

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.
- 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 2022
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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	N/A
Review	2	27 May 2002	N/A
Review	3	16 October 2009	31 December 2017
Review	4	10 December 2015	N/A
Rollover and Revision	5	28 May 2020	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 Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.