

Forest Health Condition Monitoring Trial.

Introduction.

The development of the Viewpoint method for monitoring forest health was an initiative of CHH Forests. A paper describing the method in more detail and its relationship to the PSP method is included at the end of this report. The Viewpoint method was designed to address the need for:

- providing staff with meaningful information in summary form that identifies issues and impacts requiring their attention.
- benchmarking of forest health condition and determining its change over time.
- prioritisation of forest protection through a better knowledge of the extent and impact of forest health problems.

The Viewpoint strategy forms the cornerstone of the CHH forest health initiative and its implementation required the development of a detailed field manual to guide those undertaking assessments. In developing the field manual a preliminary trial was undertaken to compare the performance of two independent assessors at five sites with that of the project manager and identify specific issues to be addressed in the manual and future training.

The trial was not considered definitive in determining variability between assessors but was important in identifying differences related to how they undertook the assessment and their understanding of the level of detail required.

In addition to assessor comparison the opportunity was taken to select sites which had been previously assessed using the PSP method. This more intensive plot based assessment is seen as complementary to the Viewpoint method, and it is hoped further work on the relationship between the two methods will be undertaken leading to an integrated forest health assessment package.

Trial Design.

The trial was undertaken in Kaingaroa Forest with a total of five separate sites being assessed (Figure 1).

Site selection. Sites were selected based on the following criteria:

- age to be between 5 and 15 years.
- stands to have been subject to a recent PSP assessment, (sites assessed within the past 6 months).
- easy vehicle access to a suitable site for Viewpoint assessment.
- not to exceed 30 km driving distance for complete assessment.

The following table lists the characteristics of the sites chosen.

Table 1. Assessment site characteristics.

Site No.	Compartment	Species	Age	PSP Assessed	Silviculture
1	1054	P. radiata	Mature		P&T
2	901	P. radiata	13	03/03	P&T
3	48	P. radiata	8	04/03	P
4	117	P. radiata	8	04/03	P&T
5	84	P. radiata	6	04/03	P&T

P = prune, T = thinned

Plot 1 was added to include the attributes of a mature stand in the assessment, although it had not been assessed using the PSP methodology.

Assessment. The assessment was undertaken on September 16, 2003. Two experienced assessors were chosen from separate organisations. Prior to the assessment they both participated in a training exercise involving a group of future assessors. The assessment was undertaken in overcast weather considered good for crown evaluation. The two assessors were provided with a route and site location map, assessment and reporting sheets, and carried binoculars, GPS units, and compass.

Prior to the trial the trial manager had visited each site, determined their GPS location, identified the compass bearing of the view centre, and marked the assessment position with flagging tape, and carried out his own assessment. Assessors were dispatched in opposite directions around the assessment route to avoid any unintentional interference.

Results.

Assessment time. The assessment route was approximately 20 km in length with five assessment stops. There was considerable difference in the time taken to complete the trial with Assessor 1 taking 2 hours and Assessor 2 taking 2.5 hours. The reasons for this difference are outlined in the discussion.

Assessment results. Table 2 shows the stand health rating of the two assessments plus that of the trial manager, along with an estimated score based on a summary statement from the PSP assessment. The full assessment sheets are included in Appendix I, the Trial Manager's forest health assessment report in Appendix II, and the PSP summary data in Appendix III.

The impacts identified in each of the 4 assessments are shown in Table 3 but it should be noted that the PSP assessment was carried out in autumn and symptom expression for some impacts may have been different from that seen in spring assessments, UMCY for example. Also no indication is given in Table 3 of the significance of

impacts. Reference to the individual assessment sheets in Appendix I will show Assessor 2 in particular noted a number of minor impacts.

Assessor performance. Both assessors completed all required information on the site assessment sheet, undertook a rigorous assessment, and found the assessment strategy clear and easy to implement. Overall performance should be qualified by the need to revise the training programme and the availability of a field manual.

Discussion.

Assessor variation. There were differences in the number of impacts identified by Assessor 2 compared with Assessors 1 and 3 (Table 3). This result was found to be a function of training with Assessor 2 failing to understand that only impacts of relevance to the forest manager were to be recorded and that it was not necessary to list all minor impacts for any one stand. The detail recorded by Assessor 2 contributed to the extra time taken for the 5 sites. The greater agreement between the trial manager and Assessor 1 reflected this understanding.

Table 2. Stand health ratings.

Site	Compt.	Assessor 1	Assessor 2	Trial Manager	*PSP
1	1054	2	3	2	
2	901	3	2	3	3
3	48	2	2	2	2
4	117	2	1	2	2
5	84	2	3	2	2

* An estimated rating based on summary comments and crown characteristics.

Health rating: 1 = healthy 2 = near healthy 3 = intermediate,
4 = significant damage 5 = severely debilitated

Table 3. Impacts identified in individual assessments.

	Plot 1			Plot 2				Plot 3				Plot 4				Plot 5			
Assessor ¹	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Impact																			
Dothistroma		x		x	x	x	x	x	x	x	x		x		x	x	x		x
Cyclaneusma	x				x		x		x		x	x			x		x		x
Strasseria		x																	
UMCY	x		x			x						x		x				x	
Diplodia		x																	
Poosum					x								x	x			x	x	
Nutrient					x												x		
Wind		x																	

¹1 and 2 = trial assessors

3 = trial manager

4 = PSP assessment

At the time of the trial no field manual was available for assessor's reference.

The level of impacts being assessed was in general very low with only Site 2 (Compartment 901) showing any significant damage, with the key contributor, Dothistroma, being identified in all assessments.

There was good agreement between the PSP assessments and the overall health status assigned by the Viewpoint method. However, further assessor training and use of a field manual would improve consistency, and better appreciation of the level of recording detail required. As a preliminary trial the results are very encouraging both for consistency of assessment using the Viewpoint method and for agreement between the PSP and Viewpoint methods. There would clearly be major benefits in the integration of the two methodologies, particularly in the use of standardised assessment scales and impact characterisation, assessor training, assessment timing, and site location.

Viewpoint/PSP integration. This trial has highlighted the fact that Viewpoint assessments can be consistent between assessors, provided thorough training is carried out beforehand. It also showed that integration of results from Viewpoint and PSP assessments is possible. When data from the two methodologies are combined for use in an operational Forest Health Monitoring System it is obvious from this trial that the Viewpoint system would benefit from the inclusion of an assessment of crown density. This would enable easy integration of results from the PSP

assessments by providing a “common” attribute that is assessed in both systems. Likewise, the PSP system would benefit if assessments of regionally significant pests and diseases were stipulated, i.e. Diplodia, UMCY, etc.

Further work on the inclusion of common forest health attributes in both systems, along with data analysis and reporting systems, has been proposed in a FIFA funding application. The outcome of this proposal is not known at this stage.