

# FOREST TECHNOLOGIST PROFESSIONAL STANDARDS

FOREST PROFESSIONAL REGULATORS OF CANADA



FOREST PROFESSIONAL  
REGULATORS OF CANADA

ORGANISME DE  
RÉGLEMENTATION DES  
PROFESSIONNELS  
DE LA FORÊT DU CANADA



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# Citing & Acknowledgements

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FPRC is appreciative of the expertise of Roselynn Verwoord, PhD, for facilitating the process to completion.

# Standards Development

These standards were developed through collaboration and consultation with a number of allies in the Canadian Forest Sector.

The following organizations contributed directly to writing the standards:

## Professional Regulators

The following members of the Forest Professional Regulators of Canada (FPRC) have contributed to the development of these standards:

- Forest Professionals British Columbia Association of
- Alberta Forest Management Professionals
- Association of Saskatchewan Forestry Professionals



## Post-secondary Institutions

The following post-secondary institutions have contributed to the development of these standards:

- British Columbia Institute of Technology
- Northern Alberta Institute of Technology
- Saskatchewan Polytechnic
- Maritime College of Forest Technology



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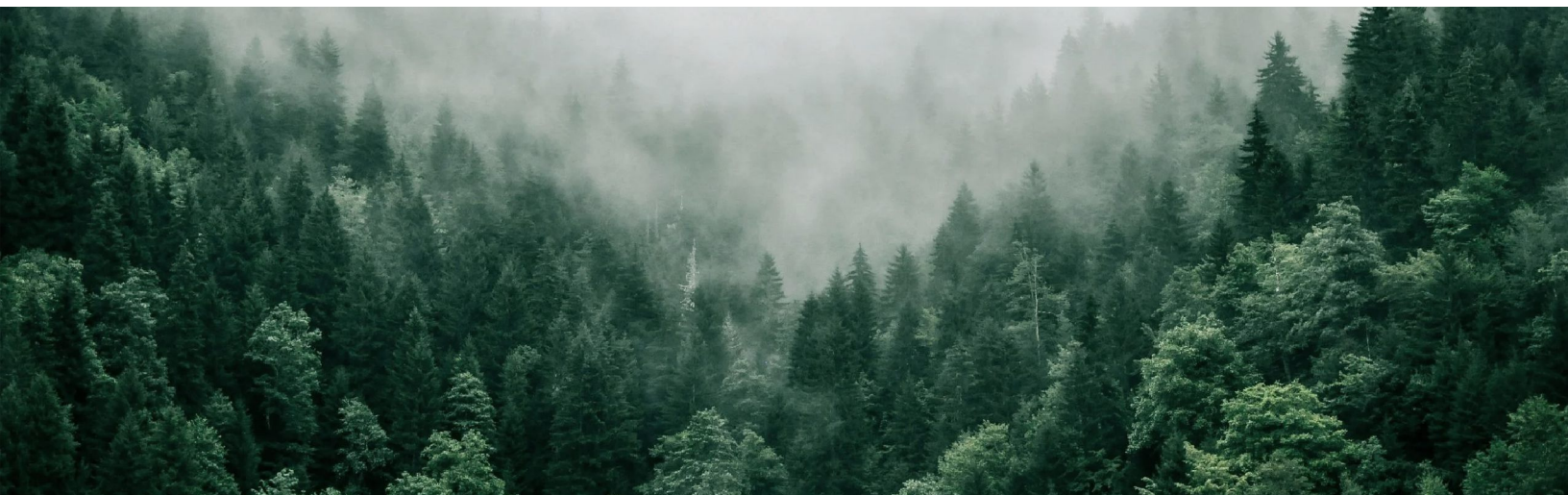
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# About Forest Professional Regulators of Canada

The Forest Professional Regulators of Canada (FPRC) is an advisory group composed of representatives of forest professional regulatory organizations across Canada and the Canadian Institute of Forestry (representing those jurisdictions in which forestry is not a regulated profession).

FPRC's mission is to provide coordination of programs and services enabling transparent, impartial and procedurally fair registration practices of forest professionals by regulators in Canada.

FPRC's purposes are to:

- promote consistency in the regulation of forest professionals in Canada,
- coordinate and communicate issues that affect the regulation of forest professionals,
- enable movement for forest professionals between jurisdictions,
- define standards\* for entry to practice\*, accredit forest professional post-secondary programs and conduct credential assessments.

FPRC sets national academic certification standards for the professional practice of forestry in Canada.

## Forest Professional Regulatory Organizations In Canada

These regulators are provincially mandated to regulate forest technologists in Canada:



# Glossary

Throughout this document words and terms are used that have specific meaning. It is important to know, at the outset, definitions in the context of these standards.

Note: Terms identified in the glossary are marked with an asterisk (\*) in the first occurrence in the document.

**Allied science education:** programs that are delivered through recognized academic institutions which cover principal areas of practice in the natural, physical, and social sciences, but are not accredited by a third-party accrediting body.

**Demonstrable competency:** comprehensive statement of the nature of the work forest technologists are able to do.

Note: A candidate shall be able to demonstrate entry-level competence in each of the demonstrable competencies of a standard and shall be able to do so in a manner that corresponds accurately with the “learning outcomes” level prescribed by a competency’s action verb(s).

**Entry to practice:** The educational, competency, and experience-related qualifications, equivalent to the level of a new graduate of an accredited forest technologist program, required before a person can practice a profession.

**Hazard:** a potential source of harm or adverse health effect on a person or persons.

**Measure:** observable knowledge, skills, and attitudes forest technologists use to demonstrate a competency.

**Professional practice:** the conduct and work of someone from a particular profession.

**Professional practice standards:** the set of practices, experiences, and behaviours that individuals must meet to be certified as a forest technologist.

**Risk:** involves uncertainty about the effects/implications of an activity with respect to something that humans value (such as health, well-being, wealth, property, cultural or the environment), often focusing on negative, undesirable consequences.

**Standard:** the individual standards of the certification standards.

**Regulatory organization:** (also regulatory authority, body, licensure, or regulator) is a public authority or government agency responsible for exercising autonomous authority over some area of professional practice in a regulatory or supervisory capacity.

# Introduction

Professional practice standards contribute to public protection by informing the public and forest technologists of their accountabilities.

Professional practice standards\* provide an overall framework for the practice of forest technologists. The standards describe, in broad terms, the professional expectations of forest technologists and apply to all forest technologists, regardless of area of practice.

Each standard includes a broad description, one or more demonstrable competencies\* and multiple measures\* articulating how the standard is demonstrated.

Professional practice standards are an authoritative document that sets out the legal and professional basis of the practice of forest technologists.

## **The standards provide the framework for forest technologist practice in Canada by:**

- describing performance criteria for forest technologists,
- defining scope of practice to the public and other professionals,
- providing a framework for professional practice\*, and
- providing a foundation to all aspects of the regulation of the profession including registration, practice standards and professional exams.

**Forest technologists applying for registration as a professional must meet all the measures within the standards.**

These standards were developed with a holistic view of the work that forest technologists undertake while looking to the future and how the breadth of the work forest technologists carry out may change as societal expectations evolve.

FPRC recognizes that a broad variety of user groups, First Nations and/or Indigenous groups have vested interests in the forest as an ecosystem and that a broad variety of values are identified with forest resource utilization and intrinsic attributes.

Specific examples of industry tools are not provided in the measures as it is recognized that different tools may be developed and implemented over time.

# Who is a Forest Technologist?

A forest technologist, as a practitioner of forest management, has:

- the background to research, select, design, supervise, and apply different methodologies, technical procedures, and equipment options required to complete assigned tasks given environmental conditions and project objectives,
- completed a two to three year diploma, advanced diploma or applied degrees (or equivalent) in forestry or related natural resources,
- completed sufficient hours in order to satisfy the measures within these standards, which has typically meant programs of 1800 to 2500 instructional hours.

## Typical Duties May Include:

- Supervise forest inventory surveys and field measurements,
- Prepare operational management plans and related activities,
- Make operational decisions,
- Coordinate field activities,
- Implement silviculture programs,
- Analyze and report on data,
- Monitor resource management,
- Communicate and coordinate activities with other qualified professionals, individuals, and groups.

FPRC recognizes these standards are relevant at the time of adoption and the demonstratable competencies and measures may change in the future and will be adjusted accordingly.

## Indigenous Acknowledgement

The Forest Professional Regulators of Canada acknowledge that its member organizations and registrants work and reside in the ancestral lands and territories of First Nations, Inuit, and Métis peoples across Canada.

The standards incorporate the recognition of Indigenous rights and titles and the expectation of skills forest technologists must have in order to effectively respect and honour those rights and titles.

Where measures identify Indigenous measures, a forest technologist would be applying or incorporating information that has been provided by Indigenous peoples / communities.



# Structure

All standards have equal importance and are interconnected.

The professional practice standards articulate the knowledge, skills, attitudes, and values that are required by forest technologists in professional practice. The standards describe what each forest technologist is responsible and accountable for in their practice.

Each standard includes one or more demonstrable competencies (DC) and measures that indicate how the competency must be demonstrated.

A demonstrable competency is a comprehensive statement of the nature of the work forest technologists can do.

The demonstrable competencies and measures are written using action verbs such as “describe”, “apply”, “analyze”, “design” or “develop” as commonly found in Bloom’s Taxonomy Revised (2001). The taxonomy classifies verbs into levels of complexity and specificity. The taxonomy has been used to articulate the required level of understanding and ability that forest technologists must demonstrate for each of the measures.

When a measure corresponds to a variety of skills/knowledge, footnotes are provided as guidance for users of the standards.

Measures focused specifically on Indigenous peoples' contemporary and traditional practices are coloured in orange.

1. Armstrong, P. (2010). Bloom's Taxonomy. Vanderbilt University Center for Teaching. Retrieved June 2023 from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>. Retrieved from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>

# Purpose & Guiding Principles

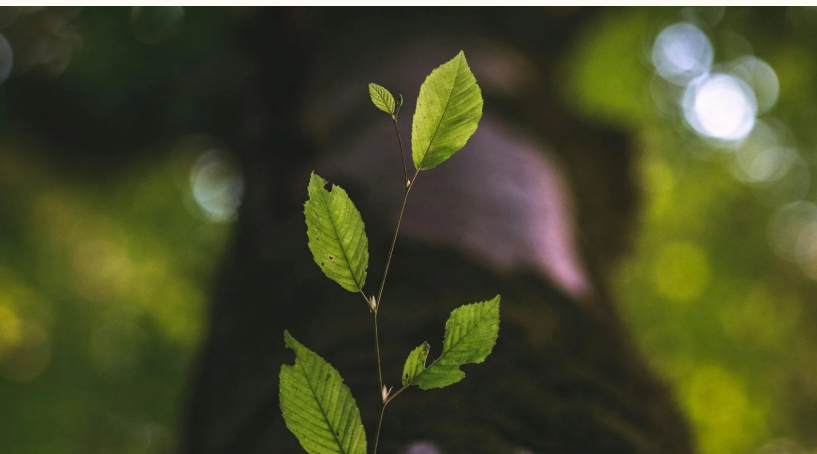
The professional practice standards provide an overall framework for the practice of forest technologists. This document is intended to define the entry to practice competencies of a forest technologist. It is not intended to prescribe the scope of practice of the profession.

## Purposes of the Standards:

- Aid in facilitating labour mobility for regulated professions.
- Define the entry-to practice scope of practice for forest technologists with the purpose of differentiating them from other professional designations.
- Determine registration eligibility for individuals that have completed non-accredited allied science education\* and have work experience.
- Help individuals to determine which pathway to professional registration would be best suited for them.
- Set minimum requirements for entry to practice into the forest technologist regulated profession.
- Define educational foundations content.
- Aid in developing a better understanding and respect for the various and complementary roles that forest technologists have.

## Guiding Principles

- The knowledge, skills, and abilities of foresters and forest technologists is different.
- There are areas of overlap in education between forest technologists and other regulated professions, including foresters.
- Competency standards are developed to ensure public protection and to support forest technologist practice in Canada.
- Competency standards are broad in nature to capture forest technologists working in a variety of roles and areas of practice.
- The demonstrable competencies and measures are relevant for, and must be met by, all forest technologists.
- The standards are inter-related; an indicator used to illustrate one standard may also demonstrate the application of other standards.





# Standards



## Communication and Information Management

# 1

Communication enables the transfer, use, and adaptation of information in various contexts. Forest technologists must effectively communicate the key elements of their work to other parties, verbally and in writing; selecting the most appropriate medium for the task. Information management is essential for ensuring efficient operations. Forest technologists must acquire, use, and maintain information in support of forest management.

### Demonstrable Competencies

### Measures

#### A. Communicate effectively

1. Create written and visual technical materials
2. Adapt verbal and visual technical materials for a variety of audiences <sup>1</sup>
3. Apply interpersonal skills to enhance communication and resolve conflicts <sup>2</sup>
4. Communicate in a way that is respectful, non-judgmental, and culturally appropriate
5. Use appropriate language, conventions, or protocols <sup>3</sup>
6. Interpret communications
7. Apply effective communication principles, standards, and methods
8. Select the most appropriate and effective medium and mode for communicating
9. Recognize cultural differences in communication
10. Apply effective cross-cultural communication skills

#### B. Manage information

1. Acquire relevant information from a variety of sources <sup>4</sup>
2. Implement quality management processes <sup>5</sup>
3. Interpret basic statistics <sup>6</sup>
4. Organize information <sup>7</sup>
5. Support Indigenous oral histories and knowledge <sup>8</sup>

#### Notes:

1. Includes preparation of sketch diagrams, charts, tables, technical reports, maps, and graphs to report summarized field data.
2. Includes negotiation and conflict resolution skills.
3. Includes documenting scientific reasoning behind ideas.
4. Includes topographic, thematic, cadastral data, lidar, GIS/mapping data, documents, tabular information, remotely sensed data; includes knowing what rules and requirements are applicable.
5. Includes quality assurance and quality control to ensure accuracy of information.
6. Includes calculating mean, range, confidence intervals, and standard deviation.
7. Includes file management, documentation, and archiving.
8. Includes knowledge of Indigenous Peoples, their worldviews, knowledge, governance (including protocols for engagement), and practices related to lands and resources.

## Leadership

# 2

Leadership is an essential skill to ensure appropriate outcomes are achieved when working with a public resource. Leadership is required to complete autonomous work, manage complex and varied work responsibilities, and supervise. Forest technologists must know themselves, collaborate and consult with others, and apply critical thinking skills.

### Demonstrable Competencies

### Measures

#### A. Cultivate relationships

1. Contribute to teams
2. Collaborate with others
3. Consult with others
4. Manage conflict
5. Incorporate the values of user groups
6. Support Indigenous reconciliation
7. Apply Indigenous consultation requirements <sup>2</sup>

#### B. Demonstrate critical thinking

1. Evaluate information and sources
2. Document rationale for decisions <sup>3</sup>
3. Recognize need for external expertise <sup>4</sup>
4. Analyze issues and problem-solve

#### C. Lead self & others

1. Use effective interpersonal skills
2. Apply reflective practice <sup>5</sup>
3. Apply principles of emotional intelligence <sup>6</sup>
4. Acknowledge the need for, and seek out, appropriate resources, training, and/or coaching
5. Apply skills and processes to adapt to change <sup>7</sup>
6. Empower self and others <sup>8</sup>
7. Address cognitive bias <sup>9</sup>

#### Notes:

1. Includes the ability to embrace and learn from conflict and not necessarily resolve it.
2. Includes the principles of the duty to consult and accommodate, and Free, Prior, and Informed Consent (FPIC).
3. Includes supporting documentation.
4. Includes the ability to recognize personal limitations and identify that assistance is needed.
5. Ability to reflect on one's actions to engage in continuous learning.
6. Capabilities of emotional intelligence fall into a matrix: self-awareness, social awareness, regulation of the self, and regulation of social skills. (adapted from Goleman's emotional intelligence model).
7. Effectively organizes and prioritizes daily workload.
8. Includes the ability to build trust, give and receive feedback, delegate responsibilities, recognize limitations in self and others, show appreciation, create opportunities for others, build confidence, and help others develop skills.
9. Cognitive biases are stereotypes or assumptions a person makes outside of their own conscious and subconscious awareness which originate from that individual's own perceptions, observations, or points of view. Bias affects decision making processes.

## Professionalism and Ethical Behaviour

# 3

Maintaining and enhancing the public's trust is a cornerstone for any professional. Forest technologists must protect and serve the public interest by understanding their role, following a code of ethics, seeking out opportunities for continuous improvement, and adhering to regulatory requirements.

### Demonstrable Competencies

### Measures

A. Act in a manner that protects and serves the public interest

1. Apply a code of ethics to daily conduct
2. Practice within a professional scope of practice and individual areas of competence
3. Maintain competence within areas of practice
4. Differentiate between public interests and the demands of employment

B. Adhere to legislation and policies

1. Recognize the functions of professional regulatory organizations\*
2. Apply relevant legislation and policies<sup>1</sup>
3. Adhere to applicable occupational health and safety regulations and training requirements<sup>2</sup>
4. Integrate constitutional rights, treaty rights, and international agreements pertaining to Indigenous peoples<sup>3</sup>

C. Demonstrate the duties and obligations of professionals

1. Report non-compliance to appropriate bodies
2. Document evidence gathered to make decisions
3. Differentiate between professional and unprofessional conduct
4. Exercise due diligence in completion of work

D. Make ethical decisions

1. Differentiate between personal values and professional ethics<sup>4</sup>
2. Examine ethical issues<sup>5</sup>
3. Identify conflicts of interest
4. Use evidence-based practices to make decisions<sup>6</sup>

#### Notes:

1. Includes legislation and policies at the provincial and federal level that link to the practice of forestry in a specific jurisdiction.
2. All employers and workers must understand legislated occupational health and safety rights and requirements. Employees must understand and be able to follow organization specific safe work policy outlining how to perform a task with minimum risk to people, equipment, materials, environment, and processes.
3. Section 35 of the Constitution Act (1982) and UNDRIP.
4. Ethics serve as principles to guide professional behavior to protect the public.
5. Includes knowledge of ethics including an understanding of the underlying basis for ethical principles such as respect for autonomy and justice, situational analysis, and reflection on the influence that one's personal beliefs and values might exert in the decision-making process.
6. A nuanced approach to problem solving and decision-making that brings together the best empirical evidence, the complex decision making repertoires of a trained professional, and important social validity and contextual considerations to solve problems.

## Site Condition Assessment

# 4

The sustainable management of systems involves evaluating a range of ecological, economic, and social conditions. Forest technologists must identify species, use classification systems, and identify cultural values and other factors that contribute to the development or implementation of plans in the forest environment.

### Demonstrable Competencies

### Measures

#### A. Conduct assessments and field surveys

1. Conduct silvicultural and timber-harvesting treatment surveys <sup>1</sup>
2. Apply appropriate field sampling methodologies
3. Conduct fire surveys
4. Conduct wildlife, insect, and disease surveys
5. Conduct forest inventory surveys <sup>2</sup>
6. Conduct watershed assessments
7. Conduct field surveys of human-made infrastructures

#### B. Interpret site conditions

1. Identify forest plants and fungi common to a given region
2. Identify wildlife, wildlife signs, and associated habitat features
3. Identify forest insects and diseases
4. Collect spatial and attribute information
5. Collect field data using appropriate equipment and technologies
6. Interpret landscape features using remotely sensed data, imagery, and maps
7. Identify damage in forests caused from insects, disease, wildlife, and abiotic factors
8. Recognize rare or sensitive ecological features
9. Identify anthropogenic and non-anthropogenic features common to a given region
10. Interpret factors influencing stand dynamics
11. Identify drainage characteristics from soil and terrain
12. Integrate ecological site values <sup>3</sup>

#### Notes:

1. Includes pre and post-harvest and stand surveys.
2. Includes timber, soils, ecosites, and other characteristics.
3. May include cultural or spiritual - indirect use (health and wellbeing), traditional medicines, potential for gathering, etc.

## Site Condition Assessment continued

### Demonstrable Competencies

### Measures

C. Measure site conditions

1. Measure tree and stand-level attributes
2. Measure topographic, cartographic, and hydrological characteristics <sup>1</sup>
3. Measure soil characteristics <sup>2</sup>
4. Measure forest products pre and post-harvest <sup>3</sup>
5. Measure forest road infrastructure <sup>4</sup>

D. Predict potential uses, products, and other values

1. Rank commercial, non-commercial, and ecosystem service values <sup>5</sup>
2. Describe site features and landforms contributing to access and silviculture potential
3. Identify potential forest products <sup>6</sup>
4. Identify the values of user groups
5. Recognize the significance of heritage activities and traditional uses <sup>7</sup>
6. Recognize potential site uses for Indigenous peoples <sup>8</sup>
7. Identify anthropological and cultural values and features

E. Use tools, resources, and classification systems

1. Determine watercourse, waterbody, and wetland classes
2. Determine forest ecosites and productivity
3. Determine the risk of wildfire or fire danger rating
4. Determine forest development and successional stages

#### Notes:

1. Includes distances, directions, area, topographic position, elevation, aspect, and slopes.
2. Includes texture, pH, colour, structure, and organic matter.
3. Includes mensuration, scaling, timber cruising, vegetation, and forest inventory.
4. Includes geometry - width, length, slope, and changes in elevation of road.
5. Includes consumptive - direct use (e.g. firewood/ mushrooms, wildlife), non-consumptive - direct use (e.g. recreation, hiking, equestrian, quad, camping), ecosystem services - indirect use (e.g. carbon sequestration, water quality, biodiversity, wildlife, and aesthetic).
6. Includes both consumptive and non-consumptive.
7. Includes, but is not limited to, hunting, rangeland, trapping, fishing, and traditional burial grounds which may vary between nations and communities as determined through consultation.
8. Definition of anthropological is not limited to Indigenous peoples.



## Site Condition Assessment

# 5

Risk management is an integral component of good management and governance. Forest management involves the consideration of hazards\*, risks\*, and consequences in routine decision-making. Forest technologists must conduct risk assessments and prescribe appropriate mitigation techniques.

### Demonstrable Competencies

### Measures

#### A. Assess risk

1. Identify hazards specific to person(s)
2. Identify potential risks to the environment, property, society and the economy
3. Identify potential operational risks from the environment <sup>1</sup>
4. Assess for probability, severity, and impact of risks
5. Identify potential for adverse impacts on the continuous exercise of Indigenous rights and usage <sup>2</sup>

#### B. Implement risk-based adaptations and strategies

1. Implement risk management policies, procedures, and action plans
2. Incorporate climate change risk analysis in decision-making
3. Apply strategies to mitigate cumulative effects
4. Mitigate the impacts of operations on fresh-water conservation

#### C. Mitigate risk

1. Mitigate risk through engineering controls, safe-work procedures, and personal protective equipment <sup>3</sup>
2. Perform work according to safety requirements
3. Implement strategies to eliminate or substitute hazards

#### Notes:

1. Includes, but is not limited to, the impacts from weather events, weather patterns, seasonable variation, and site-level hazards.
2. Each province has policy and guidelines in place outlining triggers for decisions that may produce consultation requirements if adverse impacts on the exercise of Treaty rights and contemporary or traditional uses are identified.
3. Everyone at or associated with the workplace takes responsibility for their own health and safety and the health and safety of those around them. This can include workplace hazardous materials information system (WHMIS).

## Operational Management

# 6

Managing operations involves a suite of skills that relate to overseeing people and work site conditions to ensure that projects are completed safely, competently, and on time. Forest technologists must effectively implement management plans, manage operational practices, and assist in making decisions that ensure operations are efficient and effective.

### Demonstrable Competencies

### Measures

#### A. Conduct operations <sup>1</sup>

1. Navigate in the field
2. Operate digital Geographic Information System (GIS) technologies
3. Operate Global Navigation Satellite Systems (GNSS)-enabled technologies
4. Use forestry tools and equipment <sup>2</sup>
5. Mark locations, boundaries, and features
6. Implement wildfire management plans, and procedures <sup>3</sup>
7. Implement a silviculture system <sup>4</sup>
8. Implement control measures for forest pests, diseases, and invasive species
9. Construct thematic maps using a variety of data sources
10. Implement watershed protection and restoration protocols to ensure hydrological function
11. Employ appropriate scale of mapping, remote sensing, and survey systems <sup>5</sup>

#### B. Develop operational plans

1. Plan workflows, scheduling, and tasks
2. Estimate productivity
3. Calculate financial projections
4. Determine human resources<sup>6</sup>
5. Determine relevant data, information, equipment, and materials
6. Determine desired outcome(s) and objective(s)
7. Integrate multiple values and uses

#### Notes:

1. The term operations is not restricted to referencing industrial forestry.
2. Includes operating wildfire tools and equipment; maintaining tools and equipment; operating tree measurement tools; operating modes of field transportation. Can include operating power saws.
3. May include suppression and/or prescribed burning.
4. Includes the ability to apply stand treatments based on a prior silvicultural assessment.
5. Includes the ability to describe standard procedures for monitoring, measuring, and collecting data.
6. Includes the ability to identify the people needed to do a job and their skillsets.

## Operational Management continued

### Demonstrable Competencies

### Measures

#### C. Manage operations

1. Monitor operational conditions and processes
2. Supervise people
3. Manage workflows, scheduling, and tasks
4. Prepare required resources <sup>1</sup>

#### D. Prescribe appropriate activities and methods

1. Recommend silvicultural treatments, methods, and systems <sup>2</sup>
2. Recommend operational harvesting activities, methods, and systems <sup>2</sup>
3. Recommend road and crossing locations, maintenance, and deactivation activities <sup>2</sup>
4. Recommend wildfire prevention, containment methods and activities <sup>3 & 4</sup>
5. Recommend reclamation and rehabilitation activities on forested landbase
6. Protect significant cultural and archeological features
7. Maintain edible and medicinal plant communities as directed by Indigenous communities

#### Notes:

1. Tracking and timing operations and processes.
2. May include preparation of maps and materials; forestry tools and equipment; ensuring individuals have the resources they need to work safely, etc.
3. Includes protection of environmentally and ecologically sensitive features.
4. Includes awareness of wildland urban interface.



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