

Title	Demonstrate knowledge of forest ecology		
Level	4	Credits	4

Purpose	People credited with this unit standard are able to: explain the factors that have an influence on ecology; explain the ecological basis of forestry; explain the beneficial symbiotic relationships utilised in commercial forestry; and explain the principles of biodiversity for commercial forestry operations.
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Classification	Forestry > Forestry Knowledge
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Available grade	Achieved
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Guidance Information

References

Environmental Code of Practice refers to the *New Zealand Environmental Code of Practice for Plantation Forestry* published by the New Zealand Forest Owners Association, available at <http://www.nzfoa.org.nz>.

Colley, M. *Forestry handbook / New Zealand Institute of Forestry Inc.* (4th ed). (2005). Christchurch: New Zealand Institute of Forestry Inc.

McLaren, J.P. *Radiata Pine Growers Manual*. (1993). FRI Bulletin 184. Rotorua, New Zealand: New Zealand Forest Research Institute.

Poole, A.L. and Adams, N.M. *Trees and Shrubs of New Zealand*. (1990). Wellington, NZ: DSIR Publishing.

Outcomes and performance criteria

Outcome 1

Explain the factors that have an influence on ecology.

Performance criteria

- 1.1 The flow of energy in a food chain is described in accordance with the reference texts.
- 1.2 The environmental factors that affect plant growth and species distribution are described in accordance with the reference texts.

Range	season, rainfall, temperature, aspect, latitude, altitude, soils, animal and human influences.
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- 1.3 The process of plant succession is described in accordance with the reference texts.

- 1.4 Major environmental disturbances that can trigger succession and that affect the distribution of a species are described in accordance with the reference texts.
- 1.5 The impact of climate change on forest health and forest growth is explained in accordance with the reference texts.

Outcome 2

Explain the ecological basis of forestry.

Performance criteria

- 2.1 Major forest types in New Zealand are described in terms of their area in accordance with the reference texts.
- Range kauri, beech, podocarp hardwood mix, Radiata pine, Douglas fir, eucalypts, cypress.
- 2.2 Maps are used to locate where the major natural forest types occur in New Zealand.
- 2.3 Factors in the environment that impact on New Zealand forests are described in accordance with the reference texts.
- Range climate, soil, topography, vulcanism, fire, animals, human influences, introduced plants, insects, disease.
- 2.4 The effects of forests in New Zealand on the environment are described in accordance with the Environmental Code of Practice.
- 2.5 The succession and interaction between plants on a newly cleared area is described in accordance with the reference texts.
- 2.6 The ecological basis of silvicultural systems is explained in accordance with the reference texts.
- Range clearfelling, shelterwood, coppice.

Outcome 3

Explain the beneficial symbiotic relationships utilised in commercial forestry.

Performance criteria

- 3.1 The way in which an organism can have both beneficial and adverse effects in commercial forestry is explained.
- Range pine regeneration, oversown species, livestock.
- 3.2 The way a symbiotic relationship works is explained in accordance with the reference texts.

- 3.3 The benefit of mycorrhizae in commercial forestry is explained in accordance with the reference texts.

Outcome 4

Explain the principles of biodiversity for commercial forestry operations.

Performance criteria

- 4.1 The term biodiversity is defined in accordance with the reference texts.
- 4.2 The importance of biodiversity to the commercial forest industry is explained in accordance with the reference texts.
- 4.3 The biodiversity of common ecosystems is compared by evaluating the range of plant and animal species present, in accordance with the reference texts.

Range exotic plantation forest, natural forest, agricultural pasture.

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	27 May 1998	31 December 2017
Review	2	27 May 2002	31 December 2017
Review	3	16 October 2009	31 December 2017
Review	4	10 December 2015	N/A
Rollover and Revision	5	28 May 2020	N/A
Rollover	6	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.