

---

# Forest Certification and the Management of Forest Genetic Resources

*Submitted by Graeme Auld and Sally Aitken*

Since the early 1990s, certification—the independent assessment of forestry operations against a set of standards—has gained international attention as a new mechanism for assessing and encouraging responsible forest management practices. With interest in certification growing in the province’s international markets, B.C. forest managers, the provincial government, and other stakeholders are wondering how British Columbia practices measure up.

Recently completed research at the Centre for Forest Gene Conservation (CFGC) examined the B.C. government’s

standards and requirements specific to forest genetic resources to determine how they might be assessed under four initiatives for certifying forest lands that could be applicable in British Columbia (see table). By analyzing documents and interviewing individuals involved in these certification initiatives, the research investigated how the standards and field audits assess the maintenance and conservation of forest genetic diversity. The findings were then compared with provincial standards and requirements specific to genetic diversity, to determine if or where conflicts exist.

## General description of examined certification initiatives

---

### Canadian Standards Association (CSA)

Non-profit, membership-based organization with volunteer, associate, and supporting members.

Managed development of the CSA Sustainable Forest Management system and controls the CSA mark.

Based on the criteria and critical elements in the Canadian Council of Forest Ministers (CCFM) standard. Companies seeking certification must localize these criteria and elements through public consultation.

---

### Forest Stewardship Council (FSC)

Non-profit, membership-based organization with no governmental affiliations. Members split into social, economic, environmental chambers with voting equally divided between northern and southern interests.

Managed the development and now controls the international FSC principles and criteria (P&C) that outline the initiative’s broad requirements.

Controls the development of nationally specific interpretations of the P&C through a network of endorsed national initiatives.

Accredits companies and organizations that wish to certify against the FSC P&C.

---

### Pan-European Forest Certification (PEFC)

Non-profit, membership-based organization comprised of national members from 19 countries (mostly European, but includes the United States and Canada).

Provides a framework for certification based on the Pan-European criteria and indicators and operational level guidelines.

Sets requirements for members who want to receive endorsement for their national certification initiative.

---

### Sustainable Forestry Initiative (SFI)

Conceived by the American Forest and Paper Association (AF&PA) as a code of conduct for its members, but has developed to offer members and non-members the opportunity to undertake third-party verification.

Controlled the AF&PA and the Sustainable Forestry Board (SFB) (a group of 40% industry CEOs and 60% outside interests) that watch over the implementation of and improvements to the SFI standard and deal with conflicts over non-compliance.

---

Sources: [www.pefc.org](http://www.pefc.org), [www.fscoax.org/principal.htm](http://www.fscoax.org/principal.htm), [www.afandpa.org](http://www.afandpa.org), and [www.csagroup.org](http://www.csagroup.org)

## Results

Forest genetic resource policy in British Columbia addresses:

- genetic diversity (the variability within a species in a natural or artificially regenerated stand compared with the baseline)
- adaptation (the ability of trees to grow in local conditions)
- quality (the beneficial character of traits that bred trees are selected for)
- the use of genetically modified (GM) trees.

The different certification initiatives touch on some of these aspects of genetics, but not consistently or comprehensively. While the variability among and within the initiatives makes it hard to generalize about differences, two important differences between standards are noted.

First, the FSC is the only initiative that prohibits the use of genetically modified organisms (GMO) in certified forest operations and for research on these lands. While one national member of the PEFC initiative (France) also restricts GMO use, for the most part PEFC, CSA, and SFI place no restrictions on GMO use or research. These initiatives appear to less clearly prohibit any specific forest management tool.

The second difference is the extent to which the initiatives advocate management that mimics natural processes. The FSC and, to a lesser extent, the PEFC encourage management practices such as natural regeneration and emphasize preserving phenotypic variation in set-asides and reserves to ensure that endemic levels of genetic diversity are conserved.

In addition, and specific to the FSC, the assessment of an operation differs based on whether management is considered “plantation” or “natural” in character. Within natural forests, the emphasis on natural processes guides certification assessments, meaning natural regeneration and set-asides are required.

Planting is mostly acceptable only where justifiable on ecological grounds. For plantation forest management, genetic diversity is promoted to reduce the risk of disease and pest outbreaks; the standards encourage planting genetically appropriate seed or vegetative material. In general, origin should be documented wherever planting is used.

The CSA and SFI make no distinction between management occurring in natural systems and plantations, allowing similar practices to occur in all forests. Overall, their standards and certification procedures focus broadly on biodiversity, rather than specifically on genetic diversity.

Requirements for CSA certification state that managers are to address the conservation of genetic diversity. How this is implemented, however, varies between companies, as specific indicators are set locally through a required public consultation process.

The SFI pays little attention to genetic diversity for conservation purposes. SFI requirements focus more on planting high quality genetic stock or vegetative material, and genetic diversity as a resource for ensuring the future productivity of managed forests.

## Conclusions

Existing B.C. standards and requirements specific to forest genetic resources are not in conflict with the standards and requirements of the certification initiatives reviewed. However, each of the initiatives recognized a need to improve its standards on genetics. Highlighted were four issues that British Columbia’s forest genetics community should be ready to address:

- generally increasing levels of scrutiny of seed selection and tree breeding programs
- higher thresholds set for minimum effective population sizes

---

**The FSC is the only initiative that prohibits the use of genetically modified organisms (GMOs) in certified forest operations and for research on these lands.**

---

**Each certifying organization recognized a need to improve its standards on genetics.**

- increased scrutiny of planting select seed in relation to declining ingress of natural regeneration
- attention to the genetic diversity of all forest flora and fauna.

Actively pursuing these issues and positioning British Columbia to meet certification requirements may become increasingly important to maintain the province's rich diversity of forest

ecosystems and competitiveness in international markets. Research at the CFGC is addressing some of these issues. [Editor's note: See, for example, Hamann's article *Cataloguing in Situ Conservation in Protected Areas.*] These and other research efforts present an opportunity for British Columbia to lead the development of best practices for forest genetic resource management that other forested regions can emulate.