living vegetation, including trees, shrubs, and herbaceous species, that is retained during even-aged and two-aged regeneration harvests.
Riparian zone: A zone of interaction between aquatic and terrestrial ecosystems along streams, lakes, wetlands, and other water bodies. Riparian areas both influence water bodies and are influenced by them, and include both plant and wildlife habitats that are influenced by the proximity to aquatic ecosystems.
Riparian management zone (RMZ): A strip of land, adjacent to streams, lakes, wetlands, and other water bodies managed to conserve plant and wildlife habitats characteristic of the riparian zone and to protect adjacent aquatic habitats and water quality. An RMZ may vary in width depending on the habitat values specific to the site (e.g, stream or wetland type) and may be wider than a stream management zone designed solely to protect water quality and aquatic habitat.
Rutting: The creation of depressions made by tires and treads of mechanical equipment such as trucks, skidders, tractors, all-terrain vehicles (ATV), and other equipment. Rutting may occur in the general harvest area and on facilities such as roads and skid trails. Ruts may result from harvest operations or other uses such recreational ATV use.
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 United States, and include a considerable amount of unmanaged and most of the managed forest land other than plantations.
Silviculture (Silvicultural): 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.
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: See 'Family Forest'.
Snag: A standing dead tree.
Soil: Earth material (rock) so modified by physical, chemical, and biological agents that it will support rooted plants. Soil also includes organic material, biotic communities and species that live in the ground and that contribute to their ecological productivity.
Special areas: Areas with important ecological or cultural values where timber management is modified to conserve those values.
Species: The main category of taxonomic classification into which genera are subdivided, comprising a group of similar interbreeding individuals sharing a common morphology, physiology, and reproductive process.
Species composition: The species that occur on a site or within an ecosystem at any point in time.
Stand: Plant communities, particularly of trees, sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguished from adjacent communities; also, may delineate a silvicultural or management entity.
Streamside Management Zones (SMZs): Land and vegetation areas next to lakes and streams where management practices are modified to protect water quality, fish, and other aquatic resources. These areas are complex ecosystems that provide food, habitat and movement corridors for both water and land communities. Also, because these areas are next to water, SMZs help minimize nonpoint source pollution to surface waters. In the Appalachia, Ozark-Ouachita, Southeast, Mississippi Alluvial Valley, Southwest, Rocky Mountain, and Pacific Coast regions, there are requirements for minimum SMZ widths and explicit limitations on the activities that can occur within those SMZs. These are outlined as requirements in Appendix H.
Structural diversity: The diversity in a plant community that results from the variety of physical forms of the plants within the community (such as the layering of vegetation into groundcover, shrub layer, as well as understory, mid-story, and overstory trees).

Succession: Progressive changes in species composition and forest community structures caused by natural processes (non-human) over time.
Sustained yield harvest levels: harvest levels and rates that do not exceed growth over successive harvests, that contribute directly to achieving desired future conditions, and that do not diminish the long term ecological integrity and productivity of the site. The sustained yield harvest level specific to the certified FMU is based on calculations made according to Indicator 5.6.a in this Standard.
Tenure (also long-term tenure, legal tenure, tenure claim, customary 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 unit of land or the associated resources therein (such as individual trees, plant species, water, minerals, etc).
Threatened species: Any species officially designated by a state or federal agency, which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Traditional knowledge: Legal rights of ownership that individuals and corporations have over products of their creativity and inventiveness. In the context of Principle 3, intellectual property includes rights claimed by indigenous peoples over their traditional cultural knowledge about the use of forest species or management systems in forest operations, particularly in instances where that knowledge is commercialized.
Use rights (also: rights of use): 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.
Usufruct rights: see 'Use rights'.
Vernal pool (vernal pond): A seasonal body of water, typically a self contained depression, that contains species not normally found in perennial water bodies. Vernal pool types, species, and identification will vary by region. Vernal pools that occur in eastern and midwestern forests are characterized by a unique suite of amphibian and invertebrate species. In Mediterranean-type climates (i.e., wet winters and dry summers), especially on coastal terraces in southwestern California, the central valley of California, and areas west of the Sierra Mountains, the term vernal pool applies to shallow, seasonally flooded wet meadows with emergent hydrophytic vegetation and invertebrate species not found in other wetland types.
Water quality: Timing and volume of water flow and the purity of water determined by a series of standard physio-chemical parameters (e.g. turbidity, temperature, bacterial count, pH, and dissolved oxygen), or by biological parameters (e.g. community composition and functionality), as well as the incidence of disease.
Wetland: Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas (US EPA).
Woody debris: All woody material, from whatever source, that is dead and lying on the forest floor.