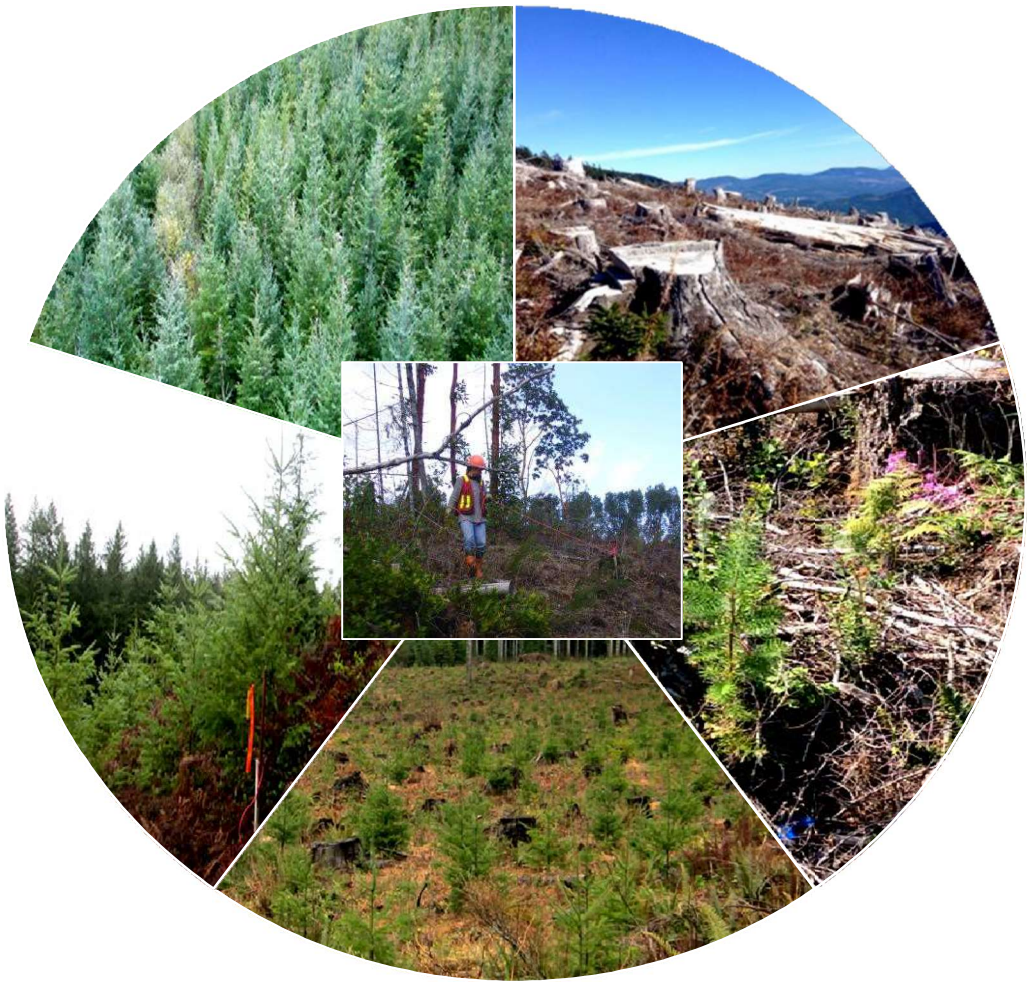
https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/silviculture/silviculture-surveys

The Silviculture Surveyor Accreditation Process

Spring 2024



Forest Science, Planning and Practices Branch

Ministry of Forests

Background

In the 1980's, the silviculture surveyor certification and training process was originally developed for the British Columbia Ministry of Forests with the goal of ensuring quality silviculture surveys. In 1995, the certification process changed to an accreditation process, separating the training component from the examination.

The silviculture surveyor accreditation process:

- defines the role of a silviculture surveyor,
- eliminates prerequisites for the accreditation exam in favour of a self-screening process,
- separates the accreditation exam from training so that individuals can design their training to suit their specific needs
- clearly defines performance expectations of silviculture surveyors.

The Role of an Accredited Silviculture Surveyor

Accredited Silviculture Surveyors (ASS) are experienced field practitioners. They often have a complex role in the collection, compilation, and analysis of silviculture survey data. They make use of silviculture plans and gather information to carry out the following tasks:

- conduct or confirm the stratification of a survey unit,
- ensure the accuracy and thoroughness of data collection, reporting, and mapping,
- confirm and identify additional critical site factors that may influence the attainment of management objectives set out in plans,
- make preliminary recommendations that aid in forest management decisions, including those that prove legislated reforestation obligations have been achieved.

Why Become Accredited?

An Accredited Silviculture Surveyor (ASS) designation:

- demonstrates to future employers that you are capable, well trained and understand the performance expectations to ensure a high standard of competency when conducting silviculture surveys,
- increases your qualifications and makes you a more desirable candidate for many silviculture related jobs,
- can be a requirement in a survey contract that specifies an ASS be on site for all silviculture surveys,
- makes you potentially eligible for registration as an Associate Member (Silviculture Accredited Surveyor-SAS) with the Forest Professionals of BC (FPBC)). For more information visit the FPBC website:

https://www.fpbc.ca/become-a-forest-professional/technical-occupations/siviculture-accredited-surveyor/

Accreditation Exam Prerequisites

There are no pre-requisites for writing the accreditation exam. Each candidate must assess their own knowledge and skill level prior to registering for the accreditation exam.

However, it is highly recommended that surveyors have a minimum of one field season performing regeneration delay, stocking, and free growing surveys, including alternative survey methods. It is expected that most experienced surveyors will be able to meet the performance expectations.

Silviculture Surveyor Training

To prepare for the exam and to stay current in silviculture surveying, the Ministry of Forests (FOR) encourages regular training.

Students may access training through a combination of sources:

- Formal education (e.g., college, university)
- On the job training and work experience
- Online materials (e.g., training videos, guidance documents, online courses)
- Government workshops (e.g., forest health, ecology)
- Silviculture workshops and field tours (e.g., NSC, SISCO, CSC)
- Courses offered through various training providers.

The training providers offer courses ranging from one-day 'What's New' sessions for experienced surveyors to comprehensive ten-day training sessions for students with little or no surveying experience.

Training is offered in all regions based on demand, with more frequent occurrences in the spring.

Dates and locations are advertised on the BC Silviculture Surveys webpage under "Course and Accreditation Exam Schedule."

Early registration reduces the chance of a course cancellation due to low enrolment. Minimum attendance is required for courses and exams to proceed.

Accreditation Exam

The accreditation process includes a two-day exam. The first day involves a written exam, focusing on general, procedural, technical and practical case study questions. The exam consists of short answer, multiple choice, and true and false questions. The second day of the exam covers silviculture survey data collection in the field and data compilation.

Depending on demand, the accreditation exam is offered in the spring and fall of each year in all regions.

Students are encouraged to select an exam location based on their field experience and access to regionally specific reference materials. The exam will require knowledge of regionally important tree species, forest health agents, non-crop vegetation, and ecology.

For more information, please refer to the "What to Expect on Exam Day" document or video.

Re-Write Policy

A candidate will be eligible to re-write a portion of the exam if they fail three or fewer performance objectives but clearly demonstrate their ability to achieve the balance of the performance objectives. The candidate's marking summary will clearly state if a rewrite is possible and on which performance objectives.

Eligible candidates will have up to two years from the original exam date to re-write the identified portion of the exam. The cost for rewriting will be 50% the cost of the regular full two-day exam. Candidates will only be permitted to re-write once.

Performance Objectives and Marking

To pass the accreditation exam, candidates must meet expectations for a range of performance objectives (POs) under specific conditions. Each PO represents a subject or topic.

These POs and the criteria for success are described on pages 5 and 6. The objectives have been ranked as low, medium, or high.

High ranked POs are tested more times through the multi-part examination process (Part 1 Written, Part 2- Case Study, Part 3- Field) than lower ranked POs. All POs are tested multiple times.

The individual point value of each question is set based on its relative importance. For example, the practical skill of identifying forest health factors in field plots holds significant importance and thus carries a higher point value compared to a forest health-related question in the case study section of the exam.

Questions pertaining to a specific PO are grouped together and evaluated against the criteria for success. This process, termed as "pooling of results", ensures that no single question alone determines success. Instead, success is measured by the cumulative points attained across all questions related to the PO.

If the pooled result for a PO does not meet the criteria for success, it is counted as a deficiency. The number of allowable deficiencies depends on the PO ranking. For example, if a single high ranked PO is not achieved, the candidate will not pass the accreditation exam. However, if a candidate passes all high ranked POs, but fails to meet two medium POs and one low PO, the candidate will pass the exam.

Performance Objective Rating	Maximum Deficiencies
HIGH A no-pass situation will result if any high ranked performance objectives are not successfully achieved.	0
MEDIUM A no-pass situation will result if more than two medium ranked performance objectives are not successfully achieved.	2
LOW A no-pass situation will result if more than three combined medium or low ranked performance objectives are not successfully achieved.	3

If major weaknesses in a surveyor's skills are identified, the examiner will recommend training. A major weakness, for example, is where a site has been poorly stratified, resulting in failure to identify an area of >1ha with moist compaction-prone soils within a larger mesic area. This error could affect future management and site productivity. When a major weakness is found, the candidate will be required to rewrite the exam, following further training.

The examiner typically emails the results within two weeks. The silviculture performance assessment specialist with the Forest Science, Planning, and Practices Branch then emails the certificate and updates the Accredited Surveyor List on the Silviculture Surveys website.

Performance Objective # and Ranking	Description	Marking
1 **M**	Understand current legal requirements for silviculture surveys, stratification, and reporting. Survey to the applicable legal stocking standards. Provide recommendations for amendments, where appropriate.	**Written/Case Study:** To an accuracy of 75%.
2 **H**	Describe why good stratification is important for a silviculture survey. List the stratification criteria. Understand the difference in stratification between regeneration delay and free growing, and how to stratify to achieve non-timber objectives.	**Written/Field:** To an accuracy of 75%. **Field:** Areas exceeding the minimum stratum size and stratification criteria must be identified. Strata boundaries must reasonably agree with the examiner's strata boundaries.
3 **M**	Choose the survey type, timing, and data to collect. Choose an appropriate sampling method and intensity. Design a sampling method with an appropriate plot distribution on a field map.	**Written/Field:** To an accuracy of 75%. **Field:** Acceptable in the judgement of the examiner.
4 **M**	Choose the suitable survey method. Apply alternative survey methods (e.g., SEDRSS, DFP, Layered, Multi-Storey, etc.).	**Written:** To an accuracy of 75%.
5 **M**	Describe why pre-stratification is important. Pre-stratify a sample unit identifying potential strata to be ground checked using file data and imagery.	**Written:** To an accuracy of 75%. **Field:** Strata ≥1.0 ha in size must be identified. The strata boundaries must reasonably agree with the examiner's strata boundaries.
6 **L**	Understand the purpose of and complete a walkthrough.	**Written:** To an accuracy of 75%. **Field:** Acceptable in the judgement of the examiner.
7 **H**	Collect and record data on the FS 657 Silviculture Survey General Site Info Card.	**Written/Field:** Appropriately and accurately complete 75% of the key elements of the form in the judgement of the examiner.
8 **M**	Choose an appropriate method to determine site index for the stand and correctly identify site index.	**Written/Field:** To an accuracy of 75%.
9 **M**	Identify the texture of a mineral soil sample and explain its implications for management. Identify the % coarse fragments in a soil sample and explain its implications for management.	**Case Study:** To an accuracy of 75%. **Field:** For the provided soil sample, the participant must identify the soil texture and the percentage sand, silt, and clay to ±20% of the examiner and determine the % coarse fragments to ±20% of the examiner.
10 **H**	Identify critical factors (e.g., shallow soils, frost, elk, non-timber objectives) and explain how they will affect the establishment, growth and development of the future stand and the achievement of stand objectives.	**Case Study and Field:** To an accuracy of 75%. Must identify factors that are critical to the development of a complete and acceptable recommendation.

Performance Objective # and Ranking	Description	Marking
11 **H**	Confirm and verify the correct subzone and variant and provide a rationale for your decision.	**Field:** To an accuracy of 100%.
12 **M**	Identify the appropriate site series or site series complex for each stratum.	**Field**: Must be within one of the correct, leading site series (adjacent site series on the edatopic grid for the subzone). Must not have the potential to negatively impact future forest management and site productivity estimates.
13 **L**	Construct a final map that identifies strata boundaries, silviculture and inventory labels, opening number (or cutting permit and block), surveyor names, survey dates, north arrow, gross and net areas, map title and scale.	**Field:** To an accuracy of 75%.
14 **H**	Collect and record data on the FS 658 Silviculture Survey Plot Card.	**Field:** Appropriately and accurately complete 75% of the key elements of the form. The collected data must allow for the correct stocking status determination, compliance with the RISS precision standards for the stratum, and reasonable treatment recommendations.
15 **H**	Correctly identify the tree species for mature and immature trees.	**Field:** To an accuracy of 100%.
16 **L**	Correctly provide ages for mature and immature trees.	**Field:** Each age determination must be +/-2 years for trees ≤20 years old or +/-10 years for trees > 20 years old.
17 **H**	Summarize data on the FS659 Silviculture Survey Plot Summary Card and the FS 1138A Confidence Limits Card.	**Written/Field:** To an accuracy of 75%. For the field, the FS1138A and FS659 will be marked using the candidate's data.
18 **H**	Compare survey results to stocking standards to determine stocking status.	**Written/Field:** To an accuracy of 100%. For the field, the stocking status determination will be marked using the candidate's data.
19 **H**	Construct silviculture and inventory labels for single layer and multi-layer stands. Describe the uses and importance of silviculture and inventory labels to forest management decisions.	**Written/Field:** To an accuracy of 75%. For the field, the labels will be marked using the candidate's data.
20 **H**	Identify regional forest health agents (biotic and abiotic). Understand forest health data collection requirements by survey type and region. Understand the potential impacts of forest health factors.	**Written/Case Study/Field:** To an accuracy of 75%.
21 **M**	Identify regional non-crop vegetation species. Evaluate competing vegetation. Understand growth characteristics of non-crop vegetation that could pose a potential threat to crop-tree survival and/or performance.	**Written/Case Study/Field:** To an accuracy of 75%.
22 **M**	Recommend and rationalize treatment options to address identified reforestation limitations.	**Case Study/Field:** To an accuracy of 75%. Recommendations must be reasonable and effective in meeting the objective.