



## SILVA FOREST FOUNDATION CERTIFICATION PROGRAM

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# SUMMARY

of

## *Silva Forest Foundation Standards for Ecologically Responsible Timber Management*

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### I. THE SILVA FOREST FOUNDATION AND ECOSYSTEM-BASED CERTIFICATION

The Silva Forest Foundation (SFF)'s involvement in forest certification began in 1992 when, in co-operation with the Ecoforestry Institute Society (Canada), we researched and wrote a report on the status of forest certification throughout the world. In October 1993 we were founding members of the Forest Stewardship Council (FSC) at its initial meeting in Toronto.

In 1994 we published our first set of standards for ecologically responsible forest use and timber management. These standards guided our first certification in late 1995 of a portion of the Ministry of Forests' Small Business Forest Enterprise Program in Vernon, British Columbia.

We have been working on standards writing in a variety of circumstances since 1993. In 1994 the Silva Forest Foundation became part of the Pacific Certification Council (PCC), a network of certifiers in northern California, Oregon, and British Columbia. On behalf of the PCC, we drafted a detailed set of standards to guide certifications throughout the region. These draft standards were sent out for extensive stakeholder review in both the United States and Canada. In 1997 the PCC was unable to obtain funding to continue its activities and a number of PCC network members from the United States joined the Smart Wood Network.

The Silva Forest Foundation has spent considerable time incorporating reviews of the PCC draft standards and revising those standards. The *SFF Standards for Ecologically Responsible Timber Management (SFF Standards)* document is the result of these efforts. We have now submitted that document to the Forest Stewardship Council as part of our application for FSC accreditation.

The *SFF Standards* represent a significant change from conventional timber management standards. Therefore, we are preparing a scientific rationale document that supports our standards. If you would like a copy of the rationale document, please let us know.

The Board of Directors of the Silva Forest Foundation wishes to express its sincere appreciation to fellow director Herb Hammond and to SFF's Certification Program Manager, Mark Kepkay, for the incredible amount of work that has gone into the current version of the standards. Thank

you also to the many people who provided thoughtful and critical feedback to previous versions of the standards.

SFF's certification standards will be a work in progress for the foreseeable future as we monitor certified forest operations over time and learn more. If you have suggestions for improvement to the standards, please let us hear from you.

### **Who Is The Silva Forest Foundation (SFF)?**

The Silva Forest Foundation is a non-profit society actively involved in promoting and carrying out ecologically responsible forest use.

SFF includes among its directors, advisors, and associates people with extensive experience in ecology, biology, logging, forestry, and land use planning. These people have been pioneers in developing the philosophy and practice of ecosystem-based or ecologically responsible forest use. This diversity of complementary skills has enabled us to develop practical standards for forest use that can be expected to protect not only forest ecosystems but also the local human communities that are sustained by forests.

Members of SFF are committed to frequent evaluation of our activities and the activities that we certify to determine whether these activities comply with SFF Elements and Standards of ecologically responsible forest use and timber management summarised in this document.

### **SFF Values and Vision**

High levels of social and economic health are maintained by protecting ecosystems and natural capital, which are the foundation for societies and economies. SFF believes that the primary concern of forest use must be the protection, maintenance, and, where necessary, restoration of fully functioning forests for the welfare of all beings and the whole forest. Ecosystem character (how a natural forest functions) and condition (how human use has impacted forest functioning) form the context within which social and economic criteria are designed and adjusted.

SFF does not value human life less than that of other species, but we do recognise that human social and economic welfare in forest ecosystems, like the welfare of all forest organisms, *depends* on the welfare of the forest ecosystem as a whole. Fully-functioning forests provide, for example, the clean water and air, building materials, food, clothing, and spiritual grounding that are essential to human physical and spiritual health. Other human or natural resources available on Earth cannot build systems that adequately replace these and other natural forest functions with human-designed production. The human animal, like other species, has adapted to the earth's design, and our survival depends on the continued integrity of that design.

Within the context of the protection, maintenance, and restoration of fully functioning forests, the unique issues of human communities and their economic activities must, of course, be addressed. Unstable communities produce human suffering and ecosystem degradation. Therefore, the *SFF Standards* include social and economic standards.

## II. THE PURPOSE OF THIS SUMMARY DOCUMENT

This document is a summary of the *SFF Standards*, and provides an introduction to the general requirements for certification. A thorough presentation of *SFF Standards* is not provided in this summary.

The *SFF Standards* arise from a set of values that are fundamentally different from those that guide conventional timber management. The *SFF Standards* describe an ecosystem-based approach to timber management which is guided by the Elements Of Ecologically Responsible Forest Use:

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### Elements Of Ecologically Responsible Forest Use

1. Focus on what to leave, not on what to take.
2. Apply the precautionary principle to all plans and activities.
3. Protect the forest functioning by planning at all scales of time and space.
4. Respect the forest's ecological limits to human disturbance.
5. Ensure that all plans and activities protect, maintain, and, where necessary, restore natural biological diversity (i.e. genetic, species, and community diversity).
6. Protect, maintain, and, where necessary, restore natural composition, structures, and functioning at both the landscape and the stand levels.
7. Protect, maintain, and, where necessary, restore forest ecosystem connectivity at all scales of time and space during planning and implementation of forest activities.
8. Apply the concept of landscape to the forest organism or process under consideration.
9. Plan and carry out diverse activities to encourage ecological, social, and economic well-being.
10. Ensure that all forest use activities respect, protect, and provide for the independent maintenance and evolution of First Nation cultures, both traditional and current.
11. Evaluate the success of all forest use activities in meeting the requirements and goals of ecological responsibility.

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The *SFF Standards* outline a vision, or a goal, for timber management activities. For initial certification, perfect compliance with *SFF Standards* is not required. However, certain entry-level minimum requirements must be met. As well, in order to maintain certification, once awarded, certified operations must demonstrate constant efforts to improve performance relative to the *SFF Standards*.

In reading through this Summary, keep in mind that the *SFF Standard* are applied in a flexible manner, in order to provide local, site-specific interpretations. Exceptions to particular standards may be permitted, if based on sound assessments of ecological, social, or economic impacts. This flexibility is provided by the Evaluation Scoring Checklist (Checklist), which is used by SFF to evaluate applicants for certification. In many cases, a low score on a particular point in the Checklist can be offset by a high score on another point. For a detailed understanding of how the scoring system works, see the SFF Evaluation Scoring Checklist.

While flexibility is important, to be certified ecoforesters must also err on the side of protecting, maintaining, and/or restoring ecosystem functioning at all scales through time.

Operations wishing to apply for certification fall into two categories:

1. *Whole-forest managers* – these are, generally, enterprises that have control over at least 1,000 hectares of forest.
2. *Small-holders* – enterprises that have control over less than 1,000 hectares of forest.

Whole-forest managers seeking certification are responsible for standards summarised in this document under the heading “Whole-Forest Applicants”, as well as for those described under “All Applicants”. Small-holders are only responsible for the standards described under “All Applicants”. While the certification requirements for each category of operation are different, the end result of certification is the same: full SFF endorsement.

### **III. SUMMARY OF STANDARDS FOR ECOLOGICALLY RESPONSIBLE TIMBER MANAGEMENT**

#### **1. CHARACTER AND CONDITION OF LANDSCAPE AND STAND**

##### **All Applicants:**

The first step in ecologically responsible timber management is taking a good look at the forest. Before developing a timber-management plan, applicants must complete an assessment of the forest. At the stand level, this assessment includes a description of stand “character” – how the natural forest would be expected to look over time. This description includes the variety of live and dead plants and animals (“forest composition”), the way these plants and animals are arranged (“forest structures”), and the roles played by various parts of the forest (“forest functioning”). Basically, the stand character description explains how the forest works in the absence of industrial activities.

Once completed, the description of stand character is used as a benchmark for describing current forest functioning. This assessment results in a description of stand “condition” – the cumulative impacts to natural forest composition, structures, and functioning from human exploitation or modification.

Based upon stand character and condition, the stand-level assessment also includes a description of rare, threatened and endangered genetic strains, species and/or ecosystems within the stand, and an assessment of the needs for restoration and protection of specific forest composition, structures, and functioning.

##### **Whole-Forest Applicants:**

Whole-forest applicants must also complete a landscape-level assessment, including an analysis of landscape character and condition; an assessment of ecological limits to human use in each ecosystem within the landscape; an assessment of whether old growth may be cut without significant ecological degradation; and identification of rare, threatened and endangered genetic strains, species and/or ecosystem types within the landscape.

#### **2. THE STAND AND LANDSCAPE PLANS**

##### **All Applicants:**

After the assessments of forest character and condition have been completed, applicants are in the position to produce a plan for ecologically responsible timber management activities. All applicants must produce a stand-level plan that describes and accounts for all the potential effects of timber management activities, over both the short and long term.

All plans must accommodate the aboriginal rights and title of First Nations.

In addition to documenting the information gathered during the assessment process, the stand-level plan also must include:

- evidence of legal rights and obligations
- a vision statement and list of related goals
- objectives related to natural disturbances (such as fire or wind); soil; hydrological functions (the movement of water); unique/sensitive ecosystems; healthy human communities; and the operation's economic viability
- maps and descriptions of all management activities and measures for protecting forest composition, structures and functioning
- estimates of ecologically sustainable levels of timber extraction
- planned annual rate and species for timber cutting
- maps, descriptions and reasons for extraction methods, silvicultural practices, felling guidelines, and deactivation procedures
- a summary of the social and economic needs of local communities
- training programs for staff
- a description of research plans
- provisions for plan review and revision
- identification of indicators (both "early-warning" and long-term) of success in meeting the plan's objectives

**Whole-Forest Applicants:**

Whole-forest applicants must, prior to creating their stand-level plan, prepare a landscape-level plan. When completed, this landscape-level plan forms the context for stand-level planning and activities. The landscape-level plan addresses many of the same issues as the stand-level plan, but does so from a landscape perspective. Usually a landscape plan encompasses the entire holding under consideration.

The landscape-level plan needs to include:

- maps and descriptions of:
  - ⇒ landscape character and condition
  - ⇒ ecological limits
  - ⇒ rare, threatened, or endangered genetic strains, species, or ecosystem types
  - ⇒ protected landscape networks (as described below) and other protective measures
  - ⇒ ecologically responsible forest use zones
  - ⇒ any large reserves
  - ⇒ proposed access roads and infrastructure
- a description of objectives related to the various ecosystem types found within the landscape; natural disturbances; soil; hydrological functions; unique/sensitive ecosystems; healthy human communities; and the operation's economic viability
- an estimate of ecologically sustainable levels of timber extraction

### **3. STAND-LEVEL STANDARDS**

#### **All Applicants:**

##### **Protected Stand Network**

The protected stand network is a system of small reserve areas designed to protect and, where necessary, restore the full range of ecosystem composition, structure, and functioning found in natural, or unmodified, stands. With this in mind, the protected stand network includes:

- riparian ecosystems (areas surrounding creeks, rivers, lakes and wetlands)
- ecologically sensitive areas (including places with steep or broken slopes, high elevation, very dry or wet conditions, shallow soils, or that are dominated by snow)
- old growth trees or patches of old growth
- uncommon wildlife habitat niches or small ecosystem types
- ecological resources needed by genetic strains or species that are rare, endangered or threatened at the local landscape or regional level
- small-scale connectivity that provides for the movement of native plants and animals at all life stages

##### **Stand Composition and Structures to be Permanently Reserved from Cutting**

Applicants must permanently reserve at least 25 percent of the dominant trees from cutting (although an entry-level minimum of ten percent is acceptable). As well, three large snags, or standing dead trees, per hectare (with an entry-level minimum of one per hectare), and six large fallen trees per hectare (or the original count, whichever is lower) are also preserved.

##### **Protection of Soil and Water**

Applicants need to ensure that soil and water composition, structures and functioning are protected and maintained within their natural range of variability.

##### **Pesticides, Fertilisers, and Other Chemicals**

Pesticides, synthetic fertilisers, and other chemicals must not be used, except for ecologically justified restoration purposes.

##### **Roads and Other Constructed Features**

All constructed features must be located and built so as to minimise ecosystem degradation, and to maintain full forest functioning. In support of this general goal, design and construction needs to be carried out in a way that prevents or minimises soil compaction, soil erosion, soil displacement, water siltation and pollution, and the concentration of water. Specific requirements include:

- mechanical disturbance of soil must be less than seven percent of the cutting area
- the right-of-way for roads must generally be less than 12 metres
- roads must be designed to maintain near-natural drainage patterns
- riparian ecosystem crossings must be designed to minimise impact
- roads must be designed as permanent fixtures
- road use must only occur when seasonal and weather conditions permit travel without ecological damage
- road maintenance must be ongoing

### **Logging Systems**

Applicants are permitted to use ground-based logging systems in areas where slopes do not exceed 30 percent. If the slope is between 30 and 45 percent, and well-spaced slope breaks exist, ground-based logging may still be appropriate. Otherwise, cable yarding and/or aerial yarding must be used. If the slope is between 45 and 60 percent, only cable yarding and/or aerial yarding is appropriate. If the slope exceeds 60 percent, logging generally must not occur. When ground-based systems are used, soil disturbance must be limited to seven percent of the cutting unit. With cable/aerial systems, only five percent disturbance is permitted.

### **Pollution and Waste Control**

Applicants must maintain equipment and constructed features so that air, water and soil pollution is minimised. As well, any toxic or inorganic waste needs to be properly disposed of.

### **Ecologically Responsible Cutting Rates and Patterns**

Ecologically responsible cutting rates and patterns are determined within the context of landscape character and condition, of maintaining permanent tree composition and structure, of protected stand networks, and of the natural disturbance and successional patterns (the natural process of change after trees die).

There are two general forms of ecologically responsible cutting patterns: Uniform Partial Cut, and Small Patch Cuts with Canopy Retention Areas. However, variations on these and other patterns may be acceptable, depending on the character and condition of the specific stand and landscape in question.

Regardless of cutting pattern employed:

- the frequency of entry must be lower where volume per cut is higher
- each cut must maintain, or if necessary, restore, the natural range of variability in tree species, tree size, tree age, and spatial distribution of trees
- the cutting rate over any ten year period must not exceed 75 percent of the total growth during that period
- whole tree logging (the removal of the entire tree, including branches and crown, from the forest) must not occur
- extraction methods must limit the damage to trees left standing

Generally, cutting must not remove more than 10-20 percent of the merchantable trees in any one entry.

### **Tree Age and Tree Selection**

When choosing which trees to cut, emphasis must be placed more on successional patterns and forest history, than simply on tree age. The selection of trees to be cut needs to maintain or, where necessary, restore the natural range of variability in tree species, tree ages, and tree spatial distribution.

High-grading must not occur.

In stands where natural disturbance has been suppressed (such as fire suppression), the relatively young trees may be removed. As well, thinning and pruning may occur, either to develop sources of high-quality wood, or to restore natural composition, structure and functioning. In all cases, cutting in mature stands only occurs when such cutting will not degrade overall forest functioning, and when the trees have good economic value.

**Tree Regeneration**

Natural regeneration offers the most effective means of maintaining genetic and species diversity. The natural and successional processes needs to be respected and maintained during regeneration.

Tree planting generally may be used only in certain situations, for example where natural regeneration is ecologically inadequate. When planting does occur, stock must be suited to the site conditions. Site preparation (such as burning) needs to be justified from a site-specific, ecosystem-based perspective. In all cases, non-native (exotic) or genetically-engineered species must not be introduced or encouraged to spread.

**Planning and Managing for Non-Timber Species and Natural Disturbances**

Applicants must demonstrate a good understanding of the ecological functions and values of what are commonly called “pests” (e.g. diseases, insects, and mammals) and “non-commercial” tree species. Populations and influences of “pests” and “non-commercial species” must be maintained within ranges of natural variability for the ecosystem type. Expectation of human benefits from the forest needs to be consistent with “pest” activity, with “non-commercial species” needs, and with relatively predictable natural disturbances.

Salvage operations must protect and maintain natural ranges of variability in composition, structures, and functioning. Live trees need to be left standing during salvage operations. No more than 50 percent of the standing and fallen dead trees – well distributed spatially by size and by species – may be extracted after a large-scale disturbance.

**4. LANDSCAPE-LEVEL STANDARDS****Whole-Forest Applicants:**

In addition to the stand-level standards, whole-forest applicants must also meet the following landscape-level standards:

**Protected Landscape Network**

This is a system of reserves designed to protect the full range of ecosystem composition, structure, and functioning found in a landscape. The Protected Landscape Network is similar in parts and purpose to the Protected Stand Network (above), but at a larger scale.

Included in this protected network are:

- riparian ecosystems
- ecologically sensitive sites
- old growth nodes
- a representative range of all ecosystem types
- adequate additional reserves for the protection of rare, threatened, or endangered genetic strains, species, or ecosystem types
- cross-valley corridors or landscape linkages

In landscapes of 20,000 hectares or more, the Protected Landscape Network also includes whole

protected watersheds.

### **Ecologically Responsible Forest Use Zones**

Once the protected landscape network has been established, ecologically responsible forest use zones must be located – generally in areas between the parts of the protected network (like holes in Swiss cheese). Within these zones, a diversity of forest uses must be encouraged, without degrading forest functioning, in order to benefit as many interests as possible.

As well as timber management, ecologically responsible forest uses may include:

- cultural and spiritual uses
- watershed protection
- wildcrafting (harvesting non-timber forest products such as berries or herbs)
- tourism
- some conversion zones (areas converted to non-forest uses such as agriculture or settlement)

### **Access Systems**

Applicants must plan the landscape's overall road and access system to minimise soil, water, and ecosystem degradation. Planning must prevent or avoid soil compaction, soil erosion, soil displacement, water siltation and pollution, and concentration of water.

### **Large Landscape Reserves**

Timber management enterprises responsible for landscapes in excess of 100,000 hectares, must permanently protect large landscape reserves which represent at least 20 percent of the landscape. These reserves incorporate entire watersheds (preferably as unmodified as possible), and aim to represent the full range of ecosystem types found naturally in the greater landscape or region.

## **5. RESTORATION STANDARDS**

### **All Applicants:**

If assessment of the landscape and stand condition reveals that restoration is necessary, the focus should be on assisting, rather than fixing, natural forest processes. Within this context, restoration activities need to be carried out at all possible scales, and must strive to re-establish forest functioning by re-introducing natural composition and structure.

Restoration approximates both the spatial and time aspects of natural succession and disturbances. Restoration activities that alter natural forest composition or structures generally must not be carried out. Exotic species need to be avoided, unless these are the only means for moving the landscape and stand closer to a natural condition.

Previously clearcut young stands may be certified only if there is an active restoration program in place that complies with applicable SFF Restoration Standards.

## **6. SOCIAL STANDARDS**

### **All Applicants:**

All certified timber management activities must be socially, as well as ecologically, responsible. Socially responsible timber management provides for the balanced use of forests, and accommodates the diverse needs of humans and non-humans. The standards for social responsibility include the following:

#### **Compliance with Laws and with *SFF Standards***

Applicants must comply with all applicable laws and regulations. As well, applicants must demonstrate a long-term commitment to following *SFF Standards* for Ecologically Responsible Timber Management.

#### **First Nations**

British Columbia and Canada have not negotiated treaties with most First Nations in British Columbia. Therefore, the province is largely unceded First Nations land. In other parts of Canada, treaties exist or are in various stages of negotiation. First Nations have special rights, and a special relationship with the forests and other ecosystems comprising the lands and waters of their territories. With this situation in mind, First Nations' aboriginal rights and title, experience, knowledge, practices and insights must be fairly and fully considered and accommodated in the planning and practices of all applicants.

#### **Local Communities**

Local communities, including First Nations, must be given fair opportunity to participate in decision-making, and in the equitable distribution of timber and non-timber benefits. Communities with legal or customary tenure rights must maintain control over timber management activities, unless such control is delegated in a free and informed manner.

Applicants need to establish and maintain consultation with people affected by management activities. As well, recreational, educational, and subsistence uses of the forest must be allowed whenever possible; and timber management must be designed to provide long-term local employment and to promote long-term community stability.

#### **Workers' Rights**

All employees need to be provided with:

- fair compensation and benefit packages
- high standards for employee health and safety
- freedom from discriminatory employment practices
- freedom to organise
- opportunity to participate in, and give feedback on, management decisions and policies

## **7. ECONOMIC STANDARDS**

### **All Applicants:**

Applicants need to account for the full ecological, social, and financial costs and benefits of operations. Applicants must also secure enough human and financial resources to implement ecologically responsible landscape-level and stand-level plans. As well, all timber that is cut should be utilised as fully as possible. Local value-added production should be maximised; wastage must be kept to a minimum; and markets for under-utilised species should be actively pursued.

## **8. MONITORING STANDARDS**

### **All Applicants:**

All applicants must monitor and evaluate the ecological, social, and economic impacts of activities, at least once a year. Monitoring needs to include indicators such as:

- volumes of forest products
- tree growth rates
- changes in forest composition
- costs of timber management
- protection of reserved areas

The results of monitoring must then be incorporated into revisions to landscape and stand-level plans.

## **IV. HOW TO FIND OUT MORE**

For more information about the SFF Certification Program, contact Herb Hammond at:

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