CANADIAN FEDERATION OF
Professional Foresters Associations

Standard 1: Tree and Stand Dynamics

Principle

Trees and stands are an important part of the Canadian landscape. Knowledge of tree and stand establishment, growth and mortality, forms the basis of understanding how the forest ecosystem functions.

Relevant Components

- Basic understanding of growth and yield projections; the applications and limitations of growth and yield on forest management.
- Concept of silvics, life cycle, growth, genetics of trees.
- Ecological amplitude of plant species and communities.
- Factors that influence trees and stands in order to predict future conditions.
- Identify, classify and analyze trees and stands.
- Influence of tree and stand establishment (natural or artificial), density control, planting, spacing, tree improvement, vegetation control, fertilization, drainage and pruning on stand growth, quality, and ecosystem diversity.
- Influence that landforms, landscapes, and surface materials have on trees and groups of trees over time.
- Life history of regional tree species.
- Plant and tree physiology.

Demonstrable Competency Requirements

Graduates of an accredited program shall be able to:

1. **Identify plants and describe their physiology, growth, morphology, autecology, and synecology.**
   - **a.** Identify indicator plants in a regional context.
   - **b.** Describe anatomy, morphology and physiology of plants.
   - **c.** Explain the interaction between plants and environment.
   - **d.** Describe plant communities.
   - **e.** Explain the relationships between and within plant communities.

2. **Describe current and past tree and stand conditions and the processes that led to them and articulate possible future conditions.**

Tree

- **a.** Measure attributes of interest (e.g. age, form, size, leaf index).
- **b.** Determine quality (e.g. health, wood quality, snag potential, visual quality)
- **c.** Explain resource potential (e.g. habitat, shade, wood fibre)
- **d.** Explain the processes that have influenced the size, health and vigour of the tree.

Stand

- **e.** Measure and describe species composition, size distributions, age and spatial arrangement of plants.
- **f.** Determine stand origin.
- **g.** Recognize the range of values found in a stand.
- **h.** Define succession and stand dynamics.
- **i.** Describe and analyse the biotic/abiotic agents driving stand dynamics.
- **j.** For a range of different stands, be able to describe the dynamics that have led to the current stand structure and be able to predict future stand structures.

3. **Describe and apply models to articulate present and future stand conditions.**
   - **a.** Identify, use and explain predictive tools/models.
   - **b.** Explain the strengths and weaknesses of the tools/models.

4. **Demonstrate the integration of the individual competencies within Standard 1.**
   - **a.** Prepare a defensible stand management prescription[1]/intervention for a given set of management objectives.

[1] *The word prescription does not mean a specific professional document (referenced in some legislation) but refers to a broad document that describes a current condition and prescribes a course of action toward a future condition.*