

Title	Demonstrate the use of the Global Positioning System in forestry operations		
Level	5	Credits	5

Purpose	People credited with this unit standard are able to demonstrate knowledge of: how a given position on the surface of the earth is defined, the function of the Global Positioning System (GPS), and supporting equipment for use in forestry operations; and demonstrate the use of navigational software in conjunction with the GPS in forestry operations.
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Classification	Forestry > Forest Health Surveillance
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Available grade	Achieved
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Guidance Information

Use of supporting equipment and navigational software must be in accordance with manufacturer's instructions.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of how a given position on the surface of the earth is defined.

Performance criteria

- 1.1 The system of using latitude and longitude to define a position on the surface of the earth is explained.
- 1.2 The Mercator Projection and the transverse Mercator Projection used to project the curved surface of the earth to a flat map are described.
- 1.3 The New Zealand Map Grid (NZMG) is described.
Range scale, grid origin, grid references.

Outcome 2

Demonstrate knowledge of the function of the Global Positioning System (GPS).

Performance criteria

- 2.1 The provider of the GPS is identified and the limitations on GPS use are explained.
- 2.2 The Geodetic Datum (WGS 84) is identified and its relationship with the NZ Datum 2000 is described.
- 2.3 The number of visible Space Vehicles (SV) required for accurate horizontal and vertical positioning is stated.
- 2.4 The basic method by which the GPS calculates and defines a position on the surface of the earth is described.
- 2.5 The method by which the GPS calculates the distance and direction between two defined positions on the surface of the earth is described.
- 2.6 The method by which the GPS calculates the speed of travel between two defined positions on the surface of the earth is described.
- 2.7 The output (display) from a GPS receiver is explained.
- 2.8 The method of defining a position on the surface of the earth using a GPS receiver is demonstrated.
- 2.9 The accuracy of a GPS receiver is described in relation to predicted horizontal and altitudinal error.
- 2.10 GPS terminology is explained.
Range waypoint, route, track-log.
- 2.11 The two methods of recording waypoints using a GPS receiver are demonstrated.

Outcome 3

Demonstrate knowledge of supporting equipment for use in forestry operations.

Performance criteria

- 3.1 The use of an external antenna in under-canopy forestry situations is described.
- 3.2 The use of a dictaphone to provide additional information regarding waypoints during forestry operations is explained.
- 3.3 The use of an external data logger to provide greater track recording capacity is described.

Outcome 4

Demonstrate the use of navigational software in conjunction with the GPS in forestry operations.

Performance criteria

- 4.1 The uses of the GPS in conjunction with navigational software are described.
Range position recording, post-operational track plotting, navigational planning.
- 4.2 The method of downloading a scanned paper or digital map into a PC using navigational software is demonstrated, and the map is adjusted to a suitable scale.
- 4.3 Coordinates covering the extent of a series of waypoints from field operations are transferred into the digitised map in the PC.
- 4.4 Stored waypoints and track-log from a GPS receiver are downloaded into the digital map in the PC using navigational software.

Planned review date	31 December 2028
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	29 August 2001	N/A
Review	2	22 May 2008	N/A
Review	3	10 December 2015	N/A
Rollover and Revision	4	28 May 2020	N/A
Rollover	5	26 April 2024	N/A

Consent and Moderation Requirements (CMR) reference	0173
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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.