RARAKAU RAINFOREST CARBON PROJECT

ANNUAL REPORT, 2019

An Improved Forest Management Carbon Project Undertaken on Pre-1990 Indigenous Forest Land at Rarakau, Southland, New Zealand

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May 2019

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Annual Report 2019

An Improved Forest Management Carbon Project Undertaken on Pre-1990 Indigenous Forest Land at Rarakau, Southland, New Zealand

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May 2019

Author: Sean Weaver, Executive Director, Ekos.

ABOUT EKOS

A not-for-profit carbon management service provider, specialising indigenous forest carbon and zero carbon certification. We also work in environmental markets including indigenous forest carbon and sustainable land management (project development, policy and financing consulting.

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Rarakau Forest Carbon Project: Annual Report 2018

Submitted by: Ekos

Date of submission: 4 May 2019

SUMMARY

Project overview	
Reporting period	1 January 2012 – 30 September 2018 (6.75 vintages)
Geographical areas	Rarakau, Southland, New Zealand.
Technical specifications in use	Rarakau Programme Methodology: Improved Forest Management – Logged to Protected Forest. D2.1 v2.0, 20180515)

Project indicators	**Historical**	**Added/ Issued this period (01/01/2012-30/09/2018 inclusive)**	**Total**
No. smallholder households with Payment for Ecosystem Services (PES) agreements	n/a	0	0
No. community groups with PES agreements (where applicable)	1	0	1
Approximate number of households (or individuals) in these community groups	500	0	500
Area under management (ha) where PES agreements are in place	738 ha	738 ha	738 ha
Total PES payments made to participants (USD)	US$80,890[1]	n/a	n/a
Total sum held in trust for future PES payments (USD)			n/a
Allocation to Plan Vivo buffer (tCO_2)	917[2]	4,147	4,147

[1] This is the same project boundary as the project boundary applied when this project was originally validated and verified under the ISO14064-2 standard. Total PES payments to date relate to the sale of VERs certified to the ISO14064-2 standard and issued by Markit Environmental Registry.

Saleable emissions reductions achieved (tCO_2)	7,425[3]	16,589	16,589
Unsold Stock at time of Submission (Plan Vivo Certificates (PVCs))			n/a
Total Unsold Stock (PVC)			n/a
Plan Vivo Certificates (PVCs) issued to date			**0**
Plan Vivo Certificates requested for issuance			
Vintage 2012			2,458
Vintage 2013			2,458
Vintage 2014			2,458
Vintage 2015			2,458
Vintage 2016			2,458
Vintage 2017			2,458
Vintage 2018			1,841
Total issuance requested			**16,589**
PVCs available for future issuance			**0**

[2] This buffer volume was issued at first verification under the ISO14064-2 standard. This buffer is available for transfer to Plan Vivo should this be required.

[3] This is the volume of Verified Emission Reduction units (VERs) issued to this project at first verification, and were certified to the ISO14064-2 standard and issued by Markit Environmental Registry.

PART A: PROJECT UPDATES

A1 Key events

- Project first validated in 2013 to ISO14064-2 standard.
- First verification and issuance took place in 2013 for 2009-2011 vintages and certified to the ISO14064-2 standard (issued by Markit)
- This is the first Annual Report under the Plan Vivo standard
- PES Agreement signed in 2013
- Programme Agreement signed in 2013
- Eligible Forest Area protected by a conservation covenant in 2013.
- PD & methodology validated to Plan Vivo standard.
- First issuance under Plan Vivo sought

A2 Successes and challenges

- Project implemented since 2009 with no reversals or incidents that materially affect the project.
- Eligible Forest Area successfully fenced off from all adjacent pasture areas to keep livestock out of forest.

A3 Project developments

- Nothing to report at this stage apart from events listed in A1 above.

A4 Future developments

- Permanent sample plots yet to be established

PART B: PROJECT ACTIVITIES

B1 Project activities generating Plan Vivo Certificates

Table 3: Project activity summary

Name of technical specification	Area (Ha)	No. smallholder households	No. Community Groups
Rarakau Programme Methodology: Improved Forest Management – Logged to Protected Forest. D2.1 v2.0, 20180515)	738 ha	*N/A*	*1: Rowallan Alton (Maori) Incorporation*

B2 Project activities in addition to those generating Plan Vivo Certificates

- Improvements made to forest management through extensive fencing using grant funding of circa NZ$1m.

PART C: PLAN VIVO CERTIFICATE ISSUANCE SUBMISSION

C1 Contractual statement

- This issuance is based on signed PES Agreement between the Project Owner (represented by the Rowallan Alton (Maori) Incorporation) and the Project Coordinator (carbon Partnership Ltd) with participants complying with all the requirements stated in this Agreement.

C2(b) Issuance request for projects where issuance is made on the basis of ongoing activities on land already managed by the project (e.g. avoided forest degradation, calculated *ex-post*)

Table 5: Statement of tCO2 reductions available for issuance as Plan Vivo Certificates based on activity for reporting period 1 January 2012 – 30 September 2018

Area ID	Total area (ha)	Tech. Spec	Saleable ER's (tCO_2) available from previous periods*	Total ER's (tCO_2) achieved this period**	% Buffer	No. of PVCs allocated to buffer from ER's achieved this period	Saleable ER's (tCO_2) from this period	Issuance request (PVCs)	ER's (tCO_2) available for future issuances
Eligible area 2012	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2013	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2014	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2015	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2016	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2017	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
*Eligible area 2018****	738 ha	Rarakau IFM-LtPF	*0*	*2,304*	*20*	*461*	*1,841*	*1,841*	*0*
TOTAL			***0***	**20,736**		**4,147**	**16,589**	**16,589**[4]	**0**

*Number of tCO_2 sequestered or avoided emission through participants' activities in previous reporting periods which have not yet been issued as PVCs

** Number of tCO_2 sequestered or avoided emissions through participants' activities this reporting period

*** Statement of tCO2 reductions for the 2018 year to date (1 January 2018 - 30 September 2018)

[4] Slight discrepancy of 2 credits due to decimal points

C3 Allocation of issuance request

Table 6: Allocation of issuance request

Buyer name/ Unsold Stock	No. PVCs transacted	Registry ID (if available) or Project ID if destined for Unsold Stock	Tech spec(s) associated with issuance
Buyer name: Various. Some pre-sold, some to be retailed and wholesaled in the coming year.	*16,589*	*TBC*	Rarakau Programme Methodology D2.1 v2.0, 15 May 2018
Unsold Stock	*0*	*TBC*	Rarakau Programme Methodology D2.1 v2.0, 15 May 2018
TOTAL	**16,589**		

C4 Data to support issuance request

- Monitoring data for areas of land and participants which support this issuance request is provided in Annex 1. Rarakau Monitoring Report 2 D3.P1.13 v1.0 2018.

PART D: SALES OF PLAN VIVO CERTIFICATES

D1: Sales of Plan Vivo Certificates

None sold because this is first issuance under Plan Vivo.

Table 7: Sales of Plan Vivo Certificates

Vintage	Buyer	No of PVCs	Price per PVC ($)	Total sale amount ($)	Price to participants per PVC ($)	% Sale price received by participants
n/a	n/a	n/a	n/a	n/a	n/a	n/a

PART E: MONITORING RESULTS

E1: Ecosystem services monitoring

- Monitoring results that supports the request for new issuances is provided in annex 1.
- No PVC units have been previously issued.
- All monitoring targets were met.
- No corrective actions remain outstanding.

E2: Maintaining commitments

- No participants have resigned or been removed from the project.

E3: Socioeconomic Monitoring

- Results of monitoring of socioeconomic impacts according to our monitoring plan for the reporting period are provided in Appendix 4 of the Rarakau Project Monitoring Report 2 Dc.P1.13 v1.0 2018.

E4: Environmental and biodiversity monitoring

- Results of monitoring of biodiversity impacts according to our monitoring plan for the reporting period are provided in Appendix 5 of the Monitoring Report 2 Dc.P1.13 v1.0 2018.

PART F: IMPACTS

F1: Evidence of outcomes

Research Outcomes:

- Weaver, S.A. 2016. Rainforest carbon financing in New Zealand: A case study of REDD+ on Maori land. *New Zealand Geographer* Vol. 72(2): 122-132.
- McGregor, A. Weaver, S.A., Challies, E., Howson, P., Astuti, R., and Haalboom, B. 2015. Practical critique: Bridging the gap between critical and practice-oriented REDD+ research communities. *Asia Pacific Viewpoint*, Vol. 55 (3): 277–291. http://onlinelibrary.wiley.com/doi/10.1111/apv.12064/abstract

PART G: PAYMENTS FOR ECOSYSTEM SERVICES

G1: Summary of PES by year

- No forward payments have been made for the current issuance subject to this Annual Report because this is the first issuance of PVC units.

Table 8: Summary of payments made and held in trust

1. Reporting year (01/01/2012-30/09/2018)	2. Total previous payments (previous reporting periods)	3. Total ongoing payments (in this reporting period)	4. Total payments made (2+3)	5. Total payments held in trust	6. Total payments withheld
n/a	n/a	n/a	n/a	n/a	n/a
TOTAL					

PART H: ONGOING PARTICIPATION

H1: Recruitment

- There has been no recruitment in this reporting period and will unlikely be much (if any) recruitment going forward as this is a small project.

H2: Project Potential

- There is no specific project waiting list at this stage, but there are potential projects in early stages of scoping (in other parts of New Zealand).

H3: Community participation

- Community meetings held throughout this reporting are described in the project participation protocol in the PD.

PART I: PROJECT OPERATING COSTS

I1: Allocation of costs (NZD) (real dollar terms)

Project Costs	Annual Budget
Cost Categories	**2012-2018**
Landowner	
Pest control	$5,000
Opportunity cost	$25,000
Total LO costs	**$30,000**
Project Coordinator	
Monitoring	$5,000
Reporting	$2,500
Verification	$2,000
Field expenses	$500
Travel	$1,500
Contingency	$500
PC Costs Total	**$12,000**
Programme Operator	
Administration	$5,000
Credit issuance fees	$1,100
PO Costs Total	**$6,100**

Carbon pricing is designed to match project costs listed above.

The actual amounts allocated to different stakeholders since first verification are as follows:

Stakeholder	Total Disbursed 2014-2018 (USD)	Average annual (USD)
Project Total	$80,890	$16,178
Landowners	$48,534	$9,707
Project Coordinator	$30,199	$6,040
Programme Operator	$2,157	$431

Ratio Landowner: Project Coordinator/Programme Operator is calculated as follows:

	PES revenue disbursed to landowners	PES revenue disbursed to Project Coordinator and Programme Operator	Total
US$ Amount	$48,534	$32,356	$80,890
Ratio	60	40	

As can be seen, total and annual PES revenues have been very low for this project because the carbon units issued per hectare are very low. The project has survived in this challenging financial situation through in-kind contributions from Carbon Partnership and Ekos.

And yet this revenue is required to manage a project that is 738 ha in area. This has prevented the delivery of non-carbon monitoring (biodiversity and community monitoring) during this phase of project implementation. Grant funding will be sought for a) initial baseline and project assessments for non-carbon monitoring elements and b) the establishment of permanent sample plots for higher resolution carbon monitoring. Once this monitoring infrastructure has been built with grant funding, commercial financing from PES sales will fund on-going monitoring going forward.

Note that project development (2008-2012) was funded by grant from the NZ Ministry for Maori Development and from cash and in-kind contributions from Carbon Partnership Ltd.

Indirect revenues have also been received by the project as a result of the PES project in the form of fencing grant funding (~NZ$1 million) to fully fence the forest off from the farmland. This funding was received by the landowners from the New Zealand Nature Heritage Fund through a fund-raising effort supported by Ekos.

No grant funding has been given to the project with any expectation of carbon credit transfer to the grant provider.

Annex 1. Monitoring Results For Issuance Request

Supplied in the following pages in the form of the First Project Monitoring Report.

RARAKAU FOREST CARBON PROJECT MONITORING REPORT NUMBER 2

Document Prepared By Sean Weaver of Carbon Partnership Ltd.

Project Title	Rarakau Forest Carbon Project: IFM-LtPF Inception Project for the Rarakau Programme
Version	Rarakau Monitoring Report D3.P1.13 v2.0 09 October 2018
Date of Issue	09-October-2018 this version of the document issued
Project ID	n/a
Monitoring Period	01-January-2012 to 30 September 2018
Prepared By	Carbon Partnership Ltd.
Contact	29 Central Takaka rd, RD 1 Takaka 7183, New Zealand. Ph +64 3 5256073; sean@carbonpartnership.co.nz

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1 PROJECT DETAILS

1.1 Summary Description of Project

The Rarakau Forest Carbon Project involves the protection of previously logged indigenous forest on 738 ha of land owned by the Rowallan Alton Incorporation – a Maori incorporation. This forest protection is made possible by the creation and sale of carbon assets instead of timber assets on this land.

The Rarakau Forest Carbon Project forests are protected by a Memorandum of Encumbrance (legal covenant) on the title of the land. The beneficiary of the Memorandum of Encumbrance is Ekos - a charitable trust functioning as the Programme Operator of the Rarakau Programme.

This Monitoring Report comprises both the Simplified Project Management Report and Simplified Project Monitoring Report as specified in the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018.

1.1.1 Simplified Project Management Report Methodology

According to Section 11.3.9 of the Rarakau Forest Carbon Project PDD, the Rarakau Forest Carbon Project will prepare a Simplified Project Management Report for its first two 3rd party verifications, covering the Project Management period 1 January 2009 to 30 September 2018 inclusive. Section 11.4.6 of the Rarakau Forest Carbon Project PDD states: "The Simplified Project Monitoring Report will incorporate the requirements of the Simplified Project Management Report (see Section 11.3.9 of this PDD), also required for the first two verifications."

The Simplified Project Management Report elements of this Simplified Project Monitoring Report contain the following information:

Simplified Project Management Report Requirement	Location in this Monitoring Report
Map of the Eligible Forest Area using aerial imagery generated in 2011	Figures 1.7d,e
Map of the Project Management Areas	Figure 3.3.4
Statement by the Project Owner and Project Developer that describes the Project Activities that have been undertaken between the Project Start Date and the end of the first Monitoring Period.	Sections 2.1.2.1 to 2.1.2.4
Records of any *de minimis* timber harvesting that has occurred since the Project Start Date.	Section 3.3.3.4
Statement on Activity Shifting Leakage	Sections 2.1.2.4, 3.3.3.5
Notes any issues relating to the risk of reversals	Section 2.1.2.3
Director's Certificate	Supplied in Appendix 1

1.1.2 Simplified Project Monitoring Report Methodology

According to the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018, the Inception Project for the Rarakau Programme is required to prepare a Simplified Project Monitoring Report for its first verification, but thereafter is required to prepare a full Project Monitoring Report using the full project Monitoring Methodology specified in Sections 11.4.1 to 11.4.5 of this methodology.

In place of data generated from monitoring activities, the Project Owner will supply a Director's Certificate to assert that the Project Activity has taken place according to the requirements of this methodology and the PDD between the end of the first monitoring period (December 2011) and the end of the second Monitoring Period (September 2018) (i.e. 01 January 2012 to 30 September 2018).

Section 3.2 of this Monitoring Report lists the data and parameters monitored as required.

1.2 Sectoral Scope and Project Type

The project type for the Rarakau Forest Carbon Project is Improved Forest Management – Logged to Protected Forest (IFM-LtPF). The Rarakau Forest Carbon Project is the Inception Project (first activity instance) of the Grouped Project entitled the 'Rarakau Programme'.

1.3 Project Proponent

Table 1.3. Project Proponent Rarakau Forest Carbon Project		
Project Proponents		
Entity	Role	Contact Details
Rowallan Alton Incorporation	Project Owner	Ken McAnergney Secretary, Rowallan Alton Incorporation 15 Rastrick St Merivale Christchurch, New Zealand Ph: +64 3 356 3324 Email: Ken.McAnergney@outlook.com
Carbon Partnership Ltd	Project Developer	Sean Weaver Principal, Carbon Partnership Ltd 29 Central Takaka Rd, RD1 Takaka 7183, Golden Bay, New Zealand Ph: +64 3 525 6073 Skype: seanweaver www.carbonpartnership.co.nz sean@carbonpartnership.co.nz

1.4 Other Entities Involved in the Project

Table 1.4 Other Entities Involved In The Rarakau Forest Carbon Project		
Entity	Role	Contact Details
Ekos	Programme Operator	Ian Short Director Ekos P.O. Box 19171 Courtenay Place Wellington 6149, New Zealand Ph: +64 4 805 0098 x 861
Markit Environmental Registry	Project Registry	Christine Conduit Vice President Markit Environmental 4th floor Ropemaker Place 25 Ropemaker Street London, EC2Y 9LY Ph: +44 20 7260 2192 Office Ph: +44 758 439 2860 Mobile

		joanna.silver@markit.com www.markit.com www.markitenvironmental.com
GreenCo Ltd	Forest inventory	Clayton Wallwork Director GreenCo Ltd. Unit 7, 212 Antigua St PO Box 36-568 Christchurch, 8146 NEW ZEALAND Phone: +64 3 379 8583 Cell ph: +64 21 596 861 Email: info@greenco.co.nz

1.5 Project Start Date

1 January 2009

1.6 Project Crediting Period

January 2009 – 31 December 2058 (50 years).

1.7 Project Location

The project area is a subset of the Rowallan-Alton Maori lands (13,217 ha), which collectively lie directly east of the Hump Ridge and west of the Waiau River in western Southland, New Zealand (Burrows et al. 1992). The area is divided into approximately 150 sections, most of which remain in Maori ownership. Eleven of these sections (A7 11-13 & R8 8-15) totalling 1,367 ha, are managed by the Rowallan Alton Incorporation.

Project Maps for the Rarakau Forest Carbon Project are provided below.

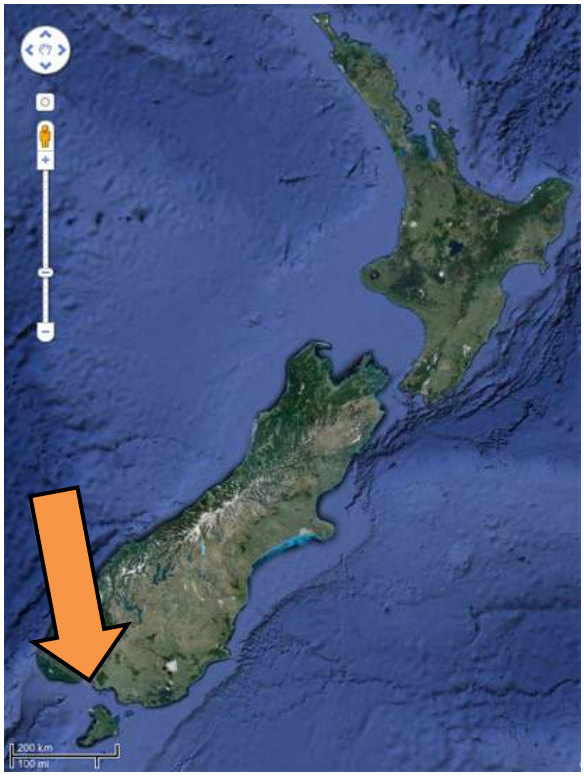


Figure 1.7a: Project Location Map 1, showing the project location in western Southland, New Zealand. Source: Google Earth.

Figure 1.7b. Project Location Map 2: Rarakau Forest Carbon Project Area Location in Western Southland (yellow rectangle). Source: Google Earth.

Figure 1.7c. Project Location Map 3. Maori Land Blocks in the Rowallan Alton Survey Region (white lines). Image date: 2010.

Figure 1.7d. Project Area Map 1. This depicts the boundary of the Project Area. White lines depict the aggregate of land parcels (Sections) that make up the Rowallan Alton Incorporation estate. Resolution: 0.4m. Image date: March 2011.

Figure 1.7e. Project Area Map 3. 2011 Eligible Forest Area. Green lines demarcate the Eligible Forest Area boundary. Image date: March 2011.

Figure 1.7f. Project Area Map 4. 2011 Eligible Forest Area. Green polygons demarcate the Eligible Forest Area. Image date: March 2011.

Figure 1.7g. Project Area Map 5. 2017 Eligible Forest Area. Purple lines demarcate the Eligible Forest Area. Image date: March 2013-14; 2015-17.

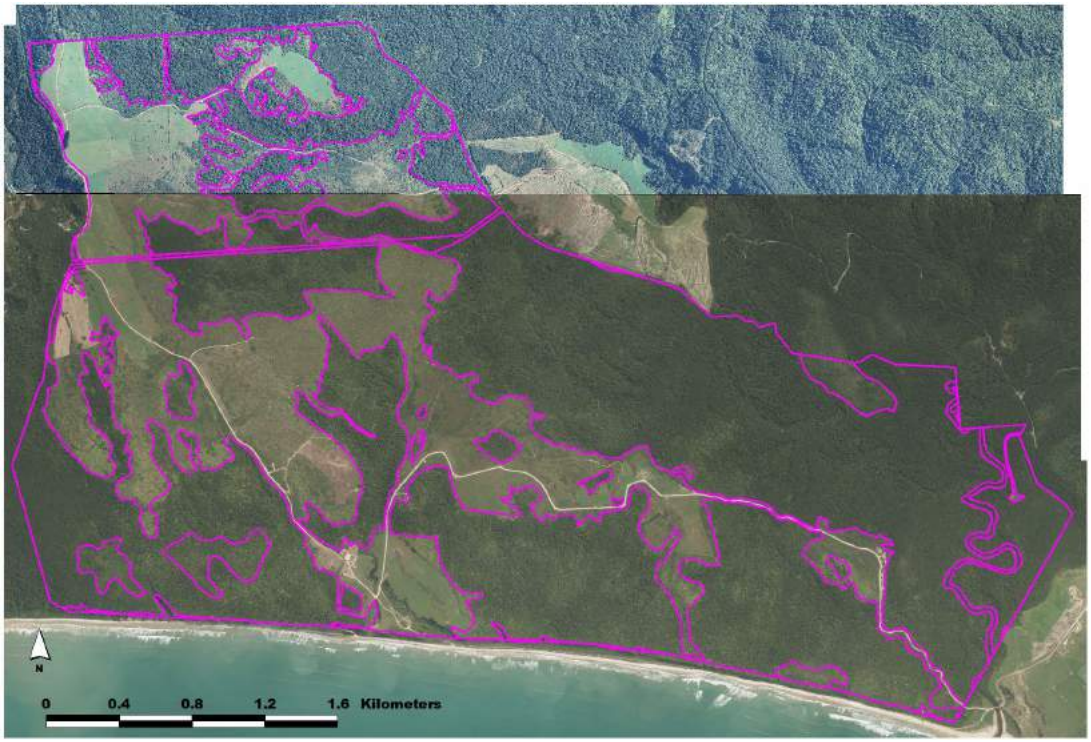
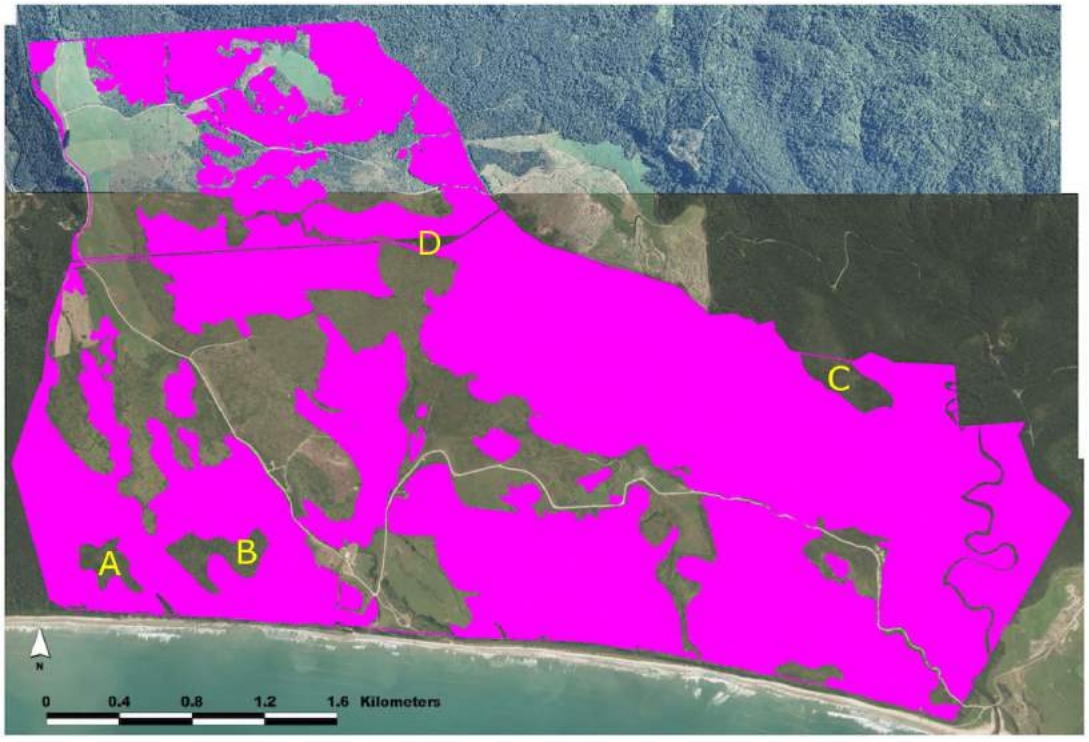


Figure 1.7h. Project Area Map 5. 2017 Eligible Forest Area. Purple polygons demarcate the Eligible Forest Area. Image date: March 2013-14; 2015-17.



Figures 1.7g and 1.7h show the eligible forest area using the most recently available aerial imagery with the two images in the composite dated 2013-14 (top part of image) and 2015-17 (lower part of image). These images comprise revisions that are not materially different from Figures 1.7e and 1.7f. The specific differences are cosmetic inasmuch as they depict those areas that are (and always were) excluded from the eligible forest area (crediting area) but are not excluded from the protected area of forest. This includes areas denoted A-D inclusive. Areas A-C are non-forest (wetland) areas that lie outside the Eligible Forest Area and are therefore excluded from the 738ha crediting area. Area D comprises a "paper road" that was excluded from the Eligible Forest Area due to planning restrictions even though it comprises tall forest.

Note that the total forest area enclosed by the purple polygons is 854ha. The area protected by the conservation covenant comprises the larger area that includes the wetlands (A-C mentioned above) giving a total protected area of 871ha of which 738ha comprises the crediting area (eligible forest area).

Figures 1.7g and 1.7h both show that there has been no change to the forest boundary and no evidence of illegal timber extraction compared with the situation in 2011 depicted in Figures 1.7e and 1.7f.

1.8 Title and Reference of Methodology

Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 (hereafter called "the Methodology").

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

2.1.1 Implementation Status

The Rarakau Forest Carbon Project was implemented on 1 January 2009, during the period of project development as a forest carbon project. This Monitoring Report marks the project's second verification.

2.1.2 Operation of Project Activity

The operation of the project activity during the first crediting period has focused on terminating baseline activities, and planning and implementing management practices consistent with the project activity of forest protection. This has included the development of the legal covenant to protect the project forests for the project period. The project development phase of this project included the development of the Methodology, the Rarakau Forest Carbon Project PDD D3.P1.1 v2.0, 15 May 2018 (hereafter called "the PDD"), the Project Management Plan and Project Monitoring Plan.

2.1.2.1 Project Consultations

Consultations for the Rarakau Forest Carbon Project followed the requirements of the Methodology specified for the Inception Project for this grouped project. The project consultations required by projects prior to validation include the necessary content and associated decisions for the Project Scoping Meeting, Project Inception Workshop, and Project Description Workshop. The following consultation events were undertaken in for this Inception Project to fulfil the requirements of Section 9.1.5 of the Methodology:

Table 2.1.2.1 Rarakau Forest Carbon Project Community Consultations			
Consultation Required	**Consultation Completed**	**Date**	**Comment**
Project Scoping Meeting	RAI Committee Meeting 2007	2007	Mandate to apply for Phase 1 funding
	TPK Project Report Back	25/07/2008	Report back Phase 1 results, Christchurch Office TPK
	RAI Committee Meeting	26/07/2008	Mandate to apply for Phase 2 funding
	RAI Committee & Membership Meeting	07/11/2009	Mandate to develop carbon project
Project Inception Workshop	TPK Project Report Back	18/06/2010	Project Reporting Christchurch Office TPK
	TPK Project Report Back	25/06/2010	Project Reporting Wellington Office TPK
	RAI Committee Meeting	25/06/2010	Mandate to apply for Phase 3 funding
	RAI Committee Meeting	30/05/2011	Mandate to proceed to implementation
Project Description Workshop A	RAI Committee Meeting	30/08/2011	Mandate to proceed to validation
Project Description Workshop B	RAI Committee Meeting and RAI Membership Meeting and AGM	05/11/2011	Mandate to proceed to validation and project update for landowner community
Project Monitoring Consultation 1	RAI Committee	05/11/2011	Mandate to proceed to verification
Project Management Consultation 1	RAI Committee	03/11/2012	Project Owner approval of project activities & progress
Project Management Consultation 2	RAI Committee	02/11/2013	Project Owner approval of project activities & progress
Project Management Consultation 3	RAI Committee	01/11/2014	Project Owner approval of project activities & progress
Project Management Consultation 4	RAI Committee	07/11/2015	Project Owner approval of project activities & progress

Project Management Consultation 5	RAI Committee	05/11/2016	Project Owner approval of project activities & progress
Project Management Consultation 6	RAI Committee	04/11/2017	Project Owner approval of project activities & progress
Project Management Consultation 7	RAI Committee	03/10/2018	Project Owner approval of project activities & progress

Evidence to support the occurrence of these meetings is supplied in Appendix 9 of the PDD for consultations to the end of 2011 and Appendix 1 of this Monitoring Report for consultations between 2012 and 2018 inclusive.

2.1.2.2 Legal Protection

The forests subject to this project are protected by means of a Memorandum of Encumbrance (covenant on the land title). The enforceability of the Memorandum of Encumbrance is described in Section 2.14 of the PDD.

2.1.2.3 Project Risk

A fire event in January 2012 was relevant to the GHG emissions reductions associated with this project, but affected forest located outside the Eligible Forest Area boundary. This fire burned from peat spreading from a stump in grazing land adjacent to the Eligible Forest Area (to the west of Forest Management Area 2). This peat fire had been smoldering for potentially a number of years. The practice of using fire to burn farm debris such as stumps is now subject to a fire permit issued by the Rural Fire Authority as per the Rarakau Forest Carbon Project PDD. This fire event affected the Project Risk Rating of the Rarakau Forest Carbon Project, which in turn influenced the buffer determination for this monitoring period. The Project Risk Rating was increased from 11% to 20%.

No additional risk events have taken place since last verification and there is no change to the Project Risk Rating for this project.

2.1.2.4 Leakage

Activity Shifting leakage is not possible in this project because the Project Owner does not have any forest capable of supporting baseline activities. Fuelwood gathering in patches of forest outside the Eligible Forest Area boundary is insignificant. Fuelwood gathering inside the Eligible Forest Area is subject to the *de minimis* rule specified in the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 and Rarakau Forest Carbon Project PDD. *De minimis* fuelwood harvesting is restricted to 13.5m^3yr^{-1}. There has been no *de minimis* harvesting since last verification.

2.2 Deviations from the Monitoring Plan

The only deviation from the Monitoring Plan is the monitoring period is longer than the 5-yearly monitoring period specified in the Monitoring Plan. This longer period arose because there were insufficient commercial project cash flows to cover the costs of a verification event inside the first 5 years following first verification.

2.3 Grouped Project

The Rarakau Forest Carbon Project is the first activity instance in the grouped project called the Rarakau Programme. No other project activity instances have yet occurred in the Rarakau Programme.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Monitored and non-monitored data parameters for the Rarakau Forest Carbon Project are defined in table 3.1 below. All data in Table 3.1 are available at validation.

Table 3.1 Monitored and Non-Monitored Parameters (monitored parameters in green)

Notation	Parameter	Unit	Equa-tion	Origin	Monitored / Not
EFA (OFA)	Eligible Forest Area (Operational Forest Area)	ha	-	PDD	Monitored
LF/ULF	Forest stratification (logged/unlogged forest)	ha	-	PDD	Area calculated in PDD
TSV	Total Standing Volume	m^3	-	Forest Management Plan/PDD	Calculated in PDD
HR	Harvest Rate	$m^3\ yr^{-1}$	7.1.1a 7.1.1b	Forest Management Plan/PDD	Updated each Baseline Revision
TWH	Total Wood Harvested	$m^3\ yr^{-1}$	7.1.2a 7.1.2b	Forest Management Plan	Not monitored Updated each Baseline Revision
CD	Collateral Damage	$m^3\ yr^{-1}$	7.1.3	Default value derived from a proportion of the TWH	Not monitored Updated each Baseline Revision
AGBE	Above Ground Biomass Emitted	$m^3\ yr^{-1}$	7.1.4	Sum of TWH and CD	Not monitored Updated each Baseline Revision
BGBE	Below Ground Biomass Emitted	$m^3\ yr^{-1}$	7.1.5	Root-shoot ratio (proportion of AGBE)	Not monitored Updated each Baseline Revision
TM3	Total Emissions in m^3	$m^3\ yr^{-1}$	7.1.6	Sum of AGBE and BGBE	Not monitored Updated each Baseline Revision
TCO2	Total Emissions in tCO^2e	$tCO_2e\ yr^{-1}$	7.1.7a 7.1.7b 7.1.7c 7.1.7d	Conversion factors from wood volume to emissions	Not monitored Updated each Baseline Revision
NBE	Net Baseline Emissions	$tCO_2e\ yr^{-1}$	7.1.8	TCO2 ÷ 2	Not monitored Updated each Baseline Revision
ER	Enhanced Removals	$tCO_2e\ yr^{-1}$	7.2.1	Default values derived from mean sequestration rates for NZ forest types and	Not Monitored Updated each Monitoring Period

				subsequently derived from project-specific data	
NPE	Net Project Emissions	$tCO_2e\ yr^{-1}$	7.2.1	Equal to ER	Not Monitored Updated each Monitoring Period
TAL	Total Activity Shifting Leakage	$tCO_2e\ yr^{-1}$	7.3.1	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
MLF	Market Leakage Factor	Dimen-sionless	Box in Section 7.3.2	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
TML	Total Market Leakage	$tCO_2e\ yr^{-1}$	7.3.2	Derived from Market Leakage Analysis	Not monitored Updated each Baseline Revision

3.2 Data and Parameters Monitored

Data and parameters monitored subsequent to validation are summarized in the tables below.

Data Unit / Parameter:	**Eligible Forest Area (Operational Forest Area)**
Data unit:	ha
Description:	Forest area included in baseline and project scenario, and area upon which crediting is based.
Source of data:	Aerial imagery and Project Boundary Inspection
Description of measurement methods and procedures to be applied:	Aerial imagery (sub-meter accuracy) to define Eligible Forest Area boundary; boundary survey inspections (sub-meter accuracy) using GPS. Measure any reversals occurring in the Eligible Forest Area. Monitored by means of Eligible Forest Boundary Inspections that record any reversal incident occurring within the Eligible Forest Area. The area of any reversal above and beyond the *de minimis* threshold is measured using GPS units set up for sub-meter accuracy and measuring tapes. Area subject to reversal is removed from the Eligible Forest Area until the reversal has recovered the carbon volume lost in the reversal. This is calculated by means of sequestration rates and the estimate of the forest age for the area subject to the reversal. Forest age of the area subject to the reversal is calculated by: • Dendrochronology on stumps in the case of a timber harvest reversal • Dendrochronology on adjacent living trees of equivalent size of burnt stumps
Frequency of monitoring/recording:	Aerial imagery: 5-yearly Eligible Forest Boundary inspections: annually
Value monitored:	n/a
Monitoring equipment:	Aerial imagery/satellite data to sub-meter accuracy Hand held GPS unit, photography
QA/QC procedures to be applied:	5-yearly 2nd party verification of Project Management Reports by the Programme Operator.

	5-yearly verification 3rd party verification of Project Management Reports by 3rd party verifier. NB: 5-yearly 2nd party verification timed to mark the half way mark of the 5-yearly 3rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Subtract reversal area from the Eligible Forest Area and recalculate the Net Carbon Credits by means of the most recent version of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018.
Responsibility:	Project Owner or delegated entity (e.g. Project Developer)

Data Unit / Parameter:	**Harvest Rate (HR)**
Data unit:	$m^3\ ha^{-1}\ yr^{-1}$
Description:	The rate of timber harvesting under the project baseline.
Source of data:	Project-specific, and reference area data on tree growth rates for the relevant forest types.
Description of measurement methods and procedures to be applied:	60% of the assessed annual increment into the harvestable boles (excluding branches and crown) for each timber species for which there is sufficient standing volume to justify commercial harvesting.
Frequency of monitoring/recording:	10-yearly
Value monitored:	m^3
Monitoring equipment:	GPS unit, diameter tape, hip chain, vertex clinometer, increment borer
QA/QC procedures to be applied:	Every second 5-yearly 3rd party verification of Project Management Reports by 3rd party verifier.
Calculation method:	Harvest Rate method specified in Section 7.1.1 of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 D2.1 v1.0, 15 May 2018.

Data Unit / Parameter:	**Total Activity Shifting Leakage**
Data unit:	tCO_2e/yr
Description:	Leakage caused by activity shifting
Source of data:	Project Area Inspection (outside Eligible Forest Area)
Description of measurement methods and procedures to be applied:	Site visit of indigenous forest lands owned and controlled by the Project Owner to assess commercial timber harvesting activity in comparison with the Baseline Activity and Project Activity as stated in the PDD. Where commercial indigenous timber harvesting is occurring on lands owned and controlled by the Project Owner but lying outside the

	Eligible Forest Area, and where such harvesting has been declared in the PDD, the following assessment will be undertaken: • Records of timber harvesting activity are inspected and verified against the timber harvesting plan stated in the PDD. • Timber harvesting sites are inspected to verify that they are occurring in the areas specified in the PDD. Where commercial indigenous timber harvesting is occurring on lands owned and controlled by the Project Owner but lying outside the Eligible Forest Area, and where such harvesting has not been declared in the PDD (i.e. and thereby constitutes Activity Shifting Leakage), the following assessment will be undertaken: • Records of timber harvesting activity are inspected and annual timber harvesting volumes and species are recorded. • Timber harvesting sites are inspected to determine area of harvesting activity. • Calculations are made using the baseline GHG emissions measurement methodology in the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 to determine the volume of Activity Shifting Leakage. • Net Carbon Credits are recalculated to account for Total Activity Shifting Leakage (TAL) • The Project Owner is notified of the consequence of any continuation of Activity Shifting Leakage in terms of the reduction in Net Carbon Credits for the Project. The Project Owner is instructed to terminate Activity Shifting timber harvesting or risk suspension or termination from the Rarakau Programme.
Frequency of monitoring/recording:	Annual Leakage Inspection and results incorporated into the annual Project Management Report. 5-yearly 2nd party verification of Project Management Reporting by the Programme Operator.
Value monitored:	n/a
Monitoring equipment:	Activity Shifting Leakage Template
QA/QC procedures to be applied:	5-yearly 2nd party verification of Project Management Reports by the Programme Operator. 5-yearly verification 3rd party verification of Project Management Reports by 3rd party verifier. NB: 5-yearly 2nd party verification timed to mark the half way mark of the 5-yearly 3rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Activity Shifting Leakage method specified in Section 7.3.1 of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018.
Responsibility:	Project Owner or delegated entity (e.g. Project Developer)

Data Unit / Parameter:	**Market Leakage Factor (MLF)**
Data unit:	Dimensionless

Description:	Leakage caused by market effects. The proportion of domestic indigenous timber supply in comparison with equivalent imported timber volumes.
Source of data:	NZ government data on timber supply
Description of measurement methods and procedures to be applied:	Determined by considering where in the country logging will be increased as a result of the decreased timber supply caused by the project.
Frequency of monitoring/recording:	5-yearly
Value monitored:	Dimensionless
Monitoring equipment:	Desktop
QA/QC procedures to be applied:	5-yearly 2nd party verification of Project Management Reports by the Programme Operator. 5-yearly verification 3rd party verification of Project Management Reports by 3rd party verifier. NB: 5-yearly 2nd party verification timed to mark the half way mark of the 5-yearly 3rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Market Leakage factor component of the GreenCollar IFM LtPF v1.0 VCS approved Methodology VM0010 (2011).

3.3 Description of the Monitoring Plan

The purpose of monitoring the Rarakau Forest Carbon Project is to provide evidence to demonstrate that project implementation adheres to the PDD and methodology, to ensure that project benefits are delivered, and to make GHG assertions for verification.

3.3.1 Project Implementation Plan

The Project Implementation Plan for the Rarakau Forest Carbon Projects follows the requirements of Section 11.2 of the Methodology.

3.3.2 Project Management Plan

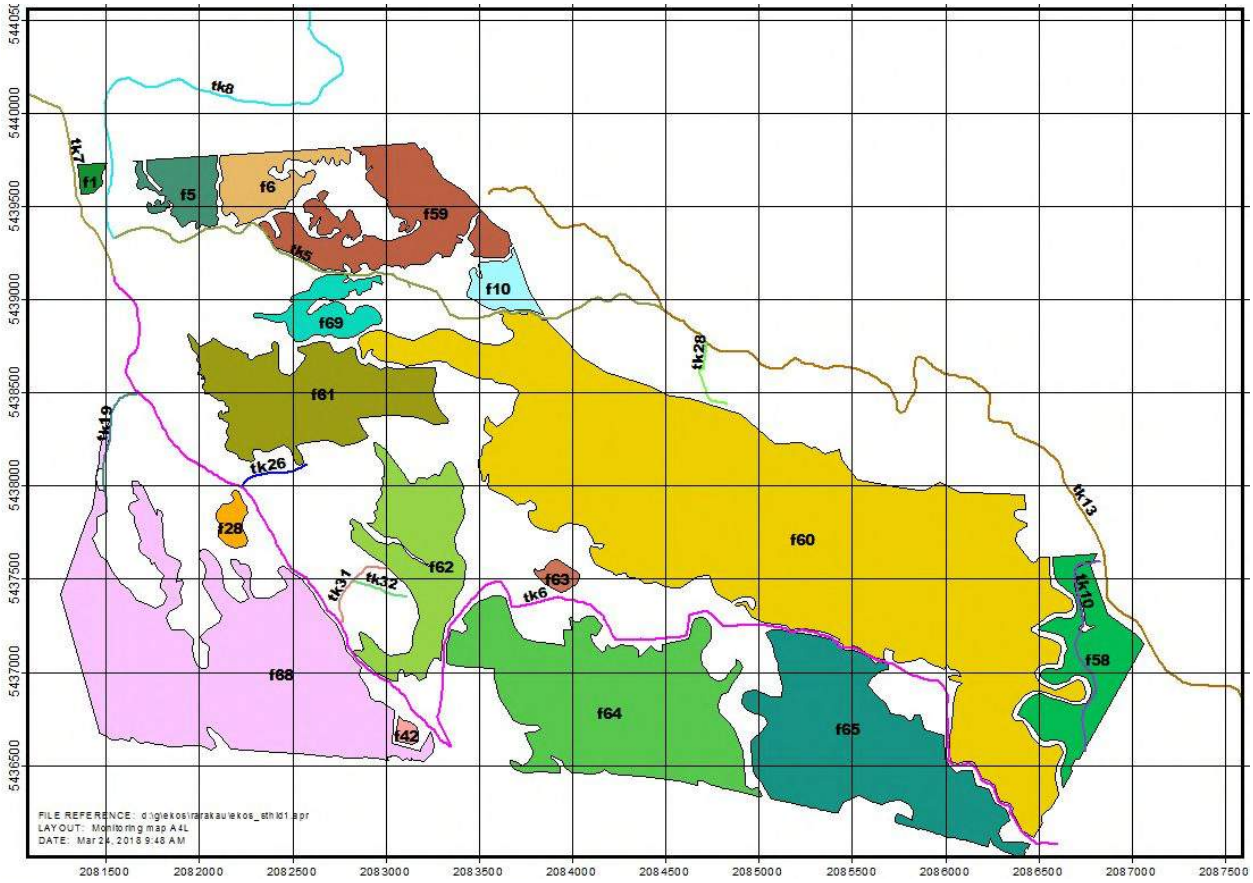
The Project Management Plan for the Rarakau Forest Carbon Projects follows the requirements of Section 11.3 of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018.

The Inception Project for the Rarakau Programme (the Rarakau Forest Carbon Project) will produce a Simplified Project Management Report for its first two verifications that summarizes project management undertaken between the Project Start Date and the end of the second Monitoring Period (1 January 2009 to 30 September 2018).

3.3.2.1 Forest Management Areas

The Forest Management Areas for the Rarakau Forest Carbon Project are shown in Figure 3.3.4.

Figure 3.3.2.1 Rarakau Forest Carbon Project Forest Management Areas



3.3.2.2 Eligible Forest Boundary Inspections

Eligible Forest Boundary Inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3 and 11.3.9 of the Methodology.

3.3.2.3 Eligible Forest Area Inspections

Eligible Forest Area Inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3, and 11.3.9 of the Methodology.

3.3.2.4 De Minimis Timber Harvest Inspection

De minimis timber harvesting inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3, and 11.3.9 of the Methodology.

The *de minimis* timber harvesting volume for the Rarakau Forest Carbon Project is 13.5m^3 per year. This amounts to <5% of the Total Wood Harvested in the Baseline Scenario, and in turn amounts to 0.032% of the Total Standing Volume of wood in the Eligible Forest Area.

Actual records of the volume of fuelwood harvesting inside the eligible forest area will commence following first verification. The estimated volume of fuelwood timber harvesting inside the Eligible Forest Area for the period 1 January 2012 to 30 September 2018 is 0m^3. Any fuelwood harvesting in the Project Area is undertaken outside the Eligible Forest Area and has been minimal because it is used to provide firewood

for the single permanent dwelling in the Project Area, and periodic use of the bunkroom lodge accommodation by hunters and trampers (trekkers).

3.3.2.5 Activity Shifting Leakage Inspection

No Activity Shifting Leakage is possible on the land owned by the Project Owner because all forest owned by this landowner has been protected by means of a conservation covenant.

3.3.2.6 Project Management Reports

Annual Project Management Reports are provided in Appendix 1 of this monitoring report and have been supplied by the Project Owner.

3.3.2.7 Directors Certificate

Project Management Reports are provided in the form of Directors Certificates and are provided in Appendix 1 of this monitoring report.

3.3.2.8 Project Management Audit

Ekos has reviewed project management during the period of 2012-2018 and is satisfied that all project management activities have been acceptably executed with the following exceptions:

- Permanent Sample Plots have not yet been established due to a lack of project sales revenue to finance this activity and unsuccessful attempts at gaining grant funding for this purpose to date.
- Biodiversity monitoring has not yet been fully established due to a lack of project sales revenue to finance this activity and unsuccessful attempts at gaining grant funding for this purpose to date. Simplified biodiversity monitoring has been undertaken in association with annual site inspections.
- Community impact monitoring has only been partly established - also due to a lack of project sales revenue to finance this activity and unsuccessful attempts at gaining grant funding for this purpose to date.

Each of these outstanding project elements will be remedied by the third verification.

3.3.3 Project Monitoring Plan

Credits are issued to each project in this Grouped Project on the 3rd party verification of each Project Monitoring Report, which contains data sufficient to provide evidence to support a GHG assertion for the Project Monitoring Period in question.

The Project Monitoring Plan states that the Rarakau Forest Carbon Project will produce Monitoring Reports at a maximum of 5-yearly intervals covering each Project Monitoring Period. This document encompasses the second Project Monitoring Report.

3.3.3.1 Monitored And Non-Monitored Parameters

Monitored and non-monitored parameters are specified in Section 11.4.1 of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 D2.1 v2.0 20180515.

3.3.3.2 Data Required At Validation

The Monitoring Reports for the Rarakau Forest Carbon Project will include data required at validation as specified in Section 11.4.2 of the Methodology. This includes all the monitored and non-monitored parameters described in Table 11.4.1 of the Methodology and presented in this document in the same order as in that table. This ordering of the data required at validation follows the stepwise sequence for calculating GHG emissions reductions generated by the project.

3.3.3.3 Monitored Parameters

The monitored parameters to be included in the Project Monitoring Reports in the Rarakau Forest Carbon Project are summarised in Table 3.3.3.3 below and using monitoring methods described in Section 11.4.2 of the Methodology).

Table 3.3.3.3 Monitored Parameters

Notation	Parameter	Unit	Equation	Origin	Monitored
EFA	Eligible Forest Area	ha	-	PDD	Monitored
HR	Harvest Rate	$m^3\ yr^{-1}$	7.1.1	Derived from Forest Management Plan	Monitored Updated each Monitoring Period
TAL	Total Activity Shifting Leakage	$tCO_2\ yr^{-1}$	7.3.1	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
MLF	Market Leakage Factor	Dimen-sionless	Box in Section 7.3.2	Derived from NZ government timber supply & import data	Monitored Updated each Monitoring Period

3.3.3.4 Monitoring Roles And Responsibilities

The Rarakau Forest Carbon Project will be managed and monitored by the Project Owner and the Project Coordinator according to the Project Agreement between these two parties. The role of the Project Coordinator is Project Co-Manager in collaboration with the Project Owner. The proportion of the co-management role played by the Project Coordinator will diminish through time as the Project Owner builds capacity and capability to undertake and coordinate project management and project monitoring without external assistance. The role of the Project Coordinator may eventually diminish to zero once the Project Owner is able to take responsibility for all project management and monitoring tasks.

The Project Coordinator has undertaken a series of training workshops with the Project Owners in the second monitoring period as part of Project Owner consultations associated with annual decisions relating to project management. This training has included helping the Project Owner understand:

- Climate change and the role of carbon sequestration and avoided emissions.
- Voluntary carbon markets in general, and in particular, how this project differs from projects operating under the NZETS.
- The link between project implementation and commercial cash flows throughout the commercial value chain.
- How to communicate the project to other stakeholders that the Project Owner interacts with (e.g. other Maori landowning groups).

The Project Coordinator is also involving members of the Project Owner management committee in project site inspections and other monitoring activities. Gradually through time, the Project Coordinator will enable the Project Owner to participate more actively in project management, monitoring and reporting so that the Project Owner can take greater control over the project operations.

Specific project monitoring roles in this project follow those specified in Table 3.3.3.4 below.

Table 3.3.3.4 Project Monitoring Roles & Responsibilities		
	Responsibilities	
Task	**Responsibility**	**Competency**
Project Management		
Project Owner	Implement project management activities relating to day-to-day risk management	The Project Owner employs a Farm Manager for the Rarakau dairy grazing farm located within the Project Area but outside the Eligible Forest Area. The Farm Manager lives on site, is present in the Project Area 24/7, manages the farmland on a daily basis within the Project Area and is in weekly contact with the Chair of the Project Steering Committee. The Chair of the Project Steering Committee visits the Project Area 6 times per year to check on farm management and forest carbon project management. The Project Manager visits the Project Area at least twice per year.
	Implement project management activities relating to project implementation activities	The Project Manager has competencies in project management and forest management.
Project Coordinator	Advice to Project Owner	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry. Mr Weaver has worked in forest conservation management and finance since 1987. Carbon Partnership has been involved in forest carbon policy, planning and project development since 2006.
Eligible Forest Boundary Inspections		
Project Owner	Undertake Boundary Inspections jointly with Project Developer. Increase role through time to undertaking Boundary Inspections with supervision/advice from Project Developer	RAI is an experienced farm manager, with staff competencies in the use of GPS units and protected area management.
Project Coordinator	Undertake Boundary Inspections jointly with Project Owner (initially). Reduce role through time to supervision and advice.	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry.
Eligible Forest Area Inspections		
Project Owner	Undertake Area Inspections jointly with Project Developer.	RAI is an experienced farm manager, with staff competencies in the use of

	Undertake Area Inspections with supervision/advice from Project Developer.	GPS units and protected area management.
Project Coordinator	Undertake Area Inspections jointly with Project Owner (initially). Reduce role through time to supervision and advice.	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry.
Project Management Report drafting		
Project Owner	Providing information for Project Management Report Increase role through time to drafting with supervision/advice from Project Developer	RAI is an experienced farm and forest manager and familiar with information gathering requirements.
Project Coordinator	Drafting Project Management Report Reducing role through time to supervision and advice if needed	Carbon Partnership has staff competencies with experience in project reporting since 1987.
Project Monitoring		
Task	**Responsibility**	**Competency**
Aerial imagery/mapping		
Project Owner	Learn procedure for gaining aerial imagery and mapping from sub-contractor Increase role through time to coordinating with supervision/advice from Project Developer	RAI has staff competencies with extensive project management experience in protected natural areas management.
Project Coordinator	Coordinate & manage aerial imagery sub-contracting on behalf of the Project Owner Reduce role through time to supervision and advice	Carbon Partnership has staff competencies with extensive project management experience in sub-contracting technical components of forest carbon management activities.
Project Monitoring Data Management		
Project Owner	Learn procedure for Project Monitoring data management Increase role through time to data management with supervision/advice from Project Developer	RAI has staff competencies with extensive project management experience in protected natural areas management.
Project Coordinator	Coordinate & manage Project Monitoring data management Reduce role through time to supervision and advice	Carbon Partnership has staff competencies with extensive project data management experience and experience in sub-contracting technical components of forest carbon management activities.

3.3.3.5 GHG Information Management Systems

The monitoring of the Rarakau Forest Carbon Project will use the GHG information management system described in Section 10.1 through 10.3 of the Methodology.

3.3.3.6 Simplified Project Monitoring Report Methodology

The Inception Project is required to prepare a Simplified Project Monitoring Report for its first two verifications, but thereafter is required to prepare a full Project Monitoring Report using the full project Monitoring Methodology specified in Sections 11.4.1 to 11.4.5 of the Methodology.

The Simplified Project Monitoring Report prepared for the Rarakau Forest Carbon Project for its first two verifications will follow the specifications of section 11.4.6 of the Rarakau Programme Methodology D2.1 v2.0, 15 May 2018 and will cover the period of 1 January 2012 to 30 September 2018.

3.3.4 Organisational Structure

The Rarakau Forest Carbon Project is owned and is being implemented by the Rowallan Alton Incorporation. The Rowallan Alton Incorporation is a Maori Incorporation established under the Te Ture Whenua Maori Act 1993. The Rowallan Alton Incorporation is a vehicle developed for managing communally owned lands, as explained in Section 2.1.2 of the PDD.

This project was developed and is coordinated by Carbon Partnership Ltd. This project is managed and monitored jointly between the Rowallan Alton Incorporation and Carbon Partnership Ltd. The model for project management and monitoring is for Rowallan Alton Incorporation (RAI) to undertake project management and project monitoring jointly with Carbon Partnership Ltd.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions Reduced

Net baseline GHG emissions are determined from the equations presented in section 7.1 of the Methodology and are calculated in Section 7.1 of the PDD for annual emission reductions and removal.

This Monitoring Report applies those calculations to the monitoring period of 1 January 2012 to 30 September 2018 as follows:

Calculation of Baseline Emissions

Parameter	**Acronym**	**Annual**	**2012-2017**	**Jan-Sep 2018**	**Total**
		m^3	m^3	m^3	m^3
Harvest Rate*	HR	212	1,271	159	1,430
Total Wood Harvested	TWH	569	3,412	426	3,838
Collateral Damage	CD	57	341	43	384
Above Ground Biomass Emitted	AGBE	626	3,753	469	4,222
Below Ground Biomass Emitted	BGBE	156	938	117	1,056
Total Emitted in Cubic Meters	TM3	782	4,691	586	5,278
		tCO2e	tCO2e	tCO2e	tCO2e
Gross Total Emissions in tCO2e	GTCO2	701	4,207	526	4,733
Gross Baseline Emissions	GBE	684	4,106	513	4,620
Long-term wood product pool	Ltwp	17	100	13	113
Net Baseline Emissions Avoided	NBEA	342	2,053	257	2,310
Total Leakage	TLK	0	0	0	0
Buffer Net Baseline Emissions Avoided	BUFNBEA	68	411	51	462

These data are available in Appendix 6 of this Monitoring Report (MR 2 Appendix 6)/Tab "Rarakau Carbon."

* The Harvest Rate has not changed since this project was first validated in 2013.

4.2 Project Removals

Net project GHG emissions are determined from the equations presented in section 7.2 of the Methodology, and are calculated in Section 7.2 of the PDD.

Calculation of Project Removals

Parameter	Acronym	Annual	2012-2017	Jan-Sep 2018	Total
		tCO2e	tCO2e	tCO2e	tCO2e
Net Project Removals	NPR	2,730	16,379	2,047	18,427
Net Project Benefits	NPB	2,730	16,379	2,047	18,427
Buffer on Net Project Benefits	BUFNPR	546	3,276	409	3,685
Buffer Total	BUFTOT	614	3,686	461	4,147
Net Carbon Credits	NCC	2,458	14,746	1,841	16,589
Gross Carbon Benefits	GCB	3,072	18,432	2,304	20,736

These data are available in Appendix 6 of this Monitoring Report (MR 2 Appendix 6)/Tab "Rarakau Carbon."

4.3 Grand Summary

This Project Monitoring Period = 1 January 2012 – 30 September 2018 (6.75 years).

PVCs/VERs to be issued for this Monitoring Period:

Area ID	Total area (ha)	Tech. Spec	Saleable ER's (tCO_2) available from previous periods*	Total ER's (tCO_2) achieved this period**	% Buffer	No. of PVCs allocated to buffer from ER's achieved this period	Saleable ER's (tCO_2) from this period	Issuance request (PVCs)	ER's (tCO_2) available for future issuances
Eligible area 2012	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2013	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2014	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2015	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2016	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
Eligible area 2017	738 ha	Rarakau IFM-LtPF	*0*	*3,072*	*20*	*614*	*2,458*	*2,458*	*0*
*Eligible area 2018****	738 ha	Rarakau IFM-LtPF	*0*	*2,304*	*20*	*461*	*1,843*	*1,841*	*0*
TOTAL			***0***	**20,736**		**4,147**	**16,589**	**16,589**	**0**

*Number of tCO_2 sequestered or avoided emission through participants' activities in previous reporting periods which have not yet been issued as PVCs

** Number of tCO_2 sequestered or avoided emissions through participants' activities this reporting period

*** Statement of tCO2 reductions for the 2018 year to date (1 January 2018 - 30 September 2018)

Total PVCs/VERs for crediting period 1 January 2012-30 September 2018 = 16,589
Total buffer for crediting period 1 January 2012-30 September 2018 = 4,147

5. ADDITIONAL INFORMATION

The Director's Certificates supporting this monitoring report is supplied in Appendix 1.

The Rarakau Dispute Resolution Framework is supplied in Appendix 2.

A description of the Standard Operating Procedures (project management, project monitoring, data storage and security) for first verification is supplied in Appendix 3.

Community Impact Monitoring reporting is presented in Appendix 4.

Biodiversity Impact Monitoring reporting is presented in Appendix 5.

Project GHG accounting is presented in Appendix 6.

ROWALLAN ALTON INCORPORATION

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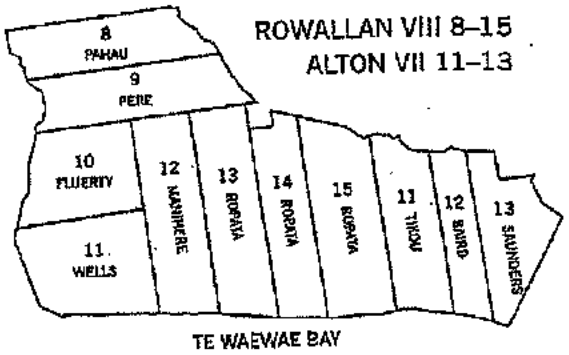

3 November 2012

Rarakau Rainforest Carbon Project Annual Review - 2012

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2012 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary
- evidence of avoidable reversals such as illegal timber extraction
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Carbon credits have been issued to the project on the Markit Environmental Registry but as yet no carbon credits have been sold.
- The New Zealand carbon market has slumped and interest in voluntary offsetting is very low as we understand. It is likely to take some time for carbon credit sales to enable us to monetize our carbon credits, and we are confident that the efforts of Carbon Partnership Ltd and Ekos will result in carbon credit sales revenues in future years.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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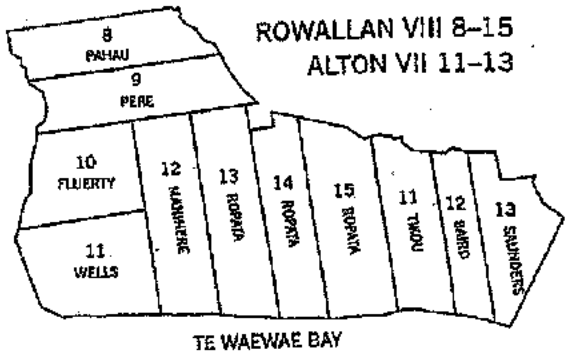

2 November 2013

Rarakau Rainforest Carbon Project Annual Review - 2013

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2013 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary
- evidence of avoidable reversals such as illegal timber extraction
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Carbon Partnership and Ekos are still yet to monetize carbon credits from this project due to the lack of capacity of Ekos at this early stage in its business development and the low level of demand in the New Zealand voluntary carbon market which is still in early stages of development.
- We understand that Ekos has made attempts to secure NZ domestic carbon wholesale buyers for our carbon credits, but carbon offset resellers have either gone out of business or have rules that preclude them placing carbon credits from the voluntary carbon market.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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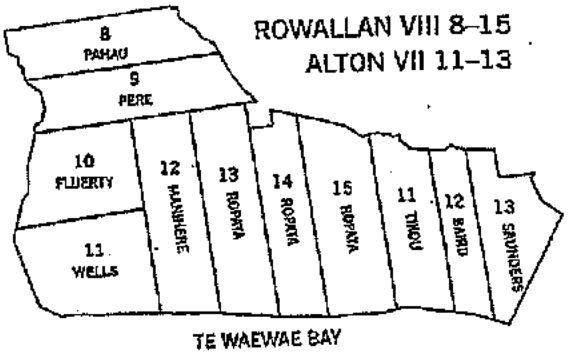

1 November 2014

Rarakau Rainforest Carbon Project Annual Review - 2014

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2014 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary.
- evidence of avoidable reversals such as illegal timber extraction.
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Ekos has started the process of developing a carbon offset retail platform so that they can monetize our carbon credits directly to voluntary offset buyers. This has included the early stage development of an e-commerce website and sales and marketing effort.
- Ekos has secured the first sales of carbon credits from this project. The most noteworthy customer is Commonsense Organics - a Wellington organic food retailer.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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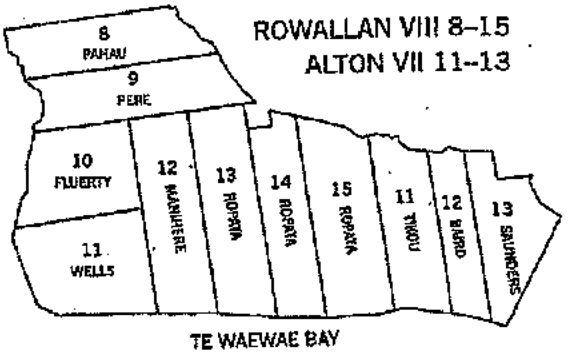

7 November 2015

Rarakau Rainforest Carbon Project Annual Review - 2015

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2015 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary.
- evidence of avoidable reversals such as illegal timber extraction.
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Ekos has built some momentum in carbon credit sales through its voluntary offsetting platform. This has included the sale of 173 carbon credits to a range of individual carbon offsetting buyers - principally offsetting individual flights.
- Carbon credit sales remain difficult due to the collapse of the NZ compliance carbon market and the availability of very cheap foreign credits in the NZ carbon market - with prices as low as US$0.15/tCO2e. Ekos informs us that these very low prices has led to considerable public disaffection with carbon trading and minimal interest in voluntary offsetting.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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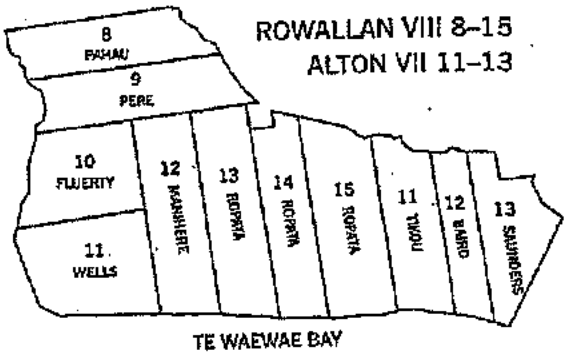

5 November 2016

Rarakau Rainforest Carbon Project Annual Review - 2016

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2016 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary.
- evidence of avoidable reversals such as illegal timber extraction.
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Carbon credit sales have increased compared with last year with over 1,000 carbon credits sold to a large collection of small scale voluntary offset buyers in the last year.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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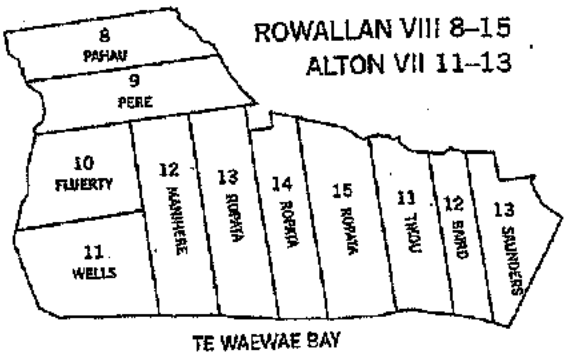

4 November 2017

Rarakau Rainforest Carbon Project Annual Review - 2017

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2017 calendar year in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary.
- evidence of avoidable reversals such as illegal timber extraction.
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Ekos has reported a significant increase in demand for voluntary offsets among individual and small and medium businesses. Ekos has also won a Sustainable Business Network award for restorative innovation which has helped to secure their first larger corporate buyer - Les Mills International.
- Carbon credit demand secured by Ekos is now at least matching the annual supply of carbon credits from this project. This means that the project is now financially self-sustaining in theory even though annual cash flows remain small.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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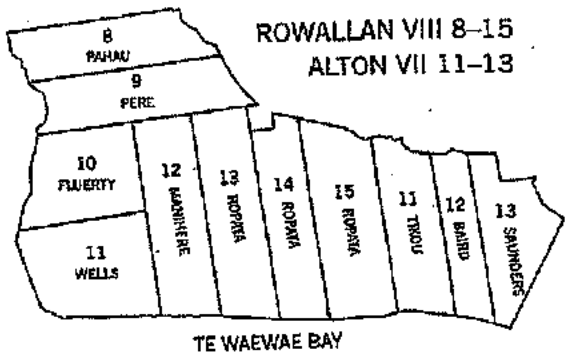

3 October 2018

Rarakau Rainforest Carbon Project Annual Review - 2018

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in consultations with Carbon Partnership Ltd through the course of the 2018 calendar year (until the end of September) in relation to the forest carbon project on land managed by this committee.

Project management activities undertaken this year has included site inspections to check for:

- changes to the forest boundary.
- evidence of avoidable reversals such as illegal timber extraction.
- evidence of unavoidable reversals such as natural events that impact on the forest.

There have been no changes to the forest boundary, no avoidable reversals and no unavoidable reversals in the last year.

Noteworthy progress:

- Qantas have come on board as a wholesale buyer this year and have placed an order for 2,000 carbon credits this year.
- Demand for voluntary carbon offsets is now greater than annual supply from this project.
- All carbon credits issued in the first verification back in 2012 have now been sold and there are now no carbon credits available to sell.
- Carbon Partnership and Ekos are undertaking the second carbon credit issuance event which is scheduled to issue a total of 18,683 carbon credits for the period of 1 January 2012 to 30 September 2018.
- We note that carbon credit sales cash flows have been so low in recent years that there have been insufficient funds to undertake an issuance event prior to this.

The RAI Management Committee is very happy with how the project is progressing and approves this project management update.

Kind Regards,

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Rarakau Forest Carbon Project: Dispute Resolution Framework

Inception Project For An 'Improved Forest Management – Logged To Protected Forest' Grouped Project Validated To The ISO14064-2 Standard

carbonpartnership ltd – 15 May 2012

carbonpartnership

Prepared by Sean Weaver of Carbon Partnership Ltd. and Mike Gibbs of Rowallan Alton Incorporation.

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Mike Gibbs, Project Steering Committee, Rarakau Forest Carbon Project, Management Committee, Rowallan Alton Incorporation.

Cover Photo: Rarakau Forest, Western Southland (Weaver)

Suggested citation for this report:
Weaver, S.A., and Gibbs, M. 2012. Rarakau Forest Carbon Project: Dispute Resolution Framework D3.P15 v1.0, 15 May 2012

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Dispute Resolution Framework

A Dispute Resolution Framework is a requirement of the following:

- Rarakau Programme Methodology
- Rarakau Forest Carbon Project PDD

A dispute resolution clause is also contained in the Memorandum of Encumbrance, and the Programme Agreement that the Project Owner undertakes with the Programme Operator.

This Dispute Resolution Framework has been prepared in collaboration between Carbon Partnership Ltd and Rowallan Alton Incorporation as required in Section 9.1.4 of the Rarakau Programme Methodology. The dispute resolution clauses of the Memorandum of Encumbrance and the Programme Agreement are provided in Appendix 1.

1. SCOPE

The scope of this Dispute Resolution Framework is to:

1. Help resolve disputes between the following parties:
    a. Project Owner
    b. Project Developer
    c. Programme Operator
2. Avoid or minimize the need for any party resorting to seek legal remedy for any dispute or grievance associated with the implementation of the Rarakau Forest Carbon Project.

2. METHODOLOGICAL REQUIREMENTS

2.1 Rarakau Programme Methodology

Section 9.1.4 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012 states:

> *Each project in the Rarakau Programme is required to prepare a Project Dispute Resolution Framework to guide the process of dispute resolution should it occur during the course of the project. There is provision for dispute resolution in the Programme Agreement and the Project Agreement, but the Project Dispute Resolution Framework is designed to help avoid resorting to contractual or legal remedies.*
>
> *Project Owners together with Project Developers are required to co-design the Dispute Resolution Framework based on principles of conflict resolution and non-violent communication.*

Project Owners and Project Developers are required to incorporate the Project Dispute Resolution Framework into the Project Description Documentation (PDD). Any revisions of the Project Dispute Resolution Framework will be incorporated into PDD Revisions. Any dispute resolution events shall be recorded in Dispute Resolution Reports.

3. PRINCIPLES

This Dispute Resolution Framework is based on the following principles:

- Technical and social balance
- Conflict resolution
- Collaborative approach
- Non-violent communication
- Principled negotiation
- Mutual respect
- Tikanga Maori

The principles of conflict dynamic, conflict styles, self management, and principled negotiation are included in a dispute resolution guidance tool (powerpoint presentation) developed by Carbon Partnership for the Rarakau Programme (available on request).

3.1 Technical and Social Balance

The parties acknowledge that:

- The success of a forest carbon project is dependent upon both technical and social (including cultural and economic) investments.
- The technical dimensions are required for the production of carbon assets. The social dimensions are required for project implementation and management success, and to reduce non-permanence risk.
- Under-investment in technical and social dimensions will increase the risk of project failure. Over-investment in either the technical or social dimensions will reduce efficiency, and also increase the risk of project failure.
- The on-going success of a forest carbon project, therefore, is dependent on applying an appropriate balance between technical and social investments.
- Social investments include time and financial resources sufficient to enable the effective and efficient resolution of disputes.
- Each party to the dispute shares the responsibility for investments in dispute resolution.

3.2 Conflict Resolution

The parties assume that a conflict can be resolved in a manner that is agreeable to all parties. The parties will approach conflict in a manner that is open to the mutual co-design of a resolution to the conflict, rather than the assumption that one party will dominate any conflict resolution process. The parties will establish a partnership atmosphere when addressing conflicts or disputes. The parties will actively listen to each other's views and evidence. The aggrieved party will present their issue to the other party or parties. The party/ies receiving a complaint will actively listen to the complaint with the purpose of coming to a full understanding of the substance of the complaint.

3.2.1 Conflict Dynamic

The parties acknowledge that a conflict dynamic should it arise, can follow either:

a. Provocation and reaction/counter provocation, which will lead to an escalation of a conflict increasing the likelihood of a zero-sum game (win/lose), and the need for recourse to legal remedy.
b. Open and active listening and dialogue by all parties, which will enhance the opportunity to resolve the dispute or conflict in a constructive manner that is beneficial to both the project and the relationship between the parties and is more likely to lead to a non-zero sum game (win/win).

3.2.2 Problem Solving Sequence

The Parties will follow the following problem solving sequence to any dispute:

1. Problem Identification
2. Cause Analysis
3. Solution Design
4. Implementation Strategy

Each of the four components of the problem solving sequence will involve a process where each party presents a considered view supported by facts and understanding.

Each stage of the problem solving sequence will involve each party

- Presenting their perspective to the other party.
- Actively listening to the other party and seeking clarifications to arrive at a full understanding of the other party's view and position.
- Preparing a list of points of agreement.
- Preparing a list of points of disagreement.
- Agreeing a proposed solution to each point of disagreement.
- Where a solution to a point of disagreement cannot be reached between the parties those points are noted for further treatment.
- Agreeing with the other party to a record of the outcome of each stage.
- Agreeing to move to the next stage in the problem solving sequence.

3.3 Collaborative Approach

The parties will adopt a collaborative approach to dispute resolution. The goal of a collaborative approach is to find a way to meet the needs of all stakeholders, by each party being assertive but cooperative, and acknowledging the importance of each party and their role in the project.

3.4 Non-Violent Communication

The parties understand and acknowledge that the conflict dynamic can escalate in the direction of further conflict when communication uses expressions that are divisive. The parties also understand and acknowledge that dispute and conflict resolution is enhanced with the use of expressions that are inclusive.

Divisive Increase Conflict	Inclusive Enhance Resolution
Divisive	Inclusive
Anger	Equanimity
Selfishness	Generosity
Divisiveness	Inclusiveness
Provocation	Responsiveness
Manipulation	Openness
Dishonesty	Honesty
Negative	Positive

The parties understand and acknowledge that underlying issues that need to be aired, understood and acknowledged commonly accompany disputes and conflict. It is, therefore, important to provide an opportunity to discover these underlying issues if they present a barrier to the resolution of the dispute or conflict.

3.5 Principled Negotiation

The parties will use principled negotiation to any negotiation concerning a dispute or conflict. The parties understand and acknowledge that principled negotiation[1] is a more effective and constructive approach compared with positional bargaining, and involves the following attributes:

[1] See Fisher, R., and Ury, W. 1991. Getting to yes. Negotiating agreement without giving in. Second edition. Penguin Books, New York.

Positional Bargaining		Principled Negotiation
Soft	**Hard**	**Principled**
Participants are friends	Participants are adversaries	Participants are problem solvers
Goal = agreement	Goal = victory	Goal = wise outcome
Make concessions to cultivate relationship	Make demands as a condition of relationship	Assume collaborative but mutually assertive relationship
Trust other party	Distrust other party	Proceed independent of trust
Change position readily	Dig into fixed position	Focus on interests not positions
Make offers	Make threats	Explore interests
Disclose bottom line	Mislead on bottom line	Avoid having a bottom line
Seek a solution agreeable to other party	Seek own solution	Insist on objective criteria
Try to avoid a contest of will	Try to win a contest of will	Results based on objective criteria
Yield under pressure	Apply pressure	Yield to principle not pressure

3.6 Tikanga Maori

The parties acknowledge that tikanga Maori (Maori custom) provides a framework for dealing with disputes and conflicts and that tikanga Maori will be used wherever this is sought by any of the parties. The tikanga Maori methods used will be consistent with those described in Sections 3.1 to 3.5 above.

4. PROCEDURE

When a dispute arises the following procedure is required:

1. Step 1: Early Identification And Action
2. Step 2: Informal Communication
3. Step 3: Formal Communication

4.1 Step 1: Early Identification And Action

The parties acknowledge that disputes and conflicts can be resolved at least cost if issues are addressed as soon as possible and preferably in the form of prevention rather than cure. The longer issues are left the greater the likely time and financial cost of resolution to all parties.

4.2 Step 2 Informal Communication

Informal communication involves the communication of disputed themes and topics between a representative of the parties by means of telephone, email, or personal contact, where the issue is raised for remedy without recourse to formal procedure.

When informal communication fails to resolve the dispute one or other or both of the parties to the informal communication moves the process to the formal communication.

Informal dispute resolution events are recorded for purposes of reporting in the annual Project Management Report. Informal dispute reporting uses the Informal Communication template (Appendix 2).

4.3 Step 3 Formal Communication

Formal Communication in this Dispute Resolution Framework involves a formal process of two parties coming together to institute a process to resolve a dispute or conflict that could not be resolved by means of Informal Communication. Formal Communication will involve the following process:

1. Process Agreement
2. Criteria Agreement
3. Implement Process
4. Evaluation and Reporting

Each stage in the process must be agreed to between the parties to the dispute with this agreement recorded and included in the annual Project Management Report.

4.3.1 Process Agreement

The Process Agreement has the following elements: Scope, Process, and Criteria.

Scope

A Scope Agreement determines the scope of the dispute by agreeing the entities that are party to the dispute and naming any relevant stakeholders (including third parties).

Process

The Process Agreement determines the process for addressing the dispute. All parties to the dispute as recorded in the Scope Agreement must agree the Process Agreement. This Process Agreement will include the following:

1. Process Location (e.g. where face-to-face meeting/s will occur)
2. Dialogue Procedure (the sequence of events in the resolution process)
3. Dialogue Method (how communication between the parties will be undertaken)

4.3.2 Criteria Agreement

The Criteria Agreement involves defining objective criteria to use as the basis for evaluating progress and outcomes in the dispute resolution process.

4.3.3 Implement Process

The process of Formal Communication takes place only after the parties to the dispute have completed the Process Agreement. Evidence of the completion of these three agreements is lodged in the form of a Dispute Process Agreement Memo. This memo is included as an appendix to the annual Project Management Report, but is also lodged with the Programme Operator as soon as possible. This is to enable the Programme Operator to keep track of any disputes occurring in the programme and to have an opportunity to offer support if need be. Where the Programme Operator is a party to the dispute then the Dispute Process Agreement Memo is lodged with a mutually agreed third party until the dispute is resolved.

4.3.4 Evaluation and Reporting

Each Formal Communication in the dispute resolution process is evaluated by all parties to the dispute by recording the Formal Communication template (Appendix 3).

APPENDIX 1. DISPUTE RESOLUTION CLAUSES IN CONTRACTS

Memorandum of Encumbrance

Section 6 of the Memorandum of Encumbrance: D1.5 v1.0, 15 May 2012 between Rowallan Alton Incorporation and Ekos states:

6.1 If a dispute arises out of or in connection with this Encumbrance, the parties will use their best endeavours to settle the dispute.

6.2 If a dispute has not been settled by negotiation under clause 6.1 then the parties will try to settle the dispute by mediation. Either party may initiate mediation by giving written notice to the other party. The mediator shall be agreed on by the parties, but if the parties cannot agree on one within 5 Business Days after the mediation has been initiated, then the mediator shall be appointed by the then President of the New Zealand Law Society or by the President's nominee.

6.3 If the dispute has not been settled within 10 Business Days after the appointment of the mediator, then the parties agree to refer the dispute to arbitration under the Arbitration Act 1996.

6.4 No dispute arising shall give cause to either party to suspend their obligations under the terms of this Encumbrance.

Programme Agreement

Section 13 of the Rarakau Programme Agreement: D1.3 v1.0, 15 May 2012 between Rowallan Alton Incorporation and Ekos states:

13.1 We will both act in good faith toward each other and not do anything to undermine the spirit and intent of this agreement.

13.2 If a dispute arises out of or in connection with this agreement, we will both use best endeavors to settle the dispute.

13.3 If a dispute has not been settled by negotiation under clause 13.2, then we will try to settle the dispute by mediation. Either of us may initiate mediation by giving written notice to the other party. The mediator must be agreed on by us both, but if we cannot agree on one within 5 Business Days after the mediation has been initiated, then the mediator will be appointed by the then President of the New Zealand Law Society or by the President's nominee.

13.4 If the dispute has not been settled within 10 Business Days after the appointment of the mediator, then either of us may refer the dispute to arbitration under the Arbitration Act 1996.

13.5 No dispute between us will give cause for suspending obligations under the Programme Documents.

13.6 Nothing in this clause will stop either of us from taking immediate steps to seek urgent equitable relief from a New Zealand Court.

APPENDIX 2. INFORMAL COMMUNICATION REPORT TEMPLATE

Dispute Resolution Report	
Informal Communication	
Report Name and Number	Use document-naming convention provided in the Rarakau Programme Methodology (e.g. Rarakau Forest Carbon Project Dispute Resolution Report D3.P1.16 v1.0, 25 July 2013). *
Date	*
1. Party 1 (initiator)	*
2. Representative/s	*
3. Party 2 (respondent)	*
4. Representative/s	*
5. Means of communication	Telephone, email, letter, personal contact *
6. Issue resolved?	Yes / No * (If "Yes" describe solution in 7. below. (If "No" proceed to either next steps or Formal Communication process)
7. Resolution	State resolution reached *
8. Next steps	State agreed next steps if not moving to formal communication *
9. How dispute was resolved	*
10. Unresolved issues	Insert list (if none state "none") *
11. Further action if not resolved	E.g. Repeat Informal Communication but with altered scope; move to Formal Communication; or separate proposals by the parties.
a. Party 1 Proposal	
b. Party 2 Proposal	
12. Signature of parties	
a. Party 1 Signature	*
b. Party 2 Signature	*

* = Obligatory Fields

APPENDIX 3. FORMAL COMMUNICATION REPORT TEMPLATE

Dispute Resolution Record			
Formal Communication			
Report Name and Number	*		
Date	*		
1. Party 1 (initiator)	*		
2. Party 1 representative/s	*		
3. Party 2 (respondent)	*		
4. Party 2 representative/s	*		
5. Process Agreement Completed?		Yes/No *	
6. Describe Process Agreement		*	
7. Did actual process follow the Process Agreement?		Yes / No *	
8. Justify deviations from Process Agreement (if any)		*	
9. How dispute was resolved		*	
	Issue 1 (repeat for each issue)		
	a. Problem Analysis		
	(i) Present perspective	Party 1 Yes/No	Party 2 Yes/No
	(ii) Active Listening	Party 1 Yes/No	Party 2 Yes/No
	(iii) Agreement Points	Insert list	
	(iv) Disagreement Points	Insert list	
	(v) Method for addressing disagreement points		
	(vi) Further Treatment		
	(vii) Agree to proceed	Party 1 Yes/No	Party 2 Yes/No
	b. Cause Identification		
	(i) Present perspective	Party 1 Yes/No	Party 2 Yes/No
	(ii) Active Listening	Party 1 Yes/No	Party 2 Yes/No
	(iii) Agreement Points	Insert list	
	(iv) Disagreement Points	Insert list	
	(v) Method for addressing disagreement points		
	(vi) Further Treatment		
	(vii) Agree to proceed	Party 1 Yes/No	Party 2 Yes/No
	c. Solution Design		
	(i) Present perspective	Party 1 Yes/No	Party 2 Yes/No
	(ii) Active Listening	Party 1 Yes/No	Party 2 Yes/No
	(iii) Agreement Points	Insert list	
	(iv) Disagreement Points	Insert list	

	(v) Method for addressing disagreement points		
	(vi) Further Treatment		
	(vii) Agree to proceed	Party 1 Yes/No	Party 2 Yes/No
	d. Implementation Strategy		
	(i) Present perspective	Party 1 Yes/No	Party 2 Yes/No
	(ii) Active Listening	Party 1 Yes/No	Party 2 Yes/No
	(iii) Agreement Points	Insert list	
	(iv) Disagreement Points	Insert list	
	(v) Method for addressing disagreement points		
	(vi) Further Treatment		
	(vii) Agree to implement	Party 1 Yes/No	Party 2 Yes/No
10. Summary of outcome		*	
12. Unresolved issues		Insert list *	
13. Further action if not resolved		E.g. progress to contractual remedy such as mediation. *	
	a. Party 1 Proposal		
	b. Party 2 Proposal		
12. Next steps		*	
14. Signature of parties			
	a. Party 1 Signature	*	
	b. Party 2 Signature	*	

* = Obligatory fields

Rarakau Forest Carbon Project: Standard Operating Procedures For First Verification

Inception Project For An 'Improved Forest Management – Logged To Protected Forest' Grouped Project Validated To Plan Vivo Standard

carbonpartnership ltd – 15 May 2012

carbonpartnership

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Cover Photo: Rarakau Forest, Western Southland (Weaver)

Suggested citation for this report:
Weaver, S.A. 2012. Rarakau Forest Carbon Project: Standard Operating Procedures for First Verification, 15 May 2012

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Standard Operating Procedure

A Standard Operating Procedure (SOP) is a requirement of the following:

- Rarakau Programme Methodology
- Rarakau Forest Carbon Project PDD

This document contains the SOP during the Pre-Validation phase of the Rarakau Forest Carbon Project.

This SOP applies to:

1. Project Management (Section 11.3.10 Methodology/PDD)
2. Project Monitoring (Section 11.4.7 Methodology/PDD)
3. Project Data Storage and Security (Section 10.2 Methodology/PDD)

1. PROJECT MANAGEMENT

Project Management SOP is broken into two themes:

a. Project Risk Management
b. Project Implementation Activity

1a. Project Risk Management

Project Risk Management is broken down into the following categories:

(i) Day-To-Day Risk Management
(ii) Fire Response
(iii) Illegal Logging Response
(iv) Natural Hazards Response

This SOP has 4 Communication Levels:

Level 1. Farm Manager to Project Manager
Level 2. Project Manager to Project Steering Committee
Level 3. Project Steering Committee to Programme Operator
Level 4. Programme Operator/Steering Committee to 3rd Party Verifier

SOP 1a(i): Day-To-Day Risk Management	
Detail:	Day-to-day observation of project area to keep track of activities undertaken in the project vicinity. The farm manager lives in the Project Area and operates farm management activities throughout the Project Area on a daily basis. The Chair of the Project Steering Committee has also visited the Project Area 6 times annually since 1 January 2009, and is in almost weekly telephone communication with the Farm Manager. This has provided an opportunity to observe any changes occurring in the forest carbon project associated with events relevant to the management of the project. Such events include: • Project land use (including *de minimis* timber harvesting) • Visitors to the Project Area • Environmental conditions affecting the Project Area • Activities on neighbouring properties
Communication Level 1:	
Communication Parties:	Farm Manager To Chair of Project Steering Committee.
Communication Content:	Farm Manager and the Chair of the Project Steering Committee have discussed farm and forest carbon project management issues on a regular basis.
Mode of Communication:	Telephone.
Timing of Communication:	Monthly at most, weekly at times.
Documentation:	Minutes of Project Steering Committee meetings between 1 January 2009 and 31 December 2011.
Actions:	Chair of Project Steering Committee has instructed the Farm Manager to take certain risk management actions where necessary.
Quality Assurance:	Chair of Project Steering Committee verifies level of uptake of any management action instructions in site visits 6 times annually.
Communication Level 2:	
Communication Parties:	Chair of Project Steering Committee to Project Steering Committee
Communication Content:	Summary of project management activities.
Mode of	Project Steering Committee meetings.

Communication:	
Timing of Communication:	Annually in person, and up to 4 times per year remotely (by teleconference and email documented decisions).
Documentation:	Project Steering Committee Minutes
Actions:	Project Steering Committee instructs Farm Manager to take certain actions to improve project management where necessary.
Quality Assurance:	Chair of Project Steering Committee reports the level of uptake of actions to improve project management at the next Project Steering committee meeting.
Communication Level 3:	
Communication Parties:	Project Steering Committee to Programme Operator. The Programme Operator (Ekos) was established in December 2011. Communications with the de facto Programme Operator (Carbon Partnership Ltd) was undertaken until the establishment of Ekos.
Communication Content:	Summary of project management activities
Mode of Communication:	Carbon Partnership Ltd attendance at Project Steering Committee Meetings.
Timing of Communication:	At least annually in person, and up to 4 times per year remotely (by teleconference and email documented decisions).
Documentation:	Project Steering Committee minutes
Actions:	Carbon Partnership instructs Project Steering Committee any required improvements in project management system.
Quality Assurance:	Carbon Partnership assesses the level of uptake of actions to improve project management system.
Communication Level 4:	
Communication Parties:	Project Steering Committee, Project Developer, and Programme Operator to third party verifier
Communication Content:	Summary of project management activities for the first Project Monitoring Period (1 January 2009 – 31 December 2011)
Mode of Communication:	Project Monitoring Report submitted to third party verifier
Timing of Communication:	After the first 3 years of the Project Period.
Documentation:	First Project Monitoring Report

Actions:	Where verification report infers that improvements need to be made to project management, Programme Operator instructs Project Steering Committee of required improvements
Quality Assurance:	Project Steering Committee reports the level of uptake of actions to improve project management system in the following (annual) Project Management Report.

SOP 1a(ii): Fire Response	
Communication Level 1:	
Communication Parties:	a. Farm Manager To Fire Service b. Farm Manager to Chair Project Steering Committee
Communication Content:	Emergency notification
Mode of Communication:	Telephone
Timing of Communication:	Immediately: first telephone call to Rural Fire Service, second telephone call to Chair Project Steering Committee.
Documentation:	• Fire Service reporting requirements • Project Steering Committee records details in Project Steering Committee Meeting Minutes
Actions:	• Farm Manager to cooperate with Rural Fire Service in controlling the fire as instructed by Rural Fire Service. • Chair of Project Steering Committee to determine cause of fire in consultation with the Rural Fire Service. • Project Manager to assess project management activity in terms of consistency with Project Management Plan, and any requirements or recommendations of the Rural Fire Service. • Chair of Project Steering Committee to instruct Farm Manager to undertake any remedial actions deemed necessary by the Project Manager, Project Developer, and the Rural Fire Service.
Quality Assurance:	Chair of Project Steering Committee reports the level of uptake of any fire risk management action instructions in the subsequent Project Steering Committee meeting. Chair of Project Steering Committee verifies level of uptake of any fire risk management action instructions in site visits.
Communication Level 2:	
Communication Parties:	a. Chair Project Steering Committee to Project Developer b. Chair Project Steering Committee to Project Steering Committee.
Communication Content:	a. Initial communication: Notification of fire event b. Follow-up communication: Summary of potential impacts on forest carbon project with particular reference to the risk of a reversal.
Mode of Communication:	Telephone and email
Timing of	a. Immediately following emergency notification for initial

Communication:	communication b. Follow-up communication within two months of the fire event
Documentation:	Minutes of Project Steering Committee Meetings
Actions:	a. Chair Project Steering Committee to visit site within two months of fire event to undertake damage assessment. b. Chair Project Steering Committee/Project Developer instructs Farm Manager to take certain actions to improve fire risk management where necessary.
Quality Assurance:	Chair Project Steering Committee reports the level of uptake of actions to improve fire risk management at the next Project Steering Committee meeting.
Communication Level 3:	
Communication Parties:	Project Steering Committee and Programme Operator to third party verifier
Communication Content:	Summary of fire activity for the Project Monitoring Period
Mode of Communication:	First Project Monitoring Report submitted to third party verifier
Timing of Communication:	After the first three years of the Project Period.
Documentation:	Project Monitoring Report
Actions:	Where verification report infers that improvements need to be made to project management, Project Developer instructs Project Steering Committee of required improvements
Quality Assurance:	Project Steering Committee reports the level of uptake of actions to improve project management system in the following (annual) Project Management Report.

SOP 1a(iii): Illegal Logging Response

The generalised SOP adopted by the project as described in SOP 1a(i) for Day-to-day project activities covered illegal logging response.

SOP 1a(iv): Natural Hazard Response

The generalised SOP adopted by the project as described in SOP 1a(i) for Day-to-day project activities covered natural hazard response.

1b. Project Implementation Activity

The generalised SOP adopted by the project as described in SOP 1a(i) for Day-to-day project activities covered project implementation activity.

2. PROJECT MONITORING

Project monitoring activity for the first verification was conducted by the Project Developer (Carbon Partnership Ltd) and followed the Rarakau Methodology and PDD.

3. PROJECT DATA STORAGE AND SECURITY

Project data storage and security for first verification was as follows:

SOP 3: Project Data Management				
Project Owner				
Data Content:	Data content for the Rarakau Forest Carbon Project as specified in Section 12 of the Rarakau Project PDD.			
Data Storage Summary:	All project data is stored in electronic and hard copy with electronic backup.			
Date Storage Detail:	Copy of each document or file stored in the Project Document Database comprising (*italics indicates optional for Inception Project first verification according to Rarakau Programme Methodology*):			
Requirement fulfilled?	#	Name	Data Storage Type	Location
Yes	1	Electronic Master Copy	Computer	Chair, Project Steering Committee
Yes	2	Electronic On-Site	Portable hard drive,	Chair, Project

		Backup A	or computer	Steering Committee
No	3	*Electronic On-Site Backup B*	*CD*	*Chair, Project Steering Committee*
Yes	4	Electronic Off Site Backup A (4 copies)	Portable hard drive, cloud, or computer	4 Steering Committee members other than chair
No	5	*Electronic Off Site Backup B*	*CD*	*Steering Committee member other than Chair*
Yes	6	Hard Copy Master	Printed Reports	Chair, Project Steering Committee
Yes	7	Hard Copy Backup	Printed Reports	Steering Committee member other than Chair

Project Developer				
Data Content:	Data content for the Rarakau Forest Carbon Project as specified in Section 12 of the Rarakau Project PDD.			
Data Storage Summary:	All project data is stored in electronic and hard copy with electronic backup.			
Date Storage Detail:	Copy of each document or file stored in the Project Document Database comprising (*italics indicates optional for Inception Project first verification according to Rarakau Programme Methodology*):			
Requirement fulfilled?	#	Name	Data Storage Type	Location
Yes	1	Electronic Master Copy	Computer	Project Developer
Yes	2	Electronic On-Site Backup A	Portable hard drive, or computer	Project Developer
No	3	*Electronic On-Site Backup B*	*CD*	*Project Developer*
Yes	4	Electronic Off Site Backup A	Portable hard drive, cloud, or computer	Other than Project Developer office
No	5	*Electronic Off Site Backup B*	*CD*	*Other than Project Developer office*

ROWALLAN ALTON INCORPORATION

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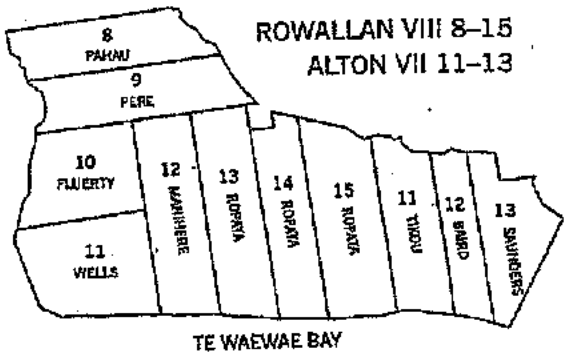

3 October 2015

Rarakau Rainforest Carbon Project Community Impact Monitoring 2012-2014

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in community impact monitoring consultations with Carbon Partnership Ltd for the period 2012-2014 inclusive.

The RAI Management Committee reports the following beneficial community impacts of the forest carbon project for this monitoring period:

Economic Benefits

Carbon credits issued to the project (7,425 tCO2e) have yet to be monetised and so there are no economic benefits to report. The RAI Management Committee have aspirations for tourism development at Rarakau as a way of leveraging off the protected status of our forest and the fact that it is located in an accessible site. We have not progressed this but will do so once we have sufficient capacity.

Social Benefits

The management requirements of the Rarakau Rainforest Carbon Project include the prohibition of the use of fire as a farm management tool for clearing bush or getting rid of stumps. This has led to an improvement in farming practices on the Rarakau farmland that lies adjacent to the forest carbon project. The key improvement is a reduction in the risk of fire spreading through peat.

The forest carbon project needs to be fully fenced from all of the farmland of the Rarakau farm and the RAI Management Committee have begun a fund-raising exercise with the Nature Heritage Fund in an attempt to gain funding for fencing off all of the protected forest areas.

Cultural Benefits

The protection of our forest has helped our Management Committee and beneficial landowners gain a stronger sense of our cultural connection to a landscape that we are now protecting for the benefit of future generations. The landowners meeting at our AGM meetings have shown a higher level of interest in this cultural connection. To support this we plan to develop educational opportunities in the future where Rarakau becomes an educational hub focusing on the interconnection between ecology, Maori culture, and modern economics.

Wider Community

Rarakau is situated at the road end for hikers accessing the famous Hump Ridge Track. As a gateway to this popular mountain trail Rarakau receives many visitors who are parking their vehicles on our land and walking through our protected forest area on route to the rest of the Hump Ridge Track. The protection of our forest has enhanced the value of our land to these recreational users of wilderness.

Rarakau is also a popular site for hunters - predominantly deer shooting and pig hunting. The protected status of the forest has enhanced the value of the are to hunters who also provide a valuable service in keeping browsing mammal numbers down.

We see Rarakau as an exemplar of best practice in sustainable farming and forest management with a positive interaction between these two domains. As a pioneer in forest carbon farming (we understand that we have the only carbon project in New Zealand that protects tall indigenous forest) we plan to use our experience to promote sustainable practices to other Maori and non-Maori landowners and managers.

Educational Benefits

When we started this project back in 2008 we had very little understanding of climate change and carbon markets. Working with Carbon Partnership and Ekos has dramatically increased our understanding and enabled us to make informed decisions on whether to undertake this project and the management considerations it has entailed.

Consultations with Carbon Partnership in association with project management, project monitoring and carbon credit issuances have enabled us to gain greater confidence in leadership in sustainable land management and to be advocates for such in the wider community.

Kind Regards,

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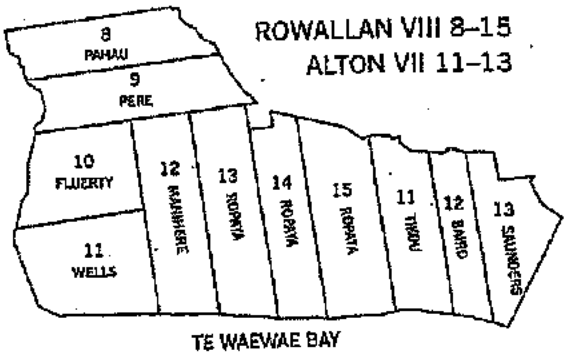


3 October 2018

Rarakau Rainforest Carbon Project Community Impact Monitoring 2015-2018

The Management Committee of the Rowallan Alton Incorporation (RAI) has participated in community impact monitoring consultations with Carbon Partnership Ltd for the period 2014-2018 inclusive.

The RAI Management Committee reports the following beneficial community impacts of the forest carbon project for this monitoring period:

Economic Benefits

Carbon credits issued to the project (7,425 tCO2e) have all been sold and we currently have no carbon credits available for sale. The RAI Management Committee has received the following disbursements from carbon credit sales:

2016 Disbursement:	$10,128.47
2017 Disbursement:	$27,240.70
2018 Disbursement:	$35,821.42
Total Disbursements to date:	$73,190.59

Revenue*	Landowner	Project Coordinator	Programme Operator
$121,984.99	$73,190.59	$45,541.06	$3,252.93
	60%	37%	3%

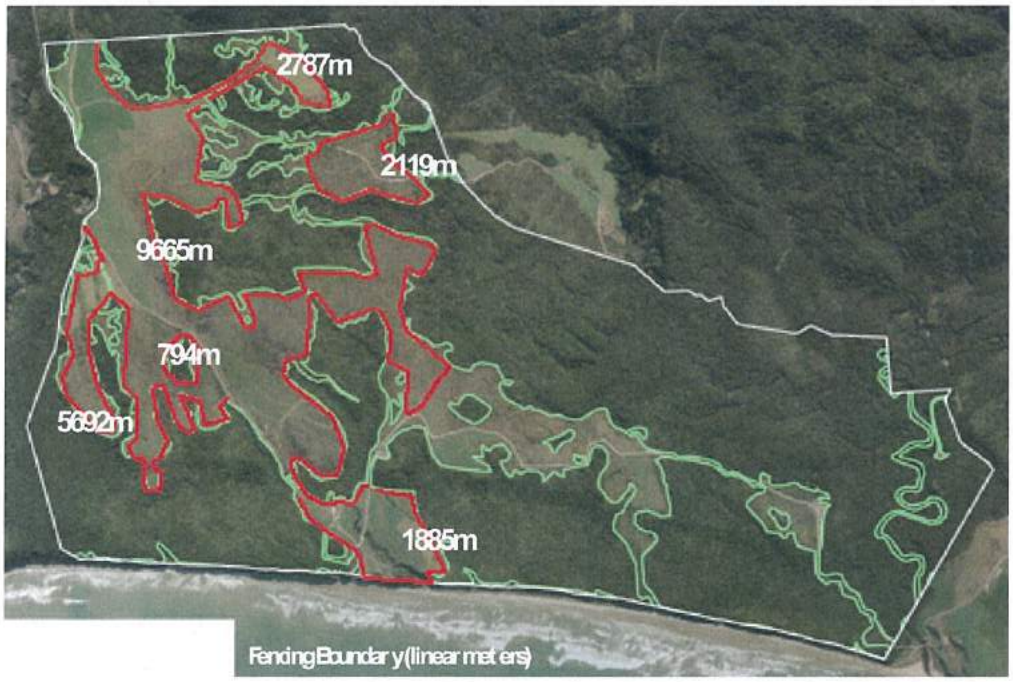
* Wholesale carbon revenue

We understand that this involves a revenue ratio of 60:40 between us as landowners and the combination of Ekos and Carbon Partnership as project coordinator and programme operator.

These funds have been used to improve our farming operation by helping fund improved pasture development and maintenance including weed and pest control. Carbon credit sales revenues will also be allocated to conservation management of the protected forest (principally pest control from 2019 calendar year.

With the help of Ekos and Carbon Partnership we were successful in winning a grant from the Nature Heritage Fund of $1.1m in 2016. The purpose of this grant is to support the forest conservation effort with a particular focus on fencing all of the farmland off from the forest to prevent stock from entering and damaging the protected forest area. We have since completed the construction of 19.6km of new fencing as depicted in Figure 1 below. This funding also contributed to 3.5km of fencing upgrade of existing fencing.

Figure 1. Rarakau Fencing Project Funded By Nature Heritage Fund



This grant was made possible because of the Rarakau Rainforest Carbon Project and comprises the most significant economic benefit to Rarakau as a result of this forest carbon project.

Social Benefits

Social benefits arising from this project remain limited to improvements in the economic situation for RAI due to the increased revenue derived from a combination of carbon credit sales and grant funding that has leveraged off the carbon project. This helps to resource management committee governance and management activities as well as our interactions with the beneficial owners through our annual AGM (typically around 35 representatives in attendance) and the forthcoming development of a website dedicated to Rarakau. This website is designed to provide a better link between the RAI Management Committee and our beneficial owner population of 1,357 people.

Cultural Benefits

The sense of cultural connection we have with our protected forest continues to grow. This is perhaps best illustrated by a recent promotional video of our forest carbon project that we undertook in partnership with Qantas:
https://vimeo.com/goodchattv/review/269774111/6dc6362f06

Wider Community

The recreational use of Rarakau by the wider public continues, although this also comes with its management challenges. This is mainly because many who visit Rarakau and enjoy its forest areas for hunting and other recreation often do not realise that they are actually on private land and that its management is privately funded (not funded by the government). We plan to erect better signage and interpretation to further enable the public education necessary to build strong connections with local community users of our forest area.

Educational Benefits

Our own understanding of carbon markets and climate change have grown steadily over the years as a result of our interactions, consultations and workshops with Carbon Partnership and Ekos. This enables us to better advocate for what we are doing here at Rarakau and create stronger community connections, particularly among potential partners in future projects including tourism development at Rarakau.

Kind Regards,

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RARAKAU BIODIVERSITY MONITORING ACTIVITY 2012-2018

Date: 1 October 2018

Biodiversity monitoring at the Rarakau Rainforest Carbon Project is undertaken in conjunction with annual site inspections as part of the project monitoring plan. Biodiversity surveys have involved:

- Larger wildlife survey (birds and mammals) and have not included reptiles, invertebrates, or stream fauna.
- Vascular plant species.

Bird surveys have involved walking through the forest and forest margins and spotting and listening to birds. Vegetation surveys have involved walking through the forest and forest margins and noting plant species present. The vegetation survey is at this stage only introductory and is by no means comprehensive.

Summary of native biodiversity recorded at the Rarakau site in annual surveys between 2012 and 2018 inclusive are as follows:

Common Name	Biological Name	2012	2013	2014	2015	2016	2017	2018
Birds								
Kereru	*Hemiphaga novaeseelandiae*	Y	Y		Y		Y	Y
Bellbird	*Anthornis melanura*	Y	Y	Y	Y			Y
Rifleman	*Acanthisitta chloris*	Y	Y	Y	Y	Y	Y	Y
Tui	*Prosthemadera novaeseelandiae*			Y		Y?		Y
Fantail	*Rhipidura fuliginosa*	Y	Y	Y	Y	Y	Y	Y
Robin	*Petroica australis*	Y	Y	Y	Y	Y	Y	Y
Tomtit	*Petroica macrocephala*		Y	Y	Y	Y	Y	Y
Morepork	*Ninox novaeseelandiae*			Y			Y	
Grey warbler	*Gerygone igata*	Y	Y	Y	Y	Y	Y	Y
Swamp harrier	*Circus approximans*	Y	Y		Y		Y	
Silvereye	*Zosterops lateralis*	Y	Y	Y	Y	Y		
SI Pied Oystercatcher	*Haematopus finschi*		Y		Y		Y	
Red billed gull	*Larus novaehollandiae*	Y	Y	Y	Y	Y	Y	Y
Black backed gull	*Larus dominicanus*	Y		Y		Y	Y	Y
Plants								
Trees								
Mountain beech	*Nothofagus solandri var. cliffortioides*	Y	Y	Y	Y	Y	Y	Y
Silver beech	*Nothofagus menziseii*	Y	Y	Y	Y	Y	Y	Y
Rimu	*Dacrydium cupressinum*	Y	Y	Y	Y	Y	Y	Y
Miro	*Primopitys ferruginea*	Y	Y	Y	Y	Y	Y	Y
Totara	*Podocarpus cunninghamii*	Y	Y	Y	Y	Y	Y	Y
Matai	*Prumnopitys taxifolia*	Y	Y	Y	Y	Y	Y	Y

Kamahi	*Weinmannia racemosa*	Y	Y	Y	Y	Y	Y	Y
Southern rata	*Metrosideros umbellata*	Y	Y	Y	Y	Y	Y	Y
Lemonwood	*Pittosporum eugenioides*	Y	Y	Y	Y	Y	Y	Y
Lancewood	*Pseudopanax crassifolius*	Y	Y	Y	Y	Y	Y	Y
Fuchsia	*Fuchsia excorticata*	Y	Y	Y	Y	Y	Y	Y
Broadleaf	*Griselinia littoralis*	Y	Y	Y	Y	Y	Y	Y
Kohuhu	*Pittosporum tenuifolium*	Y	Y	Y	Y	Y	Y	Y
Putaputaweta	*Carpodetus serratus*	Y	Y	Y	Y	Y	Y	Y
Mahoe	*Melicytus ramiflorus*	Y	Y	Y	Y	Y	Y	Y
Wineberry	*Aristotelia serrata*	Y	Y	Y	Y	Y	Y	Y
Cabbage tree	*Cordiline australis*	Y	Y	Y	Y	Y	Y	Y
Shrubs								
Mingimingi	*Coprosma propinqua*	Y	Y	Y	Y	Y	Y	Y
Mingimingi	*Leucopogon fasciculatus*	Y	Y	Y	Y	Y	Y	Y
Manuka	*Leptospermum scoparium*	Y	Y	Y	Y	Y	Y	Y
Horopito	*Pseudowintera colorata*	Y	Y	Y	Y	Y	Y	Y
Coprosma	*Several coprosma species*	Y	Y	Y	Y	Y	Y	Y
Hebe	*Several hebe species*	Y	Y	Y	Y	Y	Y	Y
Pate	*Schefflera digitata*	Y	Y	Y	Y	Y	Y	Y
Muttonbird scrub	*Brachyglottis rotundifolia*	Y	Y	Y	Y	Y	Y	Y
Karamu	Coprosma robusta	Y	Y	Y	Y	Y	Y	Y
Coprosma	Coprosma grandifolia	Y	Y	Y	Y	Y	Y	Y
Coprosma	Coprosma foetidissima	Y	Y	Y	Y	Y	Y	Y
Tutu	*Coriaria arborea*	Y	Y	Y	Y	Y	Y	Y
Ferns & mosses								
Crown fern	*Blechnum discolor*	Y	Y	Y	Y	Y	Y	Y
Ponga (silver fern)	*Cyathea dealbata*	Y	Y	Y	Y	Y	Y	Y
Mamaku	*Cyathea medullaris*	Y	Y	Y	Y	Y	Y	Y
NZ tree fern	*Dicksonia squarrosa*	Y	Y	Y	Y	Y	Y	Y
Hen & chicken fern	*Asplenium bulbiferum*	Y	Y	Y	Y	Y	Y	Y
Kidney fern	*Trichomanes reniforme*	Y	Y	Y	Y	Y	Y	Y
Prickly shield fern	*Polystichum vestitum*	Y	Y	Y	Y	Y	Y	Y
Waterfall fern	*Blechnum novae-zelandiae*	Y	Y	Y	Y	Y	Y	Y
Creek fern	*Blechnum fluviatile*	Y	Y	Y	Y	Y	Y	Y
Hounds tongue fern	*Microsorum pustulatum*	Y	Y	Y	Y	Y	Y	Y
Prince of Wales Fern	*Leptopteris superba*	Y	Y	Y	Y	Y	Y	Y
	Ptychomnion aciculare	Y	Y	Y	Y	Y	Y	Y
Sphagnum	*Sphagnum sp.*	Y	Y	Y	Y	Y	Y	Y
Umbrella moss	*Hupopterygium rotulatum*	Y	Y	Y	Y	Y	Y	Y
Wooly moss	*Racomitrium lanuginosum*	Y	Y	Y	Y	Y	Y	Y
Cushion moss	*Lesptostomum macrocarbon*	Y	Y	Y	Y	Y	Y	Y
Filmy fern	*Hymenophyllum sp.*	Y	Y	Y	Y	Y	Y	Y
Beard lichen	*Usnea florida*	Y	Y	Y	Y	Y	Y	Y
Climbers								
Climbing rata	*Metrosideros diffusa*	Y	Y	Y	Y	Y	Y	Y
Climbing rata	*Metrosideros perforata*	Y	Y	Y	Y	Y	Y	Y
Clematis	*Clematis paniculata*	Y	Y	Y	Y	Y	Y	Y
Puka	*Griselinia lucida*	Y	Y	Y	Y	Y	Y	Y

Hanging speenwart	*Asplenium flaccidum*	Y	Y	Y	Y	Y	Y	Y
Bush lawyer	*Rubis cissoides*	Y	Y	Y	Y	Y	Y	Y
Ground cover								
Astelia	*Astelia fragrens*	Y	Y	Y	Y	Y	Y	Y
Flax	*Phormium tenax*	Y	Y	Y	Y	Y	Y	Y

Introduced Mammalian Wildlife

The forests at Rarakau are quite heavily browsed by possums (*Trichosurus vulpecula*), red deer (*Cervus elaphus*) and wild pigs (*Sus scrofa*). Some pest control efforts are underway to reduce these numbers but they are predominantly undertaken by recreational hunters rather than any deliberate pest control operations.