



Australian Government

FWPFGM5219 Undertake carbon stock sampling of forests and plantations

Release: 1

FWPFGM5219 Undertake carbon stock sampling of forests and plantations

Modification History

Release	Comment
1	Replaces superseded equivalent unit FPIFGM5219 Undertake carbon stock sampling which was first released with FPI11 Forest and Forest Products Training Package Version 2.2.

Application

This unit of competency describes the outcomes required to assess forests and plantations for current and future carbon stocks, including the use of growth modelling techniques to estimate future stocks. Work is completed in a variety of settings including native forest environments, hardwood or softwood plantations and agroforestry and farm forestry.

The unit applies to job roles including Forest Auditor, Forest Planner, Environmental Manager, Environmental Planner Forest Sustainability Manager And Sustainability Manager.

No licensing, legislative, regulatory, or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Forest Growing and Management

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.</i>
1. Plan for carbon stock sampling activities	1.1 Confirm purpose, objectives and scope of sample collection activity through stakeholder discussions and consultations. 1.2 Conduct desktop study of existing forests and plantations.

ELEMENTS	PERFORMANCE CRITERIA
	1.3 Design measurement program and confirm sampling site locations and where required, obtain approval for site access. 1.4 Evaluate characteristics of sites for impact on sampling and testing method. 1.5 Determine and arrange human and physical resource requirements.
2. Prepare for carbon stock sampling activities	2.1 Locate forests and plantations using site maps and plans and identify areas for sampling. 2.2 Complete administrative requirements, arrange contractors and obtain approvals in line with organisational procedures. 2.3 Complete a risk assessment for the sample site and activities.
3. Conduct carbon stock sampling collection	3.1 Inspect and test sampling equipment to ensure operational effectiveness. 3.2 Coordinate sampling activities at sites prior to commencement of and during the work activity. 3.3 Conduct surveys and sampling in line with organisational safety procedures. 3.4 Record results of samples and surveys, in line with sampling plan. 3.5 Monitor sampling activities on a regular basis against sampling plan, and implement modifications or improvements as required.
4. Interpret results	4.1 Estimate forest carbon stocks from collected data. 4.2 Review data against assessment program in line with organisational procedures. 4.3 Analyse data to determine effectiveness of assessment. 4.4 Prepare recommendations for future programs based on analysis. 4.5 Record and report assessment processes and improvement suggestions to appropriate personnel.
5. Use growth models to predict biomass and carbon stocks	5.1 Select appropriate growth model. 5.2 Predict biomass growth and carbon stocks from data assessments and incorporate in growth model. 5.3 Analyse data to determine comparability of predicted forest carbon stocks to current available data.

Foundation Skills

This section describes those core and employment skills that are essential to performance and are not explicit in the performance criteria.

Numeracy skills to:	• Interpret numerical data and symbols on maps. • Collect, analyse and record complex statistical data. • Identify and extract relevant information from complex diagrams, graphs and charts. • Use complex numerical modelling calculations to predict biomass growth and carbon stock growth.
Reading skills to:	• Interpret complex information in a range of internal and external source documents to plan for sampling activities.
Oral communication skills to:	• Hold high-level consultative discussions to generate ideas for and negotiate purpose, objectives and scope of sampling program.
Writing skills to:	• Prepare detailed and accurate reports involving qualitative and quantitative content where precise meaning is required. • Report on effectiveness of programs and potential improvements including rationale for recommendations.

Unit Mapping Information

FPIFGM5219 Undertake carbon stock sampling of forests and plantations

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

Assessment Requirements for FWPFGM5219 Undertake carbon stock sampling of forests and plantations

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1	Replaces superseded equivalent unit FPIFGM5219 Undertake carbon stock sampling which was first released with FPI11 Forest and Forest Products Training Package Version 2.2. Assessment requirements now specify the performance and knowledge evidence, as well as assessment conditions for this unit of competency. These sections simplify and replace components used in the previous unit format, including 'Required Skills and Knowledge, Evidence Guide and Range Statement'.

Performance Evidence

A person demonstrating competency in this unit must satisfy all of the elements, performance criteria and foundation skills of this unit, and must be able to provide evidence that they can:

- Design two measurement programs for two individual sites to calculate current and expected biomass and carbon stocks of:
 - trees above and below ground
 - other vegetation
 - litter layer
 - soil.
- Complete survey and sampling activities for one of those sites using the measurement plan designed.
- Record and analyse all data collected for the site, estimate current carbon stocks, select a growth model and predict and document biomass growth and carbon stocks.
- Complete a report on survey and sampling activities recommending improvements for future processes.

Knowledge Evidence

A person competent in this unit must be able to demonstrate knowledge of:

- Requirements for obtaining permits and licences for site sampling activities and the authority from whom approval must be obtained.
- Characteristics and growth habits of local vegetation.
- Soil characteristics and topography of local area.
- Purpose, features and application of measurement programs used to calculate current and expected biomass and carbon stocks of the following:

- trees above and below ground
- other vegetation
- litter layer
- soil
- wood products.
- Data collection and sampling methods for estimating carbon stocks.
- Statistical analysis techniques applicable to biomass and carbon assessments.
- Methods used to predict biomass growth and carbon stock growth, specifically the use of growth models.
- Purpose, features and operation of survey and assessment equipment and tools, including:
 - geographic information systems
 - interpretation of topographic maps and aerial photography
- Organisational procedures specific to carbon stock sampling, including:
 - workplace health and safety with particular emphasis on risk assessment and control
 - communication reporting lines
 - recording and reporting sampling data.

Assessment Conditions

The following resources must be made available:

- topographic maps
- aerial photography
- geographic information systems
- documents and commonly used proformas for recording sampling data
- organisational procedures for carbon stock sampling.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessor requirements

Assessors must:

- Hold the appropriate assessor competency standards as outlined in regulations; and
- be able to demonstrate vocational competencies at least to the level being assessed; and
- be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and assessor competence.

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