

SGSF Forest Certification Programs Status and Recommendations in the South 2021 Report Update



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Introduction and Rationale

The purpose of this publication is to describe current major forest certification programs operating in the United States and highlight specific aspects of each and their impact on southern forest management systems. Provided is a matrix summarizing three major certification programs and tables detailing certification program participation in each state. Finally, the report concludes with suggested strategies to support both forest certification and forest landowners across the region.

This document represents the second version of a publication first developed by the Southern Group of State Foresters (SGSF) in November 2011. Although much of the original information remains relevant, forest certification systems and the forest products industry in general have experienced significant enough changes to warrant an update. Forest certification programs provide a method to verify that retail forest products are grown, harvested and processed consistent with certain sustainability criteria. This applies to all types of forest products, including paper and packaging, building products and energy products produced from wood.

Although forest certification programs in the Southeast have yet to yield widespread improved market access or enhanced stumpage pricing for participants, forest product certification continues to grow in relevance as more and more consumers consider the environmental and societal impacts of their purchasing decisions. Retailers of forest products are responding to this increasing demand by offering products with “green” labeling. Demand is also growing in many parts of the world, especially Europe, for certification of a wide range of wood products from paper to bio-energy products. Emerging biomass markets associated with wood pellets for bio-electricity sourced from the southeastern United States are also beginning to request certification for their feedstock, including both traditional forest certification and other risk mitigation approaches. Unique certification systems, such as the [Sustainable Biomass Program](#), have emerged to fill this market niche and build upon existing forest certifications. As a result, broadened market availability is projected for forest certification program participants.

Certification programs have become competitive, creating a debate among consumers, environmentalists and forest managers about which system is best. Interestingly, both Dovetail Partners, Inc. and the National Association of State Foresters (NASF) state that all established forest certification systems are needed. NASF-2013-2 Policy Statement says, “While in different manners, the ATFS (American Tree Farm Standard), FSC (Forest Stewardship Council) and SFI (Sustainable Forestry Initiative®) systems include the fundamental elements of credibility and make positive contributions to forest sustainability. Proponents of individual certification programs often promote their option as the best or only option. This has little to do with quality and everything

to do with marketing and selling their program. No certification program can credibly claim to be the 'best' and no certification program that promotes itself as the only certification option can maintain credibility. Forest ecosystems are complex and a simplistic 'one size fits all' approach to certification cannot address all sustainability needs.

“Certification is driven by the marketplace, and the marketplace has driven the development of certification programs at all levels of the forest products supply chain. Competition among certification programs produces innovation and continuous improvement in certification processes and on-the-ground forestry practices.” Regardless of individual opinions, market demand determines which systems are used.

Participation in forest certification programs has increased recently, particularly in parts of the Upper Midwest and Northeast. However, southern forest landowners have demonstrated less interest. Aligning with a collective mission to support non-industrial forest owners and the forest industry with utilization and marketing issues, state forestry agencies in the South should assist these groups with forest certification issues and access to forecast market growth.

Types of Certification Standards

- **Forest Management Certification:** This type of certification, in which forest land management is evaluated against agreed upon standards of sustainability and/or responsible forest management, is the most common. Forest management certification can be issued to a forest management organization, individual forest landowner or as part of a group certification. Full audits or surveillance audits are required annually to maintain forest management certification.
 - **Group Certification:** A number of forest management organizations or forest landowners are certified collectively as one group or under one professional resource manager certificate holder. This structure allows for forest certification at a lower cost to individual landowners, since only a small sample of owners' collective properties is audited annually.
- **Chain of Custody:** This certification system follows wood from the certified forest source to the finished product. This certification process involves mills, manufacturers and other secondary manufacturers who purchase, use or sell certified wood, paper and other forest-based products. The finished product may be accompanied by a logo identifying the certification system or a certification claim on product invoices and other documentation.

- **Fiber Sourcing Certification:** the certification system for manufacturers that source directly from a variety of landowners, which sets procurement requirements for how they source logs in a responsible way.
- **Controlled Wood:** the certification system that defines the minimum standards for raw material from forests that are not certified that can be mixed with raw material from certified forests for product labeling.

Key Elements of Credible Forest Certifications Systems

Credible forest certification programs include the following fundamental elements:

- 1. Independent Governance – The governance body should include economic, environmental, and social interests and operate independently from participants and conformance verifiers or auditors.*
- 2. Multi-Stakeholder Standard – A diverse group representing forestry, wildlife, conservation, industry, government and academic expertise should establish an objective Standard for sustainable forestry with specific performance measures.*
- 3. Independent Certification – Certification requires verifying conformance with the Standard during full certification and periodic surveillance audits. This should be accomplished by independent, qualified, and accredited third-party auditors. Auditors should meet professional standards established by an independent accreditation body such as the American National Standards Institute National Accreditation Board (ANAB).*
- 4. Credible Complaints & Appeals Process – There should be a clear process for credibly responding to on-the-ground compliance concerns or certification challenges.*
- 5. Open Participation and Transparency – Public and private sector landowners, including family forest owners, should have access to any forest certification program for which they qualify.¹*

Most of these elements are satisfied by all three of the major certification programs operating in the United States. Sustainable Forestry Initiative (SFI) and American Tree Farm System (ATFS) are North American and United States programs, respectively. They are certified

¹ From NASF 2013-2 Policy Statement - Forest Certification as it Contributes to Sustainable Forestry Practices

under the internationally recognized Program for the Endorsement of Forest Certification (PEFC)². Forest Stewardship Council (FSC) certification is used in North America and throughout the world.

Major Forest Certification Systems

Forest managers and the forest industry in the South should examine the costs and benefits of each system as it applies to their own situation prior to investing in certification. The ease and cost to accomplish management standards associated with certification may vary for landowners with smaller forest land acreage).

The three major forest certification systems used in the United States are briefly described below. A matrix, found in [Appendix A](#), is also provided to facilitate examination and comparisons of the three major certification systems.

Sustainable Forestry Initiative (SFI)

[SFI Inc.](#) is an independent 501(c)(3) not-for-profit charitable organization whose mission is to advance sustainability through forest-focused collaborations. Across North America, more than 370 million acres (150 million hectares) are certified to the SFI forest management standard, including nearly 70 million acres in the United States (28 million hectares)³. The SFI Chain-of-Custody Standard and associated product labels tell buyers the percentage of fiber from certified forests, certified sourcing and/or recycled content. The SFI program's unique Fiber Sourcing Standard promotes responsible forest management on tens of millions of other forest lands. SFI Inc. is governed by a three-chamber board of directors representing environmental, social and economic sectors equally. SFI is North American in scope but recognized internationally through the Programme for the Endorsement of Forest Certification (PEFC).

● Overview of SFI Standards

- The SFI Forest Management Standard applies to any organization that owns or has management authority for forest lands. The SFI 2022 Forest Management Standard promotes sustainable forestry practices based on 13 principles, 17 objectives, 41 performance measures and 114 indicators. These requirements include measures to protect water quality, biodiversity, wildlife habitat, species at risk and Forests with Exceptional Conservation Value. The SFI 2022 Forest Management Standard applies to organizations in the United States and Canada.

² PEFC is a membership organization based in Geneva, Switzerland with more 80 members located around the world including national certification systems, NGOs, labor unions, business, trade associations, forest owner organizations and committed individuals. PEFC has 55 national members that develop and implement the PEFC system within their country.

³ https://www.sfiprogram.org/wp-content/uploads/SFI-ProgressReport-2019_Final.pdf

- The SFI 2022 Fiber Sourcing Standard applies to any organization with a fiber sourcing program that acquires roundwood and field-manufactured or primary-mill residual chips, pulp and veneer to support a forest products facility. The SFI 2022 Fiber Sourcing Standard promotes responsible forestry practices based on 13 principles, 11 objectives, 29 performance measures and 59 indicators. These fiber sourcing requirements include measures to broaden the practice of biodiversity, use forestry best management practices to protect water quality, provide outreach to landowners and utilize the services of forest management and harvesting professionals. The SFI 2022 Fiber Sourcing Standard applies to organizations in the United States and Canada that procure wood domestically or globally.

SFI Standards can be found at www.Forests.org/Standards.

American Tree Farm System (ATFS)

ATFS, administered by the American Forest Foundation, is a certification program primarily for small, private family forest landowners. It was established in 1941 as the Tree Farm Program to help private forest landowners with forest management and to encourage them to maintain forests on their properties. The Tree Farm program achieved approval as a group certification program under the ATFS name in 2004 and is the oldest family forest certification system in the United States. Subsequently, the ATFS program was endorsed by PEFC in August of 2008. ATFS certifies contiguous parcels from 10 to 20,000 acres. Properties larger than 10,000 contiguous acres (unless grandfathered) or owned by state governments must join an Independently Managed Group (IMG) or obtain an individual third-party certificate. The ATFS network is currently comprised of more than 74,000 family forest land owners sustainably managing 19 million acres of forest land⁴.

The ATFS Standards can be found at www.treefarmssystem.org/certification-american-tree-farm-standards.

Forest Stewardship Council (FSC)

FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. It was established in 1993 as a response to concerns over global deforestation. FSC is comprised of members who have established a list of environmental, social and economic standards that they feel are appropriate in managing forests. Across North America, more than 154.7 million acres (62.6 million hectares) are certified to the FSC standard with 35.2 million acres (14.2 million hectares) in the United States⁵.

FSC has developed national and regional forest management and chain of custody standards and delivers trademark assurance, providing accreditation services to a global network of

⁴ <https://www.treefarmssystem.org/about-tree-farm-system> - accessed 3/26/2021

⁵ <https://us.fsc.org/en-us/what-we-do/facts-figures> - accessed 3/26/2021

committed businesses, organizations and communities. FSC certification provides a link between forest production based on FSC standards and consumption of forest products by using market-based incentives.

FSC is represented in more than 50 countries. Individual national offices (such as FSC-US) have developed indicators for auditors to determine compliance to FSC principles and criteria. The broad support of environmental organizations is reflected in the dominance of the FSC chain of custody certificates around the world. There is some variation in FSC standards by country and region so it is recommended to closely examine the standards by representation area.

FSC takes a unique stance against deforestation (conversion to non-forest conditions) and conversion of forest areas to plantations, either native species or those that involve the use of exotic species including genetically modified organisms (GMOs). FSC is opposed to the use of GMOs regardless of whether they are present in a natural forest or plantation.

The FSC approach toward plantation management merits further discussion as it has been the source of much misunderstanding. Planted forests that utilize native species and that capture most of the ecological components of natural forests (e.g. wildlife habitat and species diversity) generally are not considered “plantations” in the FSC sense, despite the fact that they are referred to as plantations in the Southeast. FSC recognizes that planted forests can play a key role in capturing environmental and social values based on choice of species and subsequent management of these areas. In contrast, FSC recognizes the environmental challenges of forest areas converted to agricultural style management regimes.

The FSC-US Forest Management Standard can be found at us.fsc.org/en-us/certification/forest-management-certification.

Status of Major Forest Certification Program Implementation in the U.S.

There are 95.7 million acres (38.7 million hectares) certified with at least one forest certification system in the United States. This is 12.5% of the 765 million acres of forest land in the United States. Potentially a more useful metric is that this is 23.6% of the 406 million acres of non-federal timberland in the United States, which is a more appropriate comparison due to the absence of federal lands certification (lands managed by the USDA Forest Service only became eligible for FSC certification in 2019) and non-timberland unlikely to be certified⁶. [Table 1](#) provides detailed information on the status of forest certification by U.S. region and state⁷.

⁶ Timberland does not include reserved, woodland, or other forest lands per definitions in the Resource Planning Act (RPA).

⁷ For this report, regional breakdown of states into North, South and West follows the grouping of states by regional State Forester Associations (North-east Midwest State Foresters Alliance, Southern Group of State Foresters, and Council of Western State Foresters) and can be found in Table 1.

One challenge in estimating the total number of certified acres in any geography is the issue of dual-certification (i.e. the same acre being certified to multiple standards). Due to the rising number of questions about this issue, PEFC and FSC agreed in 2016 to begin tracking this overlap on a national basis⁸. Any tracking of dual-certification in the United States, especially at the state level, is done by landowners self-reporting to the certification bodies with verification by certification auditors and public reporting data by standards. Most recent data on dual-certification was obtained through conversations with certification staff for this report and is included in [Table 1](#). It is estimated that 26.4 Million acres (10.7 M hectares) are certified to more than one standard the United States, mostly dual-certification to FSC and SFI. There is only one state with reported ATFS/FSC dual certification (Wisconsin) and one state with reported SFI/ATFS dual certification (South Carolina).

Examining the data in [Table 1](#), some summary findings can be made. The North has the highest number of certified acres at 39.3 million acres, followed closely by the South's 36.3 million acres and the West's 20 million acres. The West has the highest percentage of non-federal timberland certified (32.8%) followed by the North (25.6%) and the South (19.0%).

Forest Certification Strategies for Southern State Forestry Agencies

SFI is the most popular standard in each of the three regions; however, its popularity is closely rivaled by FSC in the North. Of the three regions, ATFS is strongest in the South with over 50% of ATFS-certified acres present in that region. Finally, there are six states, all in the West (Alaska, Arizona, Hawaii, Nevada, North Dakota and Utah), which have no certified acres at all.

This report includes recommendations on several strategies that state forestry agencies and other forestry partners may consider adopting regarding forest certification.

Recommended List of Strategies

- Provide information on forest certification systems to forest landowners, forest consultants, other forest managers, wood suppliers and others in the forest industry in the form of workshops and one-on-one contact.
- Promote proven success of long-established, voluntary environmental and forest sustainability programs. [Southern Regional Extension Forestry](#) is a useful source for workshops and webinars on forest certification and sustainability topics.
- Develop and provide credible scientific information to regulatory agencies relative to forest

⁸<https://www.pefc.org/news/double-certification-fsc-and-pefc-2020-estimation> - accessed 3/24/2021

management and market effects, including the impacts of regulating forest management on privately owned forest land using certification systems. Encourage studies to verify this information.

- Include certified products as a data field on state and online forest product directories.
- Continuously examine, assess and monitor forest certification systems. SGSF should develop and maintain a knowledge base of unbiased information to support and advise landowners and evaluate market demands for certified forest products.
- Evaluate the role that certification may have in retaining, developing and expanding sustainable markets for forest products. Promote certification efforts that strengthen domestic markets for forest products.
- Continually assess the potential impact of certification on private property rights.
- Continually evaluate and weigh the potential costs to program participants understanding that forest certification standards are subject to change during periodic standard reviews.
- Study the potential impact on sustainability should certification programs limit the use of certain scientifically-applied forest management practices (e.g. forest pesticides and/or herbicides).
- Promote the use of green building systems that encourage the use of wood products and which credit SFI and ATFS systems as well as FSC.
- Promote and realize the potential of USDA Forest Service programs such as Forest Inventory and Analysis (FIA) and Timber Product Output (TPO) as a scientific measurement of long-term sustainability and health of the nation's forests.

Disclaimer

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TABLE 1

Certified Acres by State and Region

State	SFI Certified Acres	ATFS Certified Acres	FSC Certified Acres	Company-reported Dual (SFI & FSC) Acres	Company-reported Dual (SFI & ATFS) Acres	Company-reported Dual (FSC & ATFS) Acres	Total Certified Acres
Alabama	2,894,408	2,475,345	774,579	392,060	0	0	5,752,272
Arkansas	3,266,043	565,803	1,629,730	869,748	0	0	4,591,828
Florida	1,837,119	800,859	127,356	21,201	0	0	2,744,133
Georgia	2,235,809	1,757,848	92,512	0	0	0	4,086,169
Kentucky	34,036	231,200	303,881	0	0	0	569,117
Louisiana	3,299,665	939,383	633,848	0	0	0	4,872,896
Mississippi	2,135,036	1,324,330	397,054	275,198	0	0	3,581,222
North Carolina	1,203,442	304,364	207,933	17,500	0	0	1,698,239
Oklahoma	771,405	43,179	11,032	0	0	0	825,616
South Carolina	1,110,536	647,242	274,529	0	84,712	0	1,947,595
Tennessee	575,210	316,534	197,238	0	0	0	1,088,982
Texas	2,351,104	723,062	158,093	76,162	0	0	3,156,097
Virginia	691,815	533,208	217,922	15,000	0	0	1,427,945
South Total	22,405,628	10,662,357	5,025,707	1,666,869	84,712	0	36,342,111
Connecticut	0	39,914	796	0	0	0	40,710
Delaware	0	14,738	1,109	0	0	0	15,847
Illinois	0	61,409	1,794	0	0	0	63,203
Indiana	158,264	97,714	644,124	158,264	0	0	741,838
Iowa	0	78,493	0	0	0	0	78,493
Maine	7,279,675	402,077	4,762,129	4,254,760	0	0	8,189,121
Maryland	209,335	102,811	220,444	209,207	0	0	323,383
Massachusetts	0	88,288	63,786	0	0	0	152,074
Michigan	5,393,719	372,674	4,121,309	3,900,000	0	0	5,987,702
Minnesota	6,950,453	96,711	6,140,204	5,354,107	0	0	7,833,261
Missouri	658,348	95,631	3,931	0	0	0	757,910
New Hampshire	205,152	436,167	293,417	113,633	0	0	821,103
New Jersey	0	51,158	576	0	0	0	51,734
New York	1,448,290	353,869	1,558,439	1,386,745	0	0	1,973,853
Ohio	200,407	276,424	223,466	200,407	0	0	499,890
Pennsylvania	2,349,057	67,485	2,486,748	2,260,976	0	0	2,642,314
Rhode Island	0	32,759	1,784	0	0	0	34,543
Vermont	111,563	133,961	76,572	0	0	0	322,096
West Virginia	275,513	116,269	955,859	0	0	0	1,347,641
Wisconsin	3,990,437	2,763,327	6,423,091	3,141,670	0	2,578,000	7,457,185
North Total	29,230,213	5,681,879	27,979,578	20,979,769	0	2,578,000	39,333,901
Alaska	0	0	0	0	0	0	0
Arizona	0	0	0	0	0	0	0
California	2,548,704	442,125	1,737,600	260,613	0	0	4,467,816
Colorado	90,344	34,892	0	0	0	0	125,236
Hawaii	0	0	0	0	0	0	0
Idaho	1,060,354	254,468	0	0	0	0	1,314,822
Kansas	0	8,121	0	0	0	0	8,121
Montana	764,694	181,814	0	0	0	0	946,508
Nebraska	0	788	0	0	0	0	788
Nevada	0	0	0	0	0	0	0
New Mexico	90,000	86,323	0	0	0	0	176,323
North Dakota	0	0	0	0	0	0	0
Oregon	3,748,706	722,726	189,545	634,063	0	0	4,026,914
South Dakota	0	18,646	0	0	0	0	18,646
Utah	0	0	0	0	0	0	0
Washington	8,193,834	408,387	421,162	176,160	0	0	8,847,223
Wyoming	0	82,883	0	0	0	0	82,883
West Total	16,496,636	2,241,173	2,348,307	1,070,836	0	0	20,015,280
National Total	68,132,477	18,585,409	35,353,592	23,717,474	84,712	2,578,000	95,691,292

SFI - Data as of December 2020 - Received via correspondence with SFI Staff on 3/19/2021

ATFS - Data as of February 2021 - Received via correspondence with ATFS Staff on 3/25/2021

FSC - Data from Facts and Figures by State 2019 - <https://us.fsc.org/en-us/what-we-do/facts-figures>

TABLE 2

Percent of Forest Certified by State and Region

	Forested Acres ^a			Certified Forest Acres ^c			Dual Certified Acres ^d	% of Non-Federal Timberland Certified			
	Total Forest land	Timberland ^b	Non-Federal Timberland	SFI	ATFS	FSC		SFI	ATFS	FSC	Total
US SOUTH											
Alabama	23,127,000	23,029,000	22,185,000	2,894,408	2,475,345	774,579	392,060	13.0%	11.2%	3.5%	25.9%
Arkansas	19,040,000	18,492,000	15,793,000	3,266,043	565,803	1,629,730	869,748	20.7%	3.6%	10.3%	29.1%
Florida	17,253,000	15,409,000	13,748,000	1,837,119	800,859	127,356	21,201	13.4%	5.8%	0.9%	20.0%
Georgia	24,635,000	24,061,000	22,808,000	2,235,809	1,757,848	92,512	0	9.8%	7.7%	0.4%	17.9%
Kentucky	12,442,000	12,246,000	11,197,000	34,036	231,200	303,881	0	0.3%	2.1%	2.7%	5.1%
Louisiana	14,984,000	14,707,000	13,918,000	3,299,665	939,383	633,848	0	23.7%	6.7%	4.6%	35.0%
Mississippi	19,380,000	19,179,000	17,674,000	2,135,036	1,324,330	397,054	275,198	12.1%	7.5%	2.2%	20.3%
North Carolina	18,829,000	18,139,000	16,688,000	1,203,442	304,364	207,933	17,500	7.2%	1.8%	1.2%	10.2%
Oklahoma	11,911,000	7,141,000	6,493,000	771,405	43,179	11,032	0	11.9%	0.7%	0.2%	12.7%
South Carolina	12,931,000	12,756,000	11,854,000	1,110,536	647,242	274,529	84,712	9.4%	5.5%	2.3%	16.4%
Tennessee	13,967,000	13,407,000	12,448,000	575,210	316,534	197,238	0	4.6%	2.5%	1.6%	8.7%
Texas	40,970,000	14,137,000	13,249,000	2,351,104	723,062	158,093	76,162	17.7%	5.5%	1.2%	23.8%
Virginia	16,043,000	15,389,000	13,640,000	691,815	533,208	217,922	15,000	5.1%	3.9%	1.6%	10.5%
South Total	245,512,000	208,092,000	191,695,000	22,405,628	10,662,357	5,025,707	1,751,581	11.7%	5.6%	2.6%	19.0%
US NORTH											
Connecticut	1,808,000	1,771,000	1,765,000	0	39,914	796	0	0.0%	2.3%	0.0%	2.3%
Delaware	361,000	346,000	340,000	0	14,738	1,109	0	0.0%	4.3%	0.3%	4.7%
Illinois	4,980,000	4,679,000	4,355,000	0	61,409	1,794	0	0.0%	1.4%	0.0%	1.5%
Indiana	4,876,000	4,713,000	4,390,000	158,264	97,714	644,124	158,264	3.6%	2.2%	14.7%	16.9%
Iowa	2,923,000	2,804,000	2,713,000	0	78,493	0	0	0.0%	2.9%	0.0%	2.9%
Maine	17,579,000	16,778,000	16,709,000	7,279,675	402,077	4,762,129	4,254,760	43.6%	2.4%	28.5%	49.0%
Maryland	2,463,000	2,180,000	2,162,000	209,335	102,811	220,444	209,207	9.7%	4.8%	10.2%	15.0%
Massachusetts	3,025,000	2,884,000	2,855,000	0	88,288	63,786	0	0.0%	3.1%	2.2%	5.3%
Michigan	20,311,000	19,324,000	16,843,000	5,393,719	372,674	4,121,309	3,900,000	32.0%	2.2%	24.5%	35.6%
Minnesota	17,413,000	15,703,000	13,851,000	6,950,453	96,711	6,140,204	5,354,107	50.2%	0.7%	44.3%	56.6%

Missouri	15,409,000	14,850,000	13,154,000	658,348	95,631	3,931	0	5.0%	0.7%	0.0%	5.8%
New Hampshire	4,758,000	4,474,000	3,814,000	205,152	436,167	293,417	113,633	5.4%	11.4%	7.7%	21.5%
New Jersey	1,990,000	1,740,000	1,671,000	0	51,158	576	0	0.0%	3.1%	0.0%	3.1%
New York	18,887,000	15,703,000	15,589,000	1,448,290	353,869	1,558,439	1,386,745	9.3%	2.3%	10.0%	12.7%
Ohio	8,077,000	7,734,000	7,426,000	200,407	276,424	223,466	200,407	2.7%	3.7%	3.0%	6.7%
Pennsylvania	16,898,000	16,312,000	15,753,000	2,349,057	67,485	2,486,748	2,260,976	14.9%	0.4%	15.8%	16.8%
Rhode Island	370,000	356,000	356,000	0	32,759	1,784	0	0.0%	9.2%	0.5%	9.7%
Vermont	4,511,000	4,288,000	3,945,000	111,563	133,961	76,572	0	2.8%	3.4%	1.9%	8.2%
West Virginia	12,077,000	11,707,000	10,727,000	275,513	116,269	955,859	0	2.6%	1.1%	8.9%	12.6%
Wisconsin	17,074,000	16,548,000	15,128,000	3,990,437	2,763,327	6,423,091	5,719,670	26.4%	18.3%	42.5%	49.3%
North Total	175,790,000	164,894,000	153,546,000	29,230,213	5,681,879	27,979,578	23,557,769	19.0%	3.7%	18.2%	25.6%
US WEST											
Alaska	128,735,000	12,996,000	8,122,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Arizona	10,934,000	3,012,000	820,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
California	31,515,000	16,583,000	7,396,000	2,548,704	442,125	1,737,600	260,613	34.5%	6.0%	23.5%	60.4%
Colorado	20,063,000	10,598,000	2,446,000	90,344	34,892	0	0	3.7%	1.4%	0.0%	5.1%
Hawaii	1,471,000	744,000	682,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Idaho	21,386,000	16,532,000	3,979,000	1,060,354	254,468	0	0	26.6%	6.4%	0.0%	33.0%
Kansas	2,527,000	2,393,000	2,278,000	0	8,121	0	0	0.0%	0.4%	0.0%	0.4%
Montana	25,517,000	19,768,000	6,780,000	764,694	181,814	0	0	11.3%	2.7%	0.0%	14.0%
Nebraska	1,532,000	1,403,000	1,339,000	0	788	0	0	0.0%	0.1%	0.0%	0.1%
Nevada	7,487,000	250,000	32,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
New Mexico	16,619,000	4,279,000	1,579,000	90,000	86,323	0	0	5.7%	5.5%	0.0%	11.2%
North Dakota	789,000	490,000	456,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Oregon	29,653,000	23,668,000	10,326,000	3,748,706	722,726	189,545	634,063	36.3%	7.0%	1.8%	39.0%
South Dakota	1,949,000	1,799,000	795,000	0	18,646	0	0	0.0%	2.3%	0.0%	2.3%
Utah	12,087,000	3,749,000	831,000	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Washington	22,174,000	17,794,000	11,937,000	8,193,834	408,387	421,162	176,160	68.6%	3.4%	3.5%	74.1%
Wyoming	9,751,000	5,381,000	1,208,000	0	82,883	0	0	0.0%	6.9%	0.0%	6.9%
West Total	344,189,000	141,439,000	61,006,000	16,496,636	2,241,173	2,348,307	1,070,836	27.0%	3.7%	3.8%	32.8%
US Total											
US Total	765,491,000	514,425,000	406,247,000	68,132,477	18,585,409	35,353,592	26,380,186	16.8%	4.6%	8.7%	23.6%

a - Source: Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A., coords. 2019. Forest Resources of the United States, 2017: a technical document supporting the Forest Service 2020 RPA Assessment. Gen. Tech. Rep. WO-97. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. 223 p. <https://doi.org/10.2737/WO-GTR-97>.

b - Timberland does not include reserved, woodland, or other forestlands lands per definitions of RPA.

c - Certification numbers from personal communications with SFI and ATFS staff, and FSC - Facts and Figures by State 2019 - <https://us.fsc.org/en-us/what-we-do/facts-figures>

d - Dual Certified Acres are estimated, based on self-reporting by companies, and mostly SFI/FSC, with additional FSC/ATFS in Wisconsin and SFI/ATFS in South Carolina.

APPENDIX A

Comparison Matrix

Criteria	ATFS	FSC	SFI
Direct Cost	Costs vary widely by State Tree Farm programs ranging from (currently) no charge to annual flat fee per tree farm and/or fees per acre. Costs associated with participation in an Independently Managed Groups (IMG) vary by group.	Landowners hire an auditor (certification body) to conduct the third-party assessment to FSC standards. Price varies based on the scale and complexity of the operation. Forestlands of any size are eligible for group certification, which significantly reduces costs and also provides supports.	Per acre costs tend to generally be higher for smaller ownerships in part because there are relatively fixed auditing and preparation costs and fewer acres to spread the cost over. Costs are variable based on many factors and include initial certification, annual and/or intermediate checks and re-certification audits after a five-year cycle. The SFI Small Lands Certification Module was designed to find cost effective ways for mills or wood-procurement organizations to serve as Group Managers and engage small landowners in certification under one group certificate. Several certification bodies can audit for both SFI & FSC certification simultaneously for cost-savings.
Scope (suitable for)	Family woodland owners in the U.S (10 – 20,000 acres)	All forest types throughout the world; Standards adapted for family woodland owners and other smallholders. Non-timber forest products (NTFP) may also be certified.	Primarily medium and large-scale forests in U.S. and Canada.
Year Founded/Created	1941 (2004 as certification system)	1993	Created in 1992-1994; first implemented in 1995.
Sponsor(s)	American Forest Foundation (AFF)	International membership association	The Sustainable Forestry Initiative sponsors the program. SFI program participants include public and private landowners, conservation groups, manufacturers, aboriginal groups, social and academic organizations.
Governance			
Oversight	Woodland Operating Committee and National Standards Implementation Sub-Committee	General assembly organized into 3 equally weighted chambers (social, environmental, and economic). Twelve-person Board of Directors plus 50 national initiatives each with a Board of Directors	Eighteen-member Board of Directors made up of 3 chambers (social, environmental and economic).
Representation	Tree Farmers, academics, forestry associations, state foresters, forest industry, natural conservation organizations, forest extension agencies	Open membership, with equal authority for decision making divided between economic, social, and environmental interests. Members elect and run for the board of directors at the national and global levels, participate in working groups, and vote on policy changes at the general assembly. Members include environmental and social non-governmental organizations (NGOs), individuals, indigenous people, forest industry, manufacturers, retailers, academics, land managers of all sizes, timber investment management organizations, state and local government agencies, family forest owners, professionals, associations of professionals, labor advocates, labor organizations, consulting foresters, consulting groups, certification bodies, and others.	SFI Inc. is governed by the 18-member SFI Board, which sets SFI's strategic direction and is responsible for overseeing and improving the internationally recognized SFI Program and SFI Standards. The Board's three chambers represent environmental, social and economic sectors equally. SFI Board members include executive-level representatives of conservation organizations, academic institutions, aboriginal/tribal entities, family forest owners, public officials, labor and the forest products industry. This diversity reflects the variety of interests in the forestry community.

General Standards and Approval			
Scope	Environmental, silvicultural, social, and economic issues.	Environmental, silvicultural, social, and economic issues.	Environmental, silvicultural, social, and economic issues.
Approval	AFF Board of Trustees	FSC International Board of Directors	SFI Inc. Board of Directors
Public Input	Subject to public review	Subject to public review	Subject to public review
Updating	Every 5 years	Every 5 years	Every 5 years
Certification Bodies Qualification Review			
Certification Body Evaluation Process	Auditor application process which includes an on-site and witness assessment process	To ensure their complete independence from FSC, all certification bodies must first be accredited with Assurance Services International (ASI). ASI is responsible for checking certification body compliance with FSC rules and procedures through a combination of field and office audits. The ASI annual assessment plans include a variety of audit approaches to safeguard that certification activities are conducted according to the FSC rules.	Certification bodies (CB) are assessed annually by International Accreditation Forum member accreditation bodies (ANSI National Accreditation Board (ANAB) or the Standards Council of Canada (SCC)). Assessments consists of annual office assessment (records, procedures, documentation, interviews with administrative staff) and an onsite assessment of auditors' conduct of the audit. This process results in an annual report which CBs use to improve their processes for auditing of the SFI Standards and ensures independent verification of audit rigor and consistency across certification bodies.
Certification Body Approval	ANSI National Accreditation Board (ANAB) or the Standards Council of Canada (SCC), both of which are members of International Accreditation Forum (IAF).	Assurance Services International (ASI)	ANSI National Accreditation Board (ANAB) or the Standards Council of Canada (SCC), both of which are members of International Accreditation Forum (IAF).
Certification Body Monitoring	Annual office and field audit.	Annual office and field audit (per ASI-PRO-20-101)	Annual office and field audit.
Certification Body Renewal	Every 5 years	Every 5 years	Every 5 years
Accreditation Bodies	Certification bodies accredited by ANSI National Accreditation Board (ANAB) or the Standards Council of Canada (SCC)	Assurance Services International (ASI) is responsible for checking certification body compliance with FSC rules and procedures through a combination of field and office audits. All FSC-accredited certification bodies must meet FSC accreditation requirements.	Certification bodies performing audits to SFI forest, chain-of-custody or certified sourcing requirements must be independent, objective and qualified. Depending on the scope of the certification audit, they must have completed an accreditation program through one or more of the following independent, international accreditation bodies: ANSI National Accreditation Board (ANAB) or the Standards Council of Canada (SCC).
Certification Standards Conformance Evaluation			
Reviewer	Accredited third party certification body	Accredited third party certification body	Accredited independent third-party certification body
Evaluation Process	Accreditation body reviews management process of state committees or group managers, including field visits, management plan review and review of internal monitoring procedures field.	Accreditation body reviews management process of land managers or group managers including field visits, management plan review and review of internal monitoring procedures field.	Multidisciplinary certification body audit team reviews documentation, conducts assessment of field operation and interviews landowners, managers, company forester, loggers and other contractors.
Approval	Internal monitoring approved by trained inspector.	Accreditation body grants approval based on resolution of any minor nonconformities from previous audits. Major nonconformities must be resolved immediately, or certification cannot be approved. Certification is revoked if the limit on major nonconformities is exceeded within a given timeframe.	Certification body grants approval based on resolution of any minor nonconformities. Certification cannot be approved if there are any major nonconformities until they are resolved and rechecked.
Public Input	Audit team seeks outside stakeholder comments during third party audit. ATFS maintains public dispute resolution procedures.	Accreditation bodies are required to complete annual stakeholder engagement for each certificate holder or group. Any member of the public can file a dispute and in addition accreditation bodies are required to complete annual stakeholder engagement for each certificate holder. Summary audit reports are published on the FSC website to increase transparency and credibility of the FSC audit approach.	Audit team seeks outside stakeholder comments during third party audit. Any member of the public can file a dispute if there is disagreement with the decision or ongoing conformance to the standard.

Monitoring	Annual surveillance audits	Annual surveillance audits	Annual surveillance audits
Recertification	Every 5 years	Every 5 years	Every 5 years
Group Certification Availability	Yes	Yes	Yes
Product Tracking			
Material Tracking (certified, uncertified, recycling)	ATFS does not certify products. Fiber from ATFS certified lands is included in SFI and PEFC chain of-custody systems as certified content.	Chain of custody tracks products from forest through each state of manufacturing and distribution.	SFI chain-of-custody tracks products from forest through each stage of manufacturing and distribution. Certified organizations are required to have auditable monitoring systems to account for all wood flows.
On-Product Labeling	ATFS does not certify products. Fiber from ATFS certified lands is included in SFI and PEFC chain of-custody systems as certified content.	Three product labels: 1.) FSC 100% - identifies products that originate entirely from FSC-certified forests 2.) FSC Mix – identifies products manufactured with a variety of sources including FSC-certified virgin fiber, controlled wood and/or recycled materials 3.) FSC Recycled – identifies products manufactured with only recycled materials (both post- and/or pre-consumer reclaimed materials)	Five main product labels: 1) SFI COC X% Labels for Certified Forest, Recycled and Fiber Sourcing Content as calculated by the percentage method. 2) SFI COC Promoting Sustainable Forestry label for certified content calculated under the credit method and > 70% Certified Forest Content with the percentage method. 3) Certified Sourcing label. 4) SFI COC 100% From a Certified Forest using physical separation method. 5) SFI COC Labels Recognizing Global Standards
Use of Non-Certified Raw Material	ATFS does not certify products. Fiber from ATFS certified lands is included in SFI and PEFC chain of-custody systems as certified content.	Yes, but identifies the following as unacceptable: sources that are illegally harvested, harvested in violation of traditional and civil rights, derived from forest practices threatening high conservation values, genetically modified trees, and from forests converted into plantations or non-forest uses. Mitigation actions must be implemented in areas where the risk of procuring materials from these sources is not low.	Yes; however, “non-certified” raw material shall not originate from controversial sources and must follow SFI’s fiber sourcing requirements. Controversial sources include: a) Forest activities which are not in compliance with applicable state, provincial, federal, or international laws; b) Forest activities which are contributing to regional declines in habitat conservation and species protection (including biodiversity and special sites, Alliance for Zero Extinction sites and key Biodiversity Areas, threatened and endangered species); c) Conversion sources originating from regions experiencing forest area decline; d) Forest activities where the spirit of the ILO Declaration on Fundamental Principles and Rights at work (1998) are not met; e) Forest activities where the spirit of the United Nations Declaration on the Rights of Indigenous Peoples (2007) are not met; f) Fiber sourced from areas without effective social laws; g) Illegal Logging including trade in CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora) listed species; h) Conflict Timber; i) Genetically modified trees via forest tree biotechnology.
Program Overview and Key Parameters			
Principles (indicators, etc.)	ATFS has 8 standards each with performance measures and indicators for landowners to become certified.	FSC has 10 principles and 70 criteria for landowners to meet to become certified.	The SFI Forest Management Standard has 13 Principles, 17 Objectives, 41 Performance Measures and 114 Indicators for landowners to meet to be certified. The SFI Fiber Sourcing Standard has 13 Principles, 11 Objectives, 29 Performance Measures and 59 Indicators for primary producers to meet to be certified.

How to Become Certified	To participate in State Tree Farm Programs, contact the state Tree Farm Program with information found at https://www.treefarmssystem.org/state-tree-farm-programs . An ATFS-qualified inspector will verify eligibility and inspect management plan and implementation. To be certified through an IMG or Individual Third-Party certificate, contact ATFS National Office.	Family Forests: Locate a local, state, or regional group to join. Others: Contact an FSC accredited 3rd party certifier. Auditor will be sent to inspect management plan and implementation.	Contact SFI Inc. to review the certification process and steps for application. Depending on the organization type, SFI will provide relevant information on the next steps to certification such as a list of accredited certification bodies. Develop and implement system to achieve conformance to the SFI Standard (s) you are applying. Contract with accredited certification body to conduct the audit.
Forest Conversion	ATFS only certifies forested land. Any land that is converted to other uses is ineligible for ATFS Certification. For reforestation and afforestation, use of native species and local provenances that are well-adapted to site conditions is preferred, where appropriate. In nonnative species are selected, landowner should consult or seek guidance from qualified natural resource professionals, such as agencies, academic institutions or professional associations, to ensure that potential negative impacts on the ecosystem and on the genetic integrity of native species and local provenances have been evaluated, and to determine whether negative impacts can be avoided or minimized.	Conversion of natural forests to plantations of exotic species, native species grown in a simplified agriculture-based scenario, GMOs, genetic clones, or non-forest use is not allowed except under specific and extenuating circumstances.	Roundwood and/or chips produced from conversion of forest land to other land uses cannot be included when calculating certified forest content. Certified Organizations shall not convert one forest cover type to another forest cover type, unless the conversion: a. does not convert native forest cover types that are rare, ecologically important, or that put any native forest cover types at risk of becoming rare; and b. does not create significant adverse impacts on Forests with Exceptional Conservation Value, old growth forests, forest critical to threatened and endangered species, or special sites or ecologically important non-forest eco-systems; and c. includes objectives for long-term outcomes that support maintaining native forest cover types and ecological function; and d. is in compliance with relevant national and regional policy and legislation related to land use and forest management.
Plantations	All lands certified under ATFS are required to meet each of the provisions within the AFF Standards, ensuring that plantations will support the same values of protection of water quality and wildlife habitat, sustainable product harvest, and support of special sites.	Generally, plantations are not allowed if the plantation resulted in conversion of natural forests after 1994. The FSC definition of plantation is limited to stands which are managed in an agricultural manner - highly regimented, often made up of blocks of exotic trees or cloned trees lacking natural genetic variation, and overall lacking the structure and functions of a natural forest. Planted forests that capture most elements of natural forests (including wildlife habitat and plant species) are not considered plantations by FSC.	SFI Forest Management and Fiber Sourcing requirements apply on planted or naturally regenerated forests. Short-rotation woody crops and other high intensity forestry operations are beyond the scope of the SFI Standard.
Clearcutting	Under ATFS Standards, landowners may deploy a suite of silvicultural tools to achieve their objectives. Strategies implemented should consider a range of resource elements and ensure both locally appropriate best management practices and compliance with applicable state and local forest practices laws.	Requirements in the U.S. vary by region and forest type being managed. FSC breaks up the US South into 5 regions for establishing clear-cut limits as follows: Appalachia 10 acres; Ouachita 20 acres; Ozark 2 acres; Mississippi Alluvial Valley 20 acres; and for the Southeast Region clear-cut maximums are not binding to allow flexibility of the managers to address the diversity of ecosystems in the region; however, FSC suggests limiting to 40 acres usually, and 80 acres under certain circumstances as a guide for auditors to evaluate if intent of standard is being met. Where larger openings are allowed, retention levels of 10-30% are typically required.	Yes, where appropriate. Average clear-cut size not to exceed 120 acres (50 hectares) except where necessary to meet regulatory requirements or respond to forest health emergencies or other natural catastrophes. In 2019, the average clearcut unit size as reported by Certified Organizations to SFI was 48 acres.

Chemical Use	Promote an integrated pest management approach. Where pesticides are used, they shall be EPA approved and applied, stored, and disposed of in accordance with EPA-approved labels and by persons appropriately trained, licensed, and supervised. Landowner or their authorized representative shall document and maintain records of pesticide use. Pesticides include chemicals commonly known as herbicides and insecticides.	Promotes non-chemical approach; strive to avoid use of chemical pesticides. Encourages the narrowest spectrum and application of pesticides, where they are used. Prohibits pesticides that are persistent, toxic, or whose derivatives remain biologically active and accumulate in the food chain, require proper equipment, training, following all laws and label directions, and requires an environmental and social risk assessment to be completed before any pesticide application. More information on FSC-listed Highly Hazardous Pesticides can be found at https://fsc.org/en/document-centre/documents/resource/315	Minimize chemical use in general and use of integrated pest management is preferred. Use least-toxic & narrowest-spectrum pesticides. Require proper equipment, training and disposal. Applicators must be licensed where applicable. Follow all laws and regulations and label directions.
Genetically Modified Trees	Use of genetically modified trees is not supported under these standards, reflecting conformance with PEFC requirements.	Not allowed	The use of fiber from genetically modified trees is not approved for use in SFI labeled products.
Chain-of-Custody	ATFS certified forest content is recognized through SFI and PEFC	Yes	Yes
Avoid Illegal Sources	NA	Yes	Yes
Maintain Biodiversity	Yes	Yes	Yes
Logger Certification/Training	Landowners should use qualified contractors.	Loggers may become members of groups and be covered by the group certificate for activities implemented on lands that are also covered by the group certificate	Yes. \$77 million invested by SFI implementation Committees in Local Communities since 1995 to support training of resource and harvesting professionals, outreach to family forest owners, and environmental education.
Education and Outreach	Yes	Yes	Yes
BMPs	Yes – Landowners shall meet or exceed practices prescribed by State Forestry Best Management Practices that are applicable to the property	Yes - Landowners/managers shall meet or exceed practices prescribed by State Forestry Best Management Practices that are applicable to the property	Yes - Landowners/managers shall meet or exceed practices prescribed by State Forestry Best Management Practices that are applicable to the property
Support for Forest Research			Yes
Credit Eligibility for Green Building Systems			
USGBC LEED	Yes	Yes	Yes
GBI Green Globes	Yes	Yes	Yes
NAHB National Green Building Standard	Yes	Yes	Yes

APPENDIX B

Definition of Terms

Certified Sourcing Label: A procurement label not a chain of custody (CoC) label.

Chain of Custody (CoC): Chain of custody certification is a tool used to track wood fiber from a certified forest, providing a link between certified forest lands and certified products. Through chain of custody certification, a company can accurately identify how much of the product comes from certified forest lands, non-certified lands and/or recycled content.

Clonal pine: Clonal pines are generally reproduced from a process called somatic embryogenesis. Loblolly pine seedlings that are reproduced through tissue cultures (i.e., somatic embryogenesis) are clones whereas those reproduced through open pollination or mass control pollination are not clones.

Clonal trees: Clonal trees are allowed under FSC-US Forest Management Standard under certain conditions and would generally be classified as P10 Plantations (definition below).

Controlled Wood: An FSC term referring to an evaluation system used to identify prohibited and/or illegally harvested sources of fiber.

Federal Land: An ownership class of public lands administered by the U.S. Government.

Forest land: Land at least 120 feet (37 meters) wide and at least 1 acre (0.4 hectare) in size with at least 10% cover (or equivalent stocking) by live trees including land that formerly had such tree cover and that will be naturally or artificially regenerated. Trees are woody plants having a more or less erect perennial stem(s) capable of achieving at least 3 inches (7.6 cm) in diameter at breast height or 5 inches (12.7 cm) diameter at root collar and a height of 16.4 feet (5 meters) at maturity in situ. This definition includes all areas recently having such conditions and currently regenerating or capable of attaining such condition in the near future. Forest land also includes transition zones, such as areas between forest and non-forest lands that have at least 10% cover (or equivalent stocking) with live trees and forest areas adjacent to urban and built-up lands. Unimproved roads and trails, streams and clearings in forest areas are classified as forests if they are less than 120 feet (37 meters) wide or an acre (0.4 hectare) in size. Forest land does not include land that is predominantly under agricultural or urban land use.

Forest tree biotechnology: As commonly used, forest tree biotechnology encompasses structural and functional studies of genes and genomes (including development and application of genetic markers), various methods of vegetative reproduction such as micro propagation, tissue culture, somatic embryogenesis and genetic engineering (GE), which is the physical manipulation and asexual insertion of genes into organisms (SFI).

Genetically modified organism (GMO): An organism that has been transformed by the insertion of one or more genes (called transgenes) from a different species. Genetic modification does not include traditional breeding or natural hybridization (e.g., GMO trees cannot be obtained through conventional tree breeding methods such as controlled pollination). In the U.S., the only GMO tree that is at advanced stages of commercial testing is a cold-tolerant eucalyptus. Currently, the Forest Stewardship Council (FSC) does not allow any GMO trees.

Mixed sources: Sources of fiber containing a mixture of certified, controlled, recycled, and/ or non-certified forest content (allowed mixture depends on the program). All non-certified forest content must meet the controlled wood (FSC) or non-controversial sources (SFI) threshold.

Other forest land: Forest land other than timberland and productive reserved forest land. It includes available forest land incapable of annually producing 20 cubic feet (1.4 cubic meters) per acre (0.4 hectare) of industrial wood under natural conditions because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness or rockiness.

Percentage system: A chain of custody system that represents a given threshold of certified content.

Plantations (semi-natural): The Forest Stewardship Council (FSC) US Standard defines demi-natural plantations as planting projects where “forests have been disturbed by human activities like harvesting, livestock grazing or past tree planting practices but have recovered some of the inherent complexity, structure, wildlife and biodiversity of native ecosystems.” Semi-natural plantations do not trigger the P10 Plantation designation (definition below).

Principle 10 Plantations (P10 Plantations): A Forest Stewardship Council (FSC) term for forest plantations that are highly regimented and made up of blocks of exotic trees (like eucalyptus in the U.S.), cloned trees lacking natural genetic variation and other types of forest trees that lack traits of natural forests. A P10 Plantation may consist of one or more of the following: non-native species, short rotation woody crops and/or plantations “sanitized” through the removal of all natural and/or competing vegetation. Designated P10 Plantations may be certified only under certain and/or specific conditions. For example, 20-25% of the overall tract acreage must remain in a semi-natural forest state. Under the FSC-US Forest Management Standard, block plantings of loblolly pine clones are classified as P10 Plantations but aspen clonal plantings would not automatically trigger the same classification. This is because loblolly pines naturally do not reproduce from roots or stumps (clonally) whereas aspen species do.

Reserved forest land: Forest land withdrawn from timber utilization through statute, administrative regulation or designation without regard to productive status.

Timberland: Forest land that is producing or is capable of producing crops of industrial wood and not withdrawn from timber utilization by statute or administrative regulation (Note: Areas qualifying as timberland are capable of producing in excess of 20 cubic feet [1.4 cubic meters] per acre [0.4 hectare] per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included).

Non-controversial Sources: An SFI term regarding an evaluation system used to identify sources of fiber which are not prohibited and/or illegally harvested.

Volume credit: a chain of custody system that represents a mix of certified and controlled wood.

Woodland: Land at least 120 feet (37 meters) wide and at least 1 acre (0.4 hectares) in size with sparse trees capable of achieving 16.4 feet (5 meters) in height with a tree canopy cover of 5-10% combined with shrubs a least 6 feet (2 meters) in height to achieve an overall cover of greater than 10% of woody vegetation. Trees are woody plants having a more or less erect perennial stem(s) capable of achieving at least 3 inches (7.6 cm) in diameter at breast height, or 5 inches (12.7 cm) diameter at root collar and a height of 16.4 feet (5 meters) at maturity in situ. This definition includes all areas recently having such conditions and currently regenerating or capable of attaining such condition in the near future. It does not include land that is predominantly under agricultural or urban land use.