Nimpkish Valley Tree Farm License 37

Vegetation Resources Inventory
Ground Sampling Plan

Submitted to:

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Project: CFW-011-010

June 28, 2000

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Executive Summary

This report describes the timber-emphasis VRI ground sampling plan for Canadian Forest Products Ltd. Nimpkish Valley Tree Farm License (TFL) 37. Ground sampling is needed in the TFL to provide data to adjust the existing forest cover inventory in preparation for the next Management Plan. The ground sample and adjusted database will also support other TFL activities including certification, monitoring landscape-level biological diversity, landscape unit planning, planning critical habitat (forecast wildlife habitat areas), tactical planning, and assessing further harvest opportunities (especially in marginal areas).

The main objective of the timber-emphasis ground sampling is to install an adequate number of Phase II samples to adjust the timber inventory in the TFL to achieve a sampling error of ±10% (95% probability) for net timber volume in High Priority areas. For sampling, the High Priority areas are defined as stands with at least 400 m^3/ha, crown closure 30%, height 31 m, and value of at least $40,000/ha. A total of 95 sample plots is suggested (81 in the High Priority areas and 14 in the remainder of the TFL). J.S. Thrower and Associates Ltd. have selected sample polygons using the stratified probability proportional to size (PPSWR) method mandated by the Ministry of Forests (our preference was to select polygons systematically from a sorted list, which we believe to be more efficient).

The High Priority samples will be installed in the 2000 (40 plots) and 2001 (41 plots) field season. The Low Priority samples will be installed in 2002 and beyond. Preliminary Net Volume Adjustment Factor (NVAF) sampling (destructive sampling of 20 trees selected from seven locations) will be conducted in High Priority areas in 2000. No Within Polygon Variation (WPV) sampling will be done as it is a low priority at this time.

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1. INTRODUCTION

1.1 BACKGROUND

Canadian Forest Products Ltd. (Canfor) identified in Management Plan (MP) 8 a strategy to improve the reliability of the timber volume estimates in the Nimpkish Valley Tree Farm Licence (TFL) 37. This strategy included incorporating the Ministry of Forests (MOF) Vegetation Resources Inventory (VRI) standards into the inventory. Full VRI standards include photo interpretation (Phase I) and ground sampling (Phase II), net volume adjustment factor (NVAF), and within polygon variation (WPV) sampling. New photo interpretation is not planned as a re-inventory was recently completed (using non-VRI standards). However, the database will be integrated to the VRI by:

1. Converting the inventory to the new BC Landcover Classification Scheme (BCLCS).
2. Retro-fitting the database, including finer polygon delineation and estimation in the non-Vegetated Treed (BCLCS) areas, and including estimates of ecological attributes. The ecological attributes can be obtained from the recently concluded second-growth site index project and the TEM project near completion.

Canfor proposes to conduct VRI ground sampling in the TFL. A VRI ground sampling plan approved by the MOF is required prior to ground sampling.

1.2 TERMS OF REFERENCE

This revised report was prepared by A.Y. Omule, *PhD, RPF,* Guillaume Therien*, PhD,* and Jim Thrower, *PhD, RPF* of J.S. Thrower & Associates Ltd. for Pat Bryant, *RPF* (Canfor). An earlier version of this report (dated March 31, 2000) was reviewed and approved (subject to revisions) by the MOF. This is a revised report based on comments from the MOF.

2. TREE FARM LICENCE 37

2.1 LANDBASE

TFL 37 is located in north-central Vancouver Island in the Vancouver Forest Region (VFR). The TFL consists mainly of the CWH and MH biogeoclimatic (BGC) zones. The main tree species are western hemlock (Hw) and Douglas fir (Fd). The total TFL area is approximately 190,669 ha; approximately 70% is Vegetated Treed (VT) economic or marginally economic area[1] (Table 1).

[1] The economic and marginally economic landbase is defined in the database using economic criteria. These criteria change over time and were defined in MP 8 as: *Economic* areas have a timber value more than $70,000/ha and volume exceeding 600 m^3/ha. *Marginally Economic* areas have a timber value of

Land types A1, B1, C, and D1 are High Priority areas for VRI sampling and the remaining land types are Low Priority areas; parks are included in the High Priority areas.

Table 1. TFL 37 landbase.

Land Type*	Definition	Area (ha)	Area (%)
*Vegetated Treed (VT) Areas**			
A1	Economic stands 0-99 yrs old	56,016	29.4
B1	Economic or marginally-economic stands 100-249 yrs old	5,594	2.9
C	Economic stands ≥ 250 yrs old	53,479	28.0
D1	Marginally economic stands ≥ 250 yrs old	17,690	9.3
E1	Uneconomic and non-productive areas	17,158	9.0
Sub-total (VT)		*149,937*	*78.6*
*Remaining Areas***			
A2	Economic stands 0-99 yrs old***	13,683	7.2
B2	Economic or marginally-economic stands 100-249 yrs old	7	0.0
D2	Marginally economic stands > 250 yrs old	16	0.0
E2	Uneconomic and non-productive areas	27,026	14.2
Sub-total		*40,732*	*21.4*
Grand Total		*190,669*	*100.0*

*There were no marginally economic stands 0-99 years old, and no economic stands ≥ 250 years old in the Remaining Areas.

** These include Non-Vegetated areas (polygons with no tree species label, such as lakes), and Vegetated non-Treed areas (polygons with a tree species label, and a crown closure less than 10%).

*** Mainly age class 1 stands.

2.2 RATIONALE

The VRI ground sampling is needed in the TFL (particularly in the economic and marginally economic areas, and parks) to provide statistically valid data to adjust the existing forest cover estimates (derived from photo interpretation and other sources). The statistical adjustment will provide reliable and defendable estimates of overall timber volumes and reasonably accurate estimates for individual polygons.

This improved inventory will support the timber supply analysis for MP 9 and will provide valuable data to other forest management activities that rely on accurate forest inventory information. For example, the improved inventory will support certification, landscape-level biological diversity monitoring, landscape unit planning, critical habitat planning (forecast

$40,000-70,000/ha, volume 400-600 m^3/ha, crown closure over 30%, and stand height over 30 m. The VT

wildlife habitat areas), tactical planning, and assessment of further harvest opportunities (especially in marginal areas).

3. SAMPLING PLAN

3.1 INVENTORY OBJECTIVES

The main objective of the timber emphasis ground sampling is to:

> *Install an adequate number of Phase II samples to adjust the existing forest cover inventory to achieve a sampling error of ±10% (95% probability) for net timber volume in the High Priority areas in TFL 37.*

The High Priority areas include second-growth, old-growth, and deciduous-leading stands. Net timber volume is defined as gross volume less stumps, tops, decay, waste, and breakage. Decay and waste will be estimated through VRI call grading/net factoring and NVAF sampling, and breakage will be estimated using the TFL 37 loss factors.

3.2 TARGET POPULATION

The target population is the entire TFL landbase, including the High Priority and Low Priority areas (Table 1). Approximately 90% of the sampling should be allocated to High Priority areas and 10% to Low Priority areas. The purpose of sampling the Low Priority areas is to check the BCLCS and estimate the contribution of these areas to the total TFL volume.

3.3 SAMPLE SIZE

A minimum of 95 sample clusters should be installed in the TFL over a period of two or more years (Table 2). Sample size in the High Priority area (81 sample clusters) is about the same as that recommended in the Port McNeill Forest District VRI Strategic Inventory Plan.[2] The goal is that this sample size will achieve an estimate of timber net volume with a sampling error of about ±10% (95% probability), assuming a coefficient of variation (CV) of 45%. This CV is based on the inventory audit volume CV of 35% inflated to 45% to account for differences in the plot cluster design between the VRI and the inventory audit.

Table 2. Sample size and installation schedule.

Landbase	Year			Total
	2000	2001	2002+	
High Priority Areas	40	41	-	81
Low Priority Areas	-	-	14	14
Total	*40*	*40*	*10*	*95*

areas include polygons with a leading tree species label and at least 10% crown closure (BCLCS).

[2] J.S. Thrower and Associates Ltd. 1997. *Port McNeill Forest District Vegetation Resources Inventory Ground Sampling Plan Final Report*, Dec. 1997. Cont. Rep. to BC Min. For. Res. Inv. Br.

3.4 SAMPLE SELECTION

Sample polygons were selected by JST from a list of the existing forest cover polygons using the stratified probability proportional to size (PPSWR) method mandated by the MOF.[3] The algorithm for implementing this method involved first stratifying the VT polygons by leading tree species and volume classes (low, medium, and high) within species, and then selecting sample polygons using the PPSWR method within the leading species-volume strata (Appendix I).

The sample distribution among the TFL's VT land types was approximately proportional to land type area; sample size in the Remaining Area was arbitrarily set at 5 (Table 3). The list of sample polygons is provided in Appendix II. Appendix III shows the comparisons of the sample and target population distributions by land type.

Table 3. Sample distribution by land type.

Land Type (VT)	Sample size	Land Type (Remaining Area)	Sample size
A1	31	A2	1
B1	6	B2	0
C	29		
D1	15	D2	0
E1	9	E2	4
Total	*90*	*Total*	*5*

Sample points in the selected polygons will be selected using a 50-m grid nested within the provincial 100-m grid (based on the Universal Transverse Mercator [UTM]). The grid is overlaid on a sample polygon and a sample location is selected at random with replacement from the grid intersections falling in the polygon. This process may be completed manually or using a geographic information system (GIS).

3.5 GROUND PLOT DESIGN

The ground samples will include VRI *Timber Emphasis Plots* (TEP) and coarse woody debris (CWD) sampling transects. Measurements of tree attributes and CWD will be based on the *Vegetation Resources Inventory Ground Sampling Manual* (version 4.1, March 2000). VRI-certified crews will conduct the sampling. The ground samples will also include an 11.28-m radius fixed-area plot centred at the Integrated Plot Centre (IPC) of the TEPs, for monitoring tree attributes. Measurements of tree attributes at this plot may be based on the procedures being developed by the MOF.[4]

[3] Our preference was to select polygons systematically from a list sorted by priority and estimated volume. Four independent systematic samples would be selected to calculate sampling error directly (without assuming simple random sampling). In our opinion, sampling from the sorted list is very efficient and gives a smaller sampling error for volume and a better distribution of the sample across the target population.
[4] Contact: Laurence Bowdige (MOF Resources Inventory Branch, Victoria, BC).

3.6 NVAF SAMPLING

Net volume adjustment factor (NVAF) sampling will be conducted to adjust net volume for possible hidden decay and taper equation bias. A total of approximately 60 trees (50 live and 10 dead) will be selected from at least 20 locations in the High Priority areas and destructively sampled for NVAF (Table 4).

Table 4. NVAF sample locations.

Landbase	Year			Total
	2000	2001	2002+	
A1	2	5	-	7
B1	1	1		2
C	3	5	-	8
D1	1	2	-	3
E1, A2, B2, D2, E2	-	-	2	2
Total	*7*	*13*	*2*	*22*

The NVAF sampling will be implemented in two steps. Initially, 20 live trees will be chosen from seven locations (out of 40 in the High Priority areas) for NVAF sampling in the 2000 field season (Table 5).[5] This initial sample will be used to estimate the variability and magnitude of the NVAF adjustments, and to plan for additional sampling that may be required in subsequent years (2001+).

Table 5. Planned number and distribution of NVAF sample trees (dead trees in brackets).

Landbase	Year			Total
	2000	2001	2002+	
A1	7	12(3)	-	19(3)
B1	2	3(2)		5(2)
C	8	12(3)	-	20(3)
D1	3	3(2)	-	6(2)
Sub-total	*20*	*30(10)*	-	*50(10)*
E1, A2, B2, D2, E2	-	-	5(2)	5(2)
Total	*20*	*30(10)*	*5(2)*	*55(12)*

The distribution of trees in 2000+ (Table 5) may be modified based on results from the 2000 sampling. A separate NVAF will be calculated for the High Priority area and a combined NVAF for the entire TFL that would include the 7 trees from the Low Priority area.

3.7 WPV SAMPLING

Within-polygon variation (WPV) sampling provides information needed to calculate the actual error of the adjusted database. This error is the average difference between the adjusted polygon value and the 'true' value for the sampled polygons. This difference is an estimate derived from a small sample of polygons that are intensively sampled to approximate the 'true' values. WPV sampling provides users with a level of comfort when checking the inventory in the field. Typically, 10-20 polygons are selected from a target population and intensively cruised using a combination of 20-50 full measure and count plots in each polygon. The WPV sampling is a low priority at this time, but may be considered at a later date.

[5] The sample locations will be selected as recommended by Will Smith (MOF). That is, create a list of Phase II sample locations for each land type, sort each list by leading species, and select required NVAF sample locations (Table 4, Year 2000) systematically for each list.

4. PROJECT IMPLEMENTATION

4.1 OVERVIEW

Sampling will be implemented in High Priority areas in two batches: approximately 40 plots in 2000 and the remaining plots in 2001. Sampling in Low Priority areas will be done after 2001.

4.2 SCHEDULE

2000 Field Season

The project activities will be implemented in 2000 as follows (Figure 1):

1. Generate the full sample list of 95 polygons (June) (JST).
2. Prepare and submit a revised final sampling plan (this plan) to the MOF (June) (Canfor).
3. Select sample locations in the sample polygons using GIS (June) (Canfor).
4. Identify 40 sample polygons from the sample list (Appendix I) for sampling in 2000 (June) (JST).
5. Prepare approved sample packages for the 40 polygons; each package will include copy of document photos, plot location (1:10,000) and access maps (1:15,000) (June) (Canfor).
6. Tender and select contract crews and independent Check-Cruiser (June) (Canfor).
7. Select at random a sub-sample of seven polygons for NVAF sampling from the 40 polygons; identify NVAF polygons to be sampled early in the field season (June) (JST).
8. Locate and measure VRI sample clusters in the selected polygons; enter and edit data (July - August) (Field contract crew).[6]
9. Conduct quality assurance (10% check) (July-August) (Check-cruiser).
10. Cruise NVAF samples in selected polygons (July) (Check-cruiser).
11. Prepare a tree-sampling matrix and select the sample trees (August) (MOF).
12. Conduct NVAF stem analysis (August-September) (Canfor).[5]
13. Validate and compile data from completed plots (September) (MOF).
14. Complete preliminary data analysis and summary reports. The analysis should include preliminary estimates of average net timber volume, regression of photo-estimated volume to ground sample volume, and associated standard errors. It will also include estimation of the CV of net volume and a revised sample size for 2001 sampling (October-December) (JST).

[6] A mentor session between the MOF and contract field crews is required under VRI ground sampling standards prior to VRI timber emphasis and NVAF fieldwork commencing.

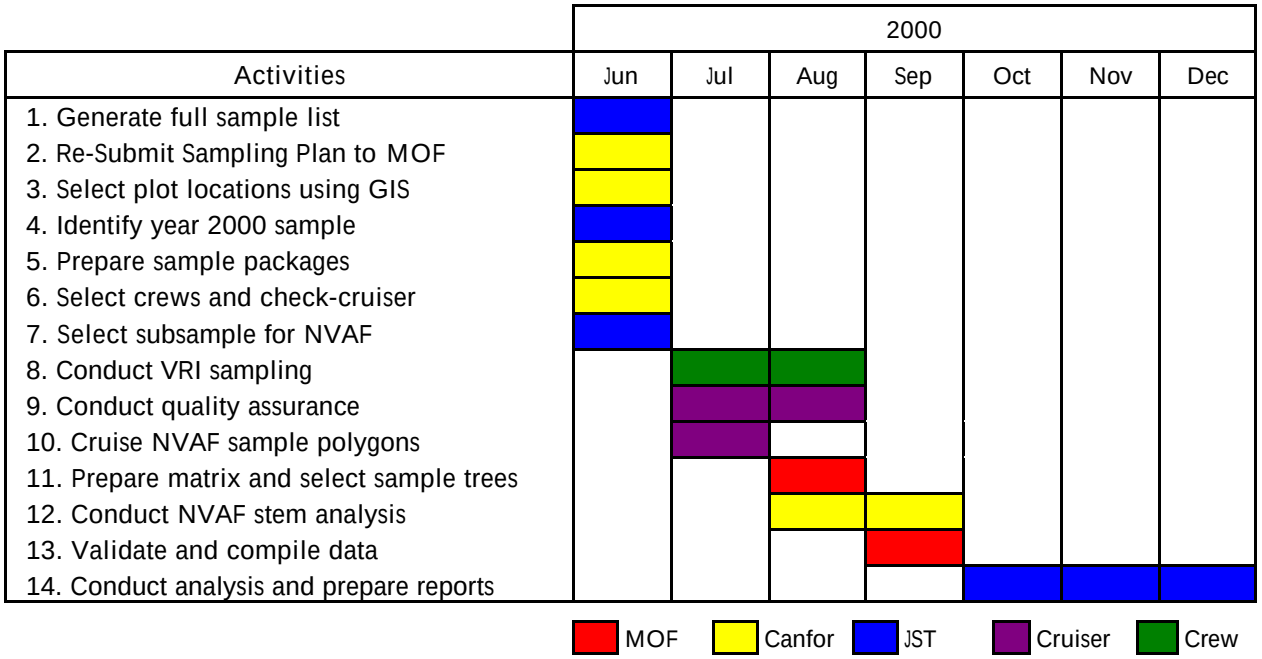

Figure 1. Ground sampling implementation schedule in 2000.

2001 Field Season

The project activities will be implemented in 2001 as follows (Figure 2):

1. Generate additional sample polygons if needed, include in the sample list, and prepare addendum to Sample Plan (April) (JST).
2. Prepare sample packages for all the samples (April) (Canfor).
3. Tender and select contract crews and independent Check-Cruiser (May) (Canfor).
4. Locate and measure VRI sample clusters in selected polygons; enter and edit data (June - August) (Field contract crew).[6]
5. Conduct quality assurance (10% check) (June-August) (Check-cruiser).
6. Validate and compile the data from completed plots (September) (MOF).
7. Conduct data analysis and adjust inventory in the High priority areas; prepare maps and inventory summary reports (October-December) (JST).

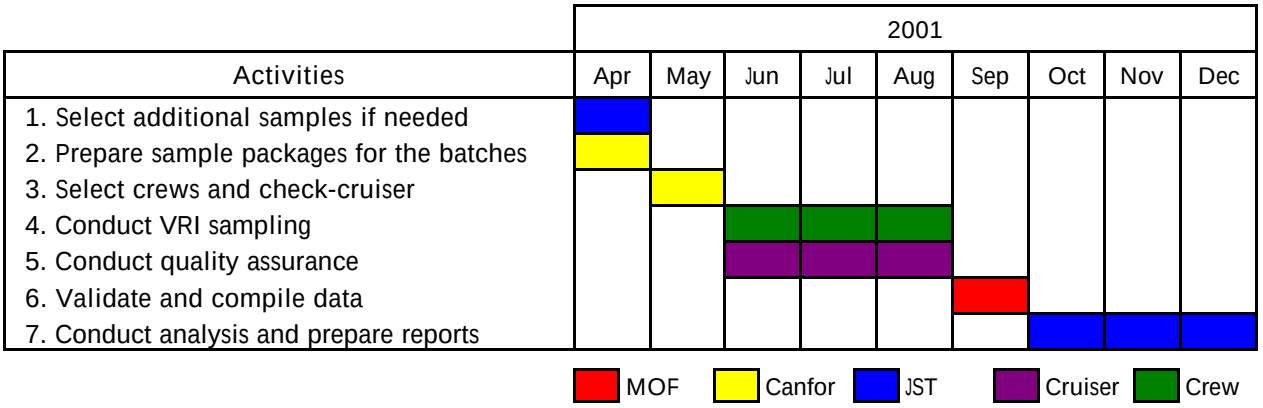

Figure 2. Ground sampling implementation schedule in 2001.

2002+ Field Season

The samples in the Low Priority areas will be installed in 2002 and beyond, depending on budget. The inventory in these areas will be adjusted based on the ground sampling as a separate stratum and added to the main inventory.

4.3 SAMPLE PACKAGES

Canfor will prepare sample packages prior to beginning fieldwork. The packages will include a copy of document photos, plot location maps (1:10,000) and access maps (1:15,000) clearly indicating sample cluster location and polygon boundaries. Maps will be plotted showing the VRI grid overlays and selected sample locations. Sample points in polygons will be selected using GIS.

4.4 PROJECT SUPPORT

Field supplies such as aluminum stakes, field maps, photos, field cards, and equipment (including global positioning system [GPS] and helicopter time) will be provided by the contract field crews.

4.5 FIELDWORK

Fieldwork will be completed using VRI measurement protocols and certified crews. The VRI Card Types 1-3 and 6-11 will be completed according the *VRI Ground Sampling Manual* (version 4.1, March 2000). Measurements at the monitoring plot will be based on the MOF procedures, which may be modified to suit TFL conditions. The Project Coordinator will manage the fieldwork contracts and quality assurance.

4.6 QUALITY ASSURANCE

A qualified person will complete the Quality Assurance (QA). The VRI QA standards require inspection of at least 10% of the samples. The field contract crews will be responsible for the quality control of their own work.

4.7 DATA COMPILATION, ANALYSIS, AND ADJUSTMENT

The contract field crews will complete the data entry. The MOF Resources Inventory Branch (RIB) will compile and verify the data. Canfor may contract JST to complete the statistical analysis and database adjustment. The RIB and the VFR may check the results of these analyses.

4.8 ROLES AND RESPONSIBILITIES

The *Ministry of Forests* will be asked to:

- Approve sample selection (RIB).
- Mentor field crews at the start of the fieldwork (VFR).
- Mentor NVAF crews and conduct NVAF QA (RIB).
- Validate and compile data (RIB).
- Check data after initial compilation (VFR).

Canfor's *Project Coordinator* will:

- Coordinate the project.
- Liase with the MOF.
- Ensure samples are selected in a valid way.
- Monitor and communicate project progress.
- Ensure all contractors are qualified and certified, and manage fieldwork contracts.
- Monitor the budget.
- Ensure the sample packages are assembled and complete.
- Obtain approval of ground sampling plan (this plan).
- Oversee ground sampling activities.
- Ensure QA is complete.
- Assist in coordinating technical expertise where required.

The *Fieldwork Contractors* will:

- Complete the field sampling.
- Conduct internal quality control.
- Enter the sampled data.

The *Check Cruiser* will:

- Complete QA work for 10% of the VRI samples.
- Complete call grading/net-factoring of the NVAF samples.
- Enter the sample data.
- Prepare the QA report.

APPENDIX I – SAMPLE SELECTION ALGORITHM

The selection of sample polygons using the MOF stratified PPSWR method (with proportional allocation) was implemented using the following 11 steps:

1. Define the population by selecting all records (polygons) that have an SPP1 (leading species label) with a crown closure greater or equal to 10%.
2. Count the number of records for each SPP1 and divided that number by 3; this defines the number of records per stratum.
3. Sort the database (polygons) by SPP1 and volume (descending) per hectare.
4. For each SPP1, the first third of all records are assigned the stratum "High", the second third are assigned the stratum "Medium", and the remaining records are assigned the stratum "Low". For example, for SPP1 Fd (Douglas fir), the strata would be defined as Fd-High, Fd-Medium, and Fd-Low.
5. When the total number of records for a SPP1 cannot be divided exactly by 3, randomly select which stratum to contain one more or one less record. For instance, if the total number of records was 10, one of the strata, randomly selected, would get 4 records and the two others would get 3. If the total number of records was 11, one stratum, randomly selected, would get 3 records, the two other strata would get 4 records.
6. Calculated the area, and proportion of total area, of each stratum.
7. Define the theoretical number of samples per stratum by multiplying the total sample size by the proportion of area in each stratum.
8. Round the theoretical sample size at both the stratum (volume) and species (SPP1) level.
9. After rounding, if the number of samples do not match what was expected at the species level, randomly select one stratum within the species and modify the sample size. For instance, suppose that theoretical sample size for Fd-High, Fd-Med, and Fd-Low was 0.4 samples. Rounded at the stratum level, they all get 0 (0.4 becomes 0 for all three strata). However, at the species level, the sample size becomes 1, (3 times 0.4 is 1.2, rounded to 1). In this situation, randomly choose one of the three strata and assign one sample to that stratum.
10. Generate as many random numbers as samples within a stratum.
11. Select each stratum sample using PPSWR.

APPENDIX II – LIST OF SAMPLE POLYGONS

The sample polygons are listed in Table 6. The first 40 polygons in land types A1, B1, C, and D1 will be sampled in 2000. These land types are defined in Table 1.

Table 6. List of sample polygons.

Sample no	Polygon	Area (ha)	Leading species	Age (yrs)	Site Index (m)	Land Type
1	3369	11.1	HW	300	16.9	C
2	7046	20.8	FD	18	33.0	A1
3	11541	19.7	YC	300	10.7	D1
4	20970	8.7	HW	250	10.5	D1
5	7094	20.2	BA	300	16.7	C
6	19334	5.9	HW	300	11.1	E1
7	6727	5.9	FD	19	29.0	A1
8	303	10.8	HW	64	20.8	A1
9	11855	25.5	HW	230	9.6	B1
10	7321	19.3	FD	210	13.9	B1
11	1764	5.0	FD	15	32.0	A1
12	6598	2.6	CW	300	16.9	C
13	7783	5.0	FD	300	22.2	D1
14	5914	6.8	YC	300	15.5	C
15	8133	42.6	HW	46	32.1	A1
16	2302	9.0	FD	114	19.7	A1
17	176	1.3	HW	88	26.2	A1
18	17959	14.0	HW	30	22.4	A1
19	5695	9.6	HW	138	17.6	B1
20	11769	1.6	CW	300	20.1	C
21	24705	4.6	HM	300	9.8	E1
22	12460	10.6	FD	30	35.7	A1
23	22643	4.2	HW	300	20.0	C
24	13025	55.8	HW	11	28.0	A1
25	8215	21.6	YC	300	12.0	D1
26	12112	64.7	FD	10	34.0	A1
27	24420	10.4	YC	300	12.9	D1
28	18173	5.9	HW	300	7.5	E1
29	18367	1.1	HW	30	37.3	A1
30	12768	48.3	FD	30	38.8	A1
31	22723	12.0	HW	300	12.8	C
32	12169	70.6	FD	37	31.9	A1
33	4827	37.0	CW	300	21.6	C
34	2786	30.9	HM	300	8.7	D1
35	19957	3.9	FD	300	31.0	C
36	17299	8.7	HW	300	17.9	C
37	2541	7.3	HW	300	20.0	C
38	18960	7.3	YC	300	17.8	C
39	6361	36.6	HW	34	36.4	A1
40	16009	7.3	HW	200	11.6	B1
41	2604	30.9	HW	11	30.0	A1
42	21269	12.5	HW	300	13.6	C
43	5358	22.8	HW	300	15.0	C
44	23843	3.5	HW	300	10.2	D1
45	891	138.8	YC	300	9.4	D1
46	2606	11.5	CW	300	13.7	C

Sample no	Polygon	Area (ha)	Leading species	Age (yrs)	Site Index (m)	Land Type
47	6220	1.0	HW	300	15.0	E1
48	2201	12.8	HW	14	27.0	A1
49	20251	10.4	FD	30	32.5	A1
50	24219	3.0	YC	300	8.2	D1
51	15021	2.7	HW	300	9.1	E1
52	22405	26.4	BA	300	19.5	C
53	5394	0.9	CW	45	13.2	A1
54	16271	6.8	BA	30	18.3	A1
55	13686	5.2	HW	300	15.0	C
56	20039	2.5	FD	300	24.7	D1
57	3667	3.1	HW	300	7.9	D1
58	25772	41.5	YC	300	9.0	D1
59	601	8.4	HW	20	26.0	A1
60	17231	26.3	HW	300	12.3	C
61	321	43.6	HW	73	30.5	A1
62	3872	5.8	HW	300	13.2	C
63	3660	10.3	HW	300	16.9	C
64	21778	17.4	DR	37	24.5	A1
65	18369	24.1	FD	30	29.1	A1
66	2104	3.2	HW	57	34.9	A1
67	18319	13.8	HW	300	13.6	C
68	3819	5.5	BA	300	14.1	C
69	4108	18.2	HW	300	16.8	C
70	10781	34.1	HW	200	18.8	B1
71	12100	18.0	YC	300	12.0	D1
72	18417	14.5	HW	300	9.1	C
73	5902	8.4	HW	300	11.9	C
74	9320	21.9	HW	300	15.0	C
75	13825	16.2	YC	300	9.9	E1
76	17523	3.1	HM	300	9.8	D1
77	5412	7.3	DR	63	29.6	A1
78	23339	0.8	HM	300	11.1	E1
79	24381	1.9	HM	300	10.2	E1
80	19807	27.5	FD	30	27.6	A1
81	195	4.0	HW	65	35.5	A1
82	865	4.1	FD	64	35.3	A1
83	23366	26.6	HW	300	12.3	C
84	2447	4.5	HW	129	17.6	B1
85	18019	27.4	HW	300	12.3	C1
86	24487	2.5	HM	300	6.5	E1
87	21971	2.7	YC	300	14.6	D1
88	644	20.6	FD	17	30.0	A1
89	3532	9.4	HW	300	15.5	C
90	15875	10.9	FD	20	26.0	A1
1	13445	1.6				E2
2	18356	30.3				A2
3	24060	431.5				E2
4	24142	288.2				E2
5	28345	607.2				E2

APPENDIX III – SAMPLE AND POPULATION COMPARISONS

Figures 3 and 4 show the age class and site index class profiles of the sample and target population in the VT land types. The land type definitions are given in Table 1.

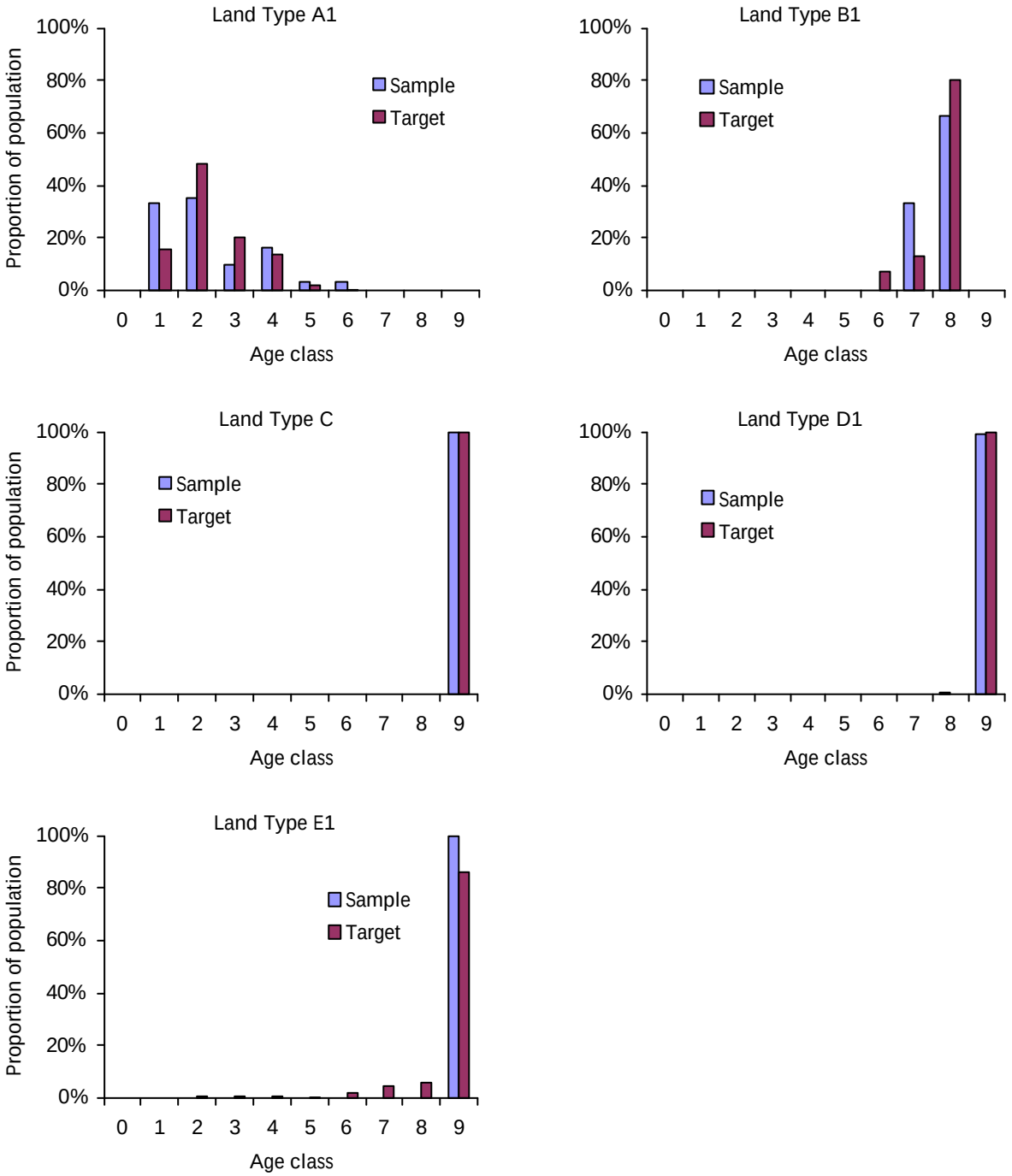

Figure 3. Age class profile of target and sample population for the VT land types.

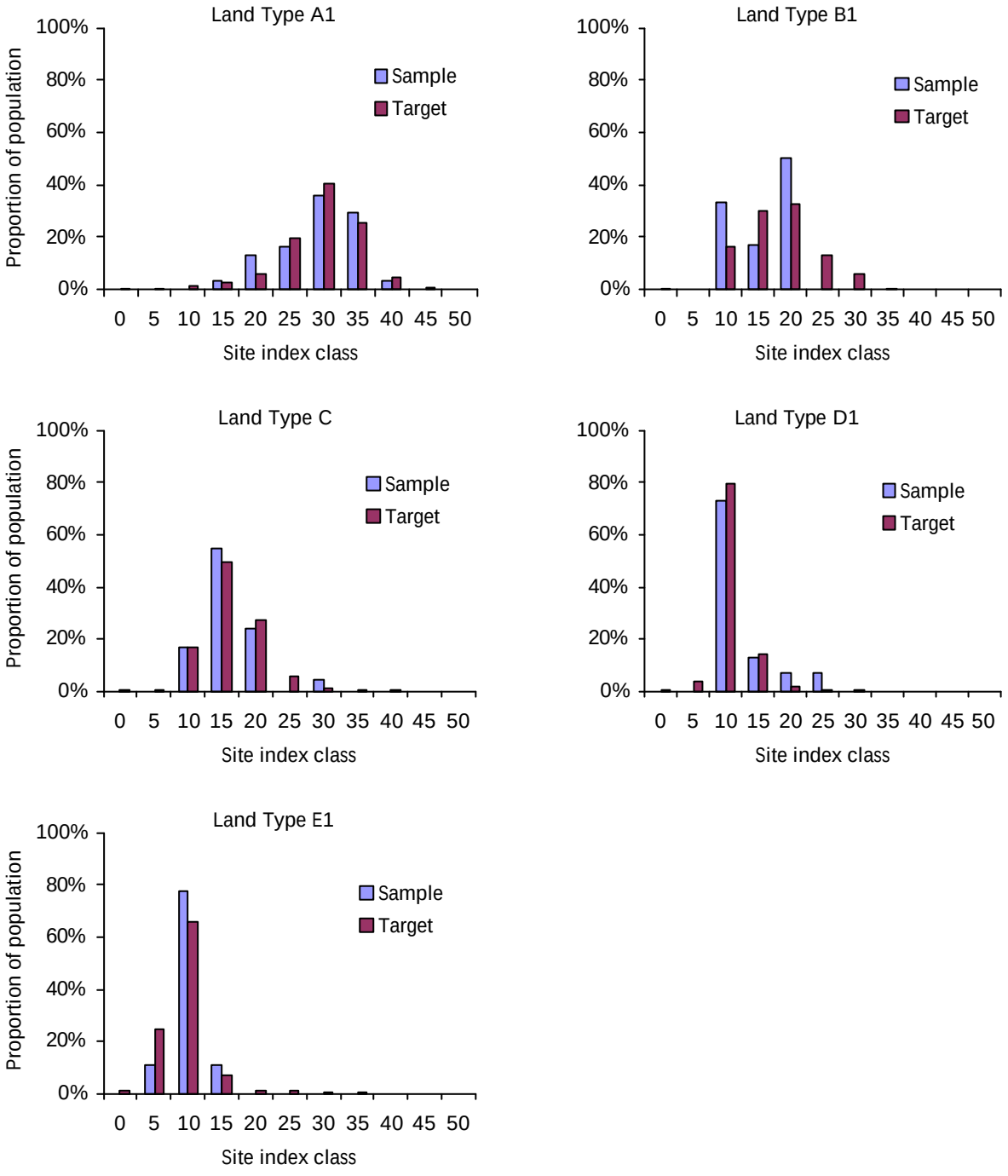

Figure 4. Site index class profile of target and sample population for the VT land types.

Figures 5 and 6 show the age class and site index class profiles of the sample and target populations in the Remaining Areas (areas that are not VT); definitions of these areas are given in Table 1. There were no samples selected in land types B2 and D2.

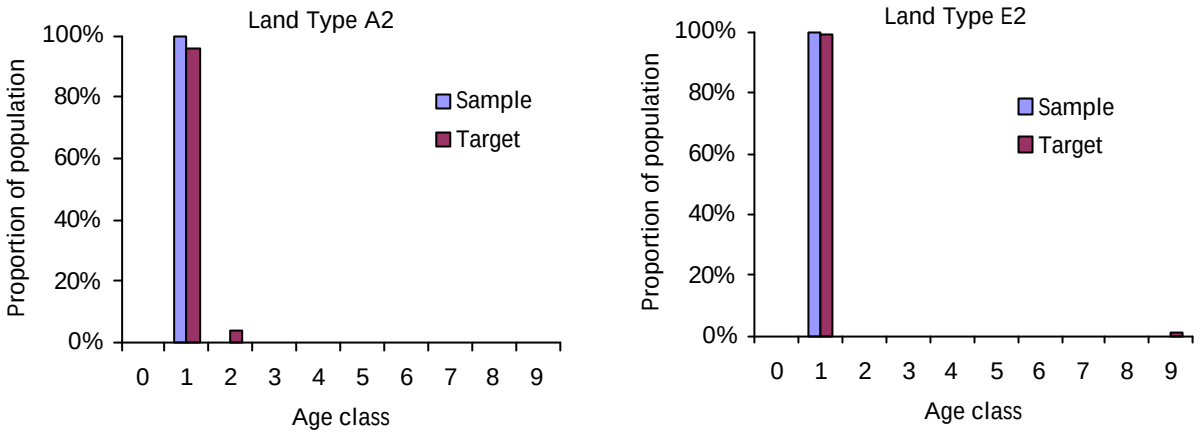

Figure 5. Age class profile of target and sample population in the Remaining Areas (land types A2 and E2).

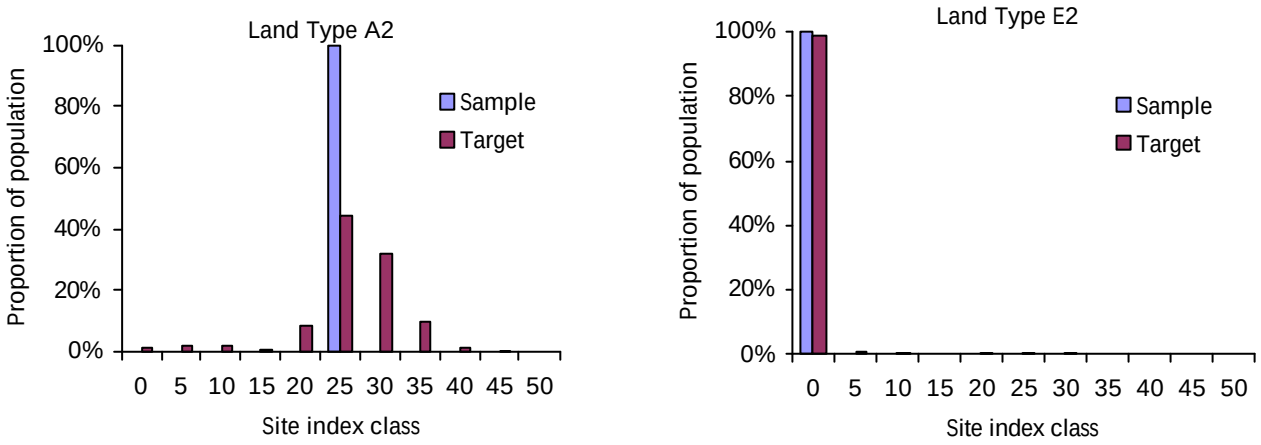

Figure 6. Site index class profile of target and sample population in the Remaining Areas (land types A2 and E2).