

User Guide to the NZFDRS



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Rural Fire Research Workshop 2010



Development of a User Guide to the NZFDRS

Overview:

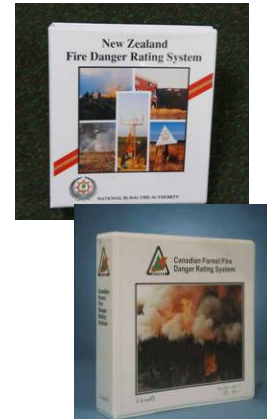
- aims and objectives
- contents and structure
- applications examples
- proposed format
- progress to date



Objective

To develop a “User Guide” to the New Zealand Fire Danger Rating System (NZFDRS), containing:

- background to and present status of the NZFDRS
- guidelines and worked examples on use of the NZFDRS to develop decision-support aids
 - best practice guides
 - locally relevant “trigger points”



Outcomes

A “one stop” guide to use of the NZFDRS, that will result in:

- improved understanding of the NZFDRS and potential applications
- greater uptake and operational use of scientific knowledge by fire managers
- improved standards of fire management through more consistent application of the NZFDRS

Development

- Project initiated and end-user project team established Aug. 2008
- Input sought on needs, content and format for the User Guide
- Existing application examples obtained
- Priorities for application development agreed
- Development of Guide commenced late 2009, and ongoing since



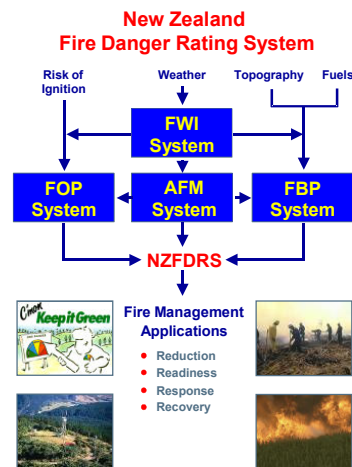
User Guide structure

- **Overview & Background section**
 - development history of NZFDRS
 - current NZFDRS structure and basis
- **Applications section**
 - operational application guides
 - listing of information sources
 - worked examples
- **Appendices**
 - bibliography of NZFDRS literature
 - copies of relevant publications



Background section

1. Introduction
2. Background to the NZFDRS
 - 2.1 History of development
 - 2.2 Current structure
 - 2.2.1 FWI System
 - Fire weather monitoring
 - Fire weather forecasting
 - 2.2.2 FBP System
 - 2.2.3 Fire danger class criteria
 - 2.3 Other NZFDRS components
 - 2.3.1 Accessory Fuel Moisture (AFM) subsystem
 - 2.3.2 Fire Occurrence Prediction (FOP) System



SCION 
Next generation biomaterials

Applications section

- Practical fire management activities across the '4 Rs' (Reduction, Readiness, Response and Recovery) with introductory description of each
- Useful data and tools

<u>Input</u>	<u>Data Sources</u>	<u>Availability</u>
Weather/climate	weather station archives fire weather data fire climatology climate records rainfall data forecast weather & FWI	Rural Fire Authorities (e.g. DOC, forestry companies) FWSYS (www.nrfa.org.nz) RuralNet fire weather archive (https://portal.fire.org.nz/FireNet/) Pearce et al. (2003) report (www.scionresearch.com/fire) NIWA National Climate Database, CliFlo (http://cliflo.niwa.co.nz/) Regional Councils MetService MetConnect (http://www.metconnect.co.nz/)
Fuels/Vegetation	topographic maps aerial photographs forest inventory maps Land Cover Database (LCDB 1 & 2)	Terralink (www.terralink.co.nz) Terralink (www.terralink.co.nz) GoogleMaps forestry companies MAF Terralink (www.terralink.co.nz)

Applications worked examples

Reduction:

- trigger points for Restricted and Prohibited Fire Seasons
- guidelines for operation of fire danger signs
- public access controls (e.g. island closure)
- activity restriction triggers (e.g. spark hazards)
- permit conditions associated with crop stubble burning
- permit issue/requirements for gorse scrub burning



Readiness:

- guidelines for FWI codes and indices – threshold values/ranges
- readiness levels – stand-by requirements (based on FWIs)
- initial attack guidelines – based on predicted fire danger/fire behaviour

Response:

- trigger points for community warnings and/or evacuations
- backwards FWI determination (from fire behaviour)

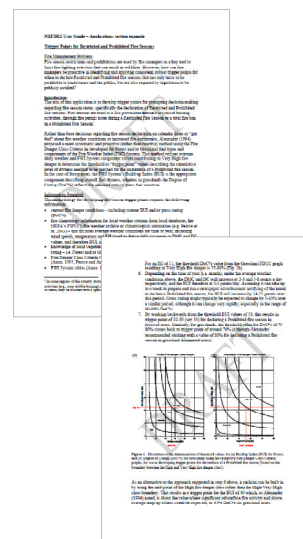
Recovery:

- wildfire documentation case study preparation (lessons learned, fire behaviour)



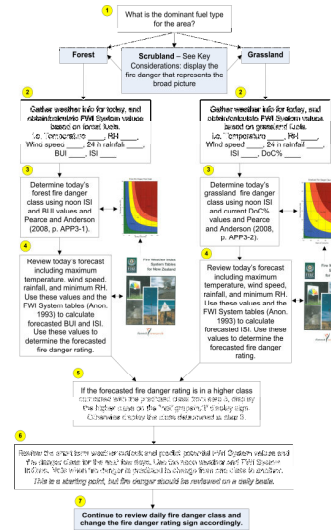
Worked examples

- Fire management problem statement
- Overview of application
- Summary of information required
- Fire management objective
- Methodology
 - step-by-step process for developing local versions



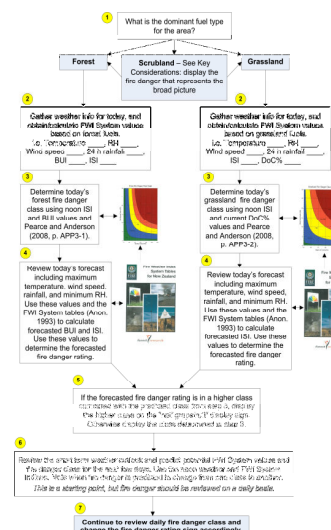
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 - flow chart of process
- Worked example
- Key considerations



Intended as stand-alone document

- includes relevant tables/graphs + references

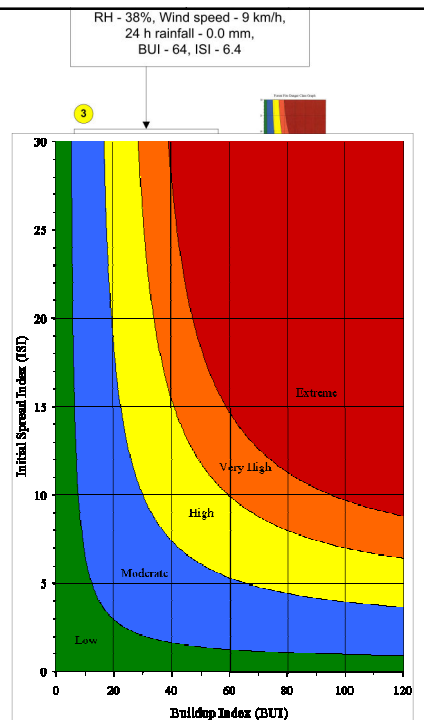
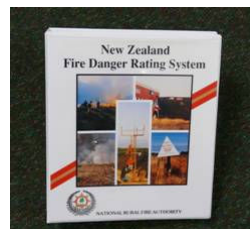
Progress to date

- Introduction / Background section drafted
- Applications section drafted
- Worked examples being finalised for:
 - fire season status triggers, fire danger sign operation, access controls, grass activity restriction triggers, permit issue guides for crop stubble & gorse
 - evacuation triggers, backwards FWI (+ IA guides)
- Peer review by project end-user group
- Publication by Apr/May 2011
- Intended as living document, additional applications/ worked examples to be added over time
- Tech transfer needs?



Proposed format(s)

- Hard-copy paper version (binder)
- Web-based electronic version



Summary

- **Comprehensive “User Guide” to NZFDRS:**

- background and present status of the NZFDRS
- guides and worked examples to developing decision aids



- **Use will result in:**

- improved understanding of NZFDRS and its applications
- greater uptake and operational use of scientific knowledge
- more consistent application

