FOREST MENSURATION
Establish and measure permanent sample plots for forest management and research

level: **4**

credit: **5**

final date for comment: December 2004

expiry date: December 2005

sub-field: Forestry

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.

entry information: Recommended: prior credit for Unit 1221, *Demonstrate knowledge of job prescriptions for forest operations;* and Unit 1224, *Use prescription maps for forest operations;* or demonstrate equivalent knowledge and skills.

accreditation option: Evaluation of documentation and visit by NZQA and industry.

moderation option: A centrally established and directed national moderation system has been set up by Forest Industries Training.

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special notes:

1 Reference in this unit standard to the *Code of Practice* refers to the *Approved Code of Practice for Safety and Health in Forest Operations* published by the Occupational Safety and Health Service, Department of Labour, Wellington (1999) and any subsequent amendments.

2 Reference to *industry best practice* in this unit standard refers to minimum standards for forest operations as described in: *Forest Industry Best Practice Guidelines,* published by Forest Industries Training (2000) and available from Forest Industries Training, PO Box 6216, Rotorua; and the environmental standards contained in the *Forest Industry Code of Practice* published by the Logging Industry Research Organisation (LIRO) (1993) and available from LIRO, Private Bag 3020, Rotorua. The purpose of these documents is to plan, manage and carry out forestry operations in a manner which is sustainable, environmentally and socially acceptable, physically achievable, and economically viable.

3 Current Permanent Sample Plots procedures are detailed in the Forest Research Institute Bulletin No 186 (1997) - *Field guide for sample plots in New Zealand forests*, (Ellis and Hayes). Available from Forest Research, Private Bag 3020, Rotorua.

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Elements and Performance Criteria

element 1

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

performance criteria

1.1 Use of permanent sample plots are explained in terms of forest management requirements.

Range: growth and yield modelling, forest health and nutrition measurement, site productivity prediction, research.

1.2 Users of permanent sample plot data are stated.

Range: forest managers, researchers.

element 2

Prepare to establish permanent sample plots in a forest stand.

performance criteria

2.1 Type of plot to be established is determined according to the *Field guide for sample plots in New Zealand forests*.

Range: circular plot, diamond plot.

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2.2 Planning considerations before establishing plots in the field are explained.

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

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

element 3

Establish and measure permanent sample plots in a forest stand.

performance criteria

3.1 Hazards associated with plotting are identified in terms of underfoot, overhead, and hindrance hazards, weather, and other forest operations, in accordance with the code of practice.

3.2 Calibration of permanent sample plot equipment is demonstrated in accordance with industry best practice.

3.3 Sample plots are located or established, and marked in the field according to the requirements of the *Field guide for sample plots in New Zealand forests*.

Range: three existing plots, three new plots, measured distances and plot area are in accordance with job prescription and operational requirements.

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3.4 Plot measurements are taken and recorded according to job prescription and operational requirements.

Range: average slope, plot boundary.

element 4

Measure and record tree parameters in a permanent sample plot.

performance criteria

4.1 Measurements of trees are taken and recorded using diameter tape, hypsometer, and height pole.

Range: diameter 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 previously recorded, are explained and recorded in accordance with operational requirements.

Range: normal living, thinned or felled, windthrow, sample height tree, dominant tree not suitable as sample height tree.

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Comments to:

Forest Industries Training
Unit Standard Revision
PO Box 160
WELLINGTON

by December 2004.

Please Note: Providers must be accredited by the Qualifications Authority before they can offer programmes of education and training assessed against unit standards.

Accredited providers assessing against unit standards must engage with the moderation system that applies to those unit standards. [Please refer to relevant Plan ref: 0173]