
**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

level:	5
credit:	8
final date for comment:	March 2008
expiry date:	December 2009
sub-field:	Fire and Rescue Services
purpose:	<p>This unit standard is for people with responsibilities for vegetation fire pre-suppression preparedness planning functions and/or for managing vegetation fire fighting operations and/or prescribed burning.</p> <p>People credited with this unit standard are able to demonstrate knowledge of: the vegetation fire environment; New Zealand weather that affects vegetation fire; fire science that relates to vegetation fire behaviour; fire behaviour information for fire pre-suppression and suppression planning; the New Zealand Fire Danger Rating System; principles of extreme fire behaviour; and documentation of wildfire behaviour and suppression effectiveness.</p>
entry information:	Recommended: Unit 14556, <i>Apply Fire Weather Index System data for fire preparedness measures</i> ; and Unit 14564 <i>Demonstrate knowledge of the fire environment on vegetation fire behaviour</i> ; or demonstrate equivalent knowledge and skills.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A national moderation system of moderation networks has been established by the Fire and Rescue Services Industry Training Organisation.

**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

- special notes:**
- 1 Compliance with the fire and rescue service provider's Health and Safety policy and procedures is mandatory.
 - 2 The *New Zealand Fire Danger Rating System (NZFDRS)* referred to is published by the National Rural Fire Authority, 1993. This reference is available from FRSITO, PO Box 11988, Wellington, or from the NRFA, PO Box 2133, Wellington.
 - 3 The accepted industry training text is the current *Intermediate Fire Behaviour* training course material as prepared by the National Rural Fire Authority. This reference is available from the NRFA, PO Box 2133, Wellington.

Elements and Performance Criteria

element 1

Demonstrate knowledge of the vegetation fire environment.

performance criteria

- 1.1 The fire environment concept is defined and explained in accordance with industry training texts.
- 1.2 The effects and influences that topographic features have on vegetation fire behaviour are explained in accordance with industry training texts.
- 1.3 Physical characteristics of vegetation fuel complexes are explained in accordance with industry training texts.

**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

- 1.4 The fuel moisture content relationships of dead and live fuels are explained in accordance with industry training texts.
- 1.5 The effects and influences that weather elements have on vegetation fire behaviour are explained in accordance with industry training texts.

element 2

Demonstrate knowledge of New Zealand weather that affects vegetation fire.

performance criteria

- 2.1 Characteristics of New Zealand's weather are explained in accordance with industry training texts.
- 2.2 Information contained on a weather map and within a weather forecast is explained in accordance with industry training texts.
- Range: prognosis, synopsis chart.
- 2.3 Methods of measuring weather elements for the NZFDRS are explained in accordance with industry training texts.
- Range: weather station instruments, measurement standards, installation standards.

element 3

Demonstrate knowledge of fire science that relates to vegetation fire behaviour.

performance criteria

- 3.1 Principles of combustion in vegetative fuels are explained in accordance with industry training texts.
- Range: ignition requirements, burning stages, heat transfer mechanisms, combined effects.

**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

3.2 The mechanisms of fire spread and fire growth are explained in accordance with industry training texts.

3.3 Ability to calculate fire intensity is demonstrated in accordance with industry training texts.

Range: Byram's Formula, a field formula.

element 4

Demonstrate knowledge of fire behaviour information for fire pre-suppression and suppression planning.

performance criteria

4.1 The importance of elapsed time since ignition is explained in accordance with industry training texts.

4.2 Limitations of fire suppression methods related to fire intensity are explained in accordance with industry training texts.

4.3 Fire suppression strategies and tactics are explained in relation to levels of fire intensity in accordance with industry training texts.

4.4 Fire suppression resource requirements are explained in relation to fire behaviour in accordance with industry training texts.

4.5 Initial attack planning requirements are explained in accordance with the industry training text.

element 5

Demonstrate knowledge of the New Zealand Fire Danger Rating System.

performance criteria

5.1 Principles of fire danger rating are explained in accordance with the industry training text.

**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

- 5.2 Anticipated fire control impacts are predicted for given FWI codes and indices in accordance with industry training texts.
- 5.3 The use of the NZFDRS in making seasonal and daily fire prevention decisions is explained in accordance with industry training texts.
- 5.4 The uses of the NZFDRS in pre-attack preparedness planning and in fire suppression operations are explained in accordance with industry training texts.
- 5.5 Collection, evaluation, and recording of fire intelligence data for pre-attack planning for wildfire incidents is explained in accordance with industry training texts.

element 6

Demonstrate knowledge of principles of extreme fire behaviour.

performance criteria

- 6.1 Extreme fire behaviour is defined and explained in accordance with industry training texts.
- 6.2 Characteristics of extreme fire behaviour conditions are explained in accordance with industry training texts.

element 7

Demonstrate knowledge of documentation of wildfire behaviour and suppression effectiveness.

performance criteria

- 7.1 The need to document fire behaviour and suppression effectiveness at wildfires is explained in accordance with industry training texts.

**FIRE AND RESCUE SERVICES -
VEGETATION**
**Demonstrate knowledge of vegetation
fire behaviour**

- 7.2 The factors that need to be recorded and measured to describe the fire environment at a wildfire are explained in accordance with the industry training texts.
- 7.3 The factors that need to be recorded and measured to describe fire behaviour at a wildfire are explained in accordance with the industry training texts.
- 7.4 The factors that need to be recorded for the fire suppression effectiveness are explained in accordance with industry training texts.

Comments on this unit standard

Please contact the Fire and Rescue Services Industry Training Organisation info@frsito.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0039 which can be accessed at <http://www.nzqa.govt.nz/site/framework/search.html>.