Title	Establish and measure permanent sample plots for forest management and research		
Level	4	Credits	5

Purpose	People credited with this unit standard are able to: explain the purpose of establishing permanent sample plots in a forest stand; prepare to establish permanent sample plots in a forest stand; establish and measure permanent sample plots in a forest stand; and measure and record tree parameters in a permanent sample plot.

Classification	Forestry > Forest Mensuration

Available grade	Achieved

Guidance Information

1   Legislation relevant to this unit standard includes the: Health and Safety at Work (HSW) Act 2015, Resource Management Act 1991; the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018; and the Heritage New Zealand Pouhere Taonga Act 2014, and any subsequent amendments.

2   References
New Zealand Forest Owners Association, *Forest Practice Guides* (2019), and any subsequent amendments, available from http://www.nzfoa.org.nz.
Approved Code of Practice (ACOP) for Safety and Health in Forestry Operations, December 2012, available from http://www.worksafe.govt.nz.

3   Definitions
Job prescription refers to any written instructions for the operation and may include maps, harvest plans or cut plans.
Worksite procedures refer to documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

Outcomes and performance criteria

Outcome 1

Explain the purpose of establishing permanent sample plots in a forest stand.

Performance criteria

1.1 Users of permanent sample plot data are identified.

Range may include but are not limited to managers, researchers, forest owners, processing industries;
evidence of at least two users is required.

1.2 Uses of permanent sample plots are explained in terms of forest management requirements.

Range evidence of four uses is required.

Outcome 2

Prepare to establish permanent sample plots in a forest stand.

Performance criteria

2.1 Information required for the planning of permanent sample plots is explained in accordance with worksite procedures.

Range species and seedlot, site conditions, silvicultural treatments, relocatable, remeasurable, unbiased, representative.

2.2 Maps are interpreted prior to field work for locations of plots, access, scale distances, and bearings in relation to identifiable points on the ground.

2.3 Global Positioning System (GPS) co-ordinates of the plot centres are determined.

Outcome 3

Establish and measure permanent sample plots in a forest stand.

Performance criteria

3.1 Hazards associated with plotting are identified and control methods are explained in accordance with worksite procedures.

Range overhead, underfoot, weather, other forest operations.

3.2 Measurement equipment is calibrated in accordance with worksite procedures.

3.3 Sample plots are located or established and marked in the field in accordance with worksite procedures.

Range three existing plots, three new plots.

3.4   Terms relevant to the plot type being assessed are explained in accordance with worksite procedures.

          Range   green crown, tree status, quality descriptive codes, quadrant, access comments.

3.5   Plot measurements are taken and recorded in accordance with the job prescription and worksite procedures.

          Range   average slope, plot boundary, aspect, Eastings and Northings, crop type.

Outcome 4

Measure and record tree parameters in a permanent sample plot.

Performance criteria

4.1   Measurements of trees are taken and recorded in accordance with worksite procedures.

          Range   diameter at breast height (DBH), tree height, crown height, diameter over stubs (DOS), maximum branch diameter, predominant height (PH).

4.2   Changes in tree features, from those recorded in earlier sample plot measurements, are recorded in accordance with worksite procedures.

          Range   may include but are not limited to – normal living, thinned or felled, windthrow, sample height tree, dominant tree not suitable as sample height tree.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	5 December 2000	31 December 2017
Review	2	17 July 2009	31 December 2017
Revision	3	16 July 2010	31 December 2017
Review	4	10 December 2015	N/A
Review	5	28 May 2020	N/A
Rollover	6	26 April 2024	N/A

Consent and Moderation Requirements (CMR) reference	0173

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.