

AVOIDING PLANNED DEFORESTATION AND DEGRADATION IN THE VALDIVIAN COASTAL RESERVE, CHILE-VALIDATION REPORT



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Summary:

Environmental Services, Inc., (ESI) was contracted by The Nature Conservancy (TNC) on 10 September 2012 to conduct the project validation of the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project.

According to the Project Description (PD), the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project aims to establish a protected status for 1,273 hectares (ha) of the Valdivian Coastal Reserve (VCR), and to continually protect and soundly manage the property. The VCR is an ecologically significant property that was previously owned and managed by an industrial timber company. Under past management, conversion of native forests to *Eucalyptus* plantations was ongoing in the VCR and plans for the construction of a coastal highway (Carretera Costera) dissecting the property were in place.

The project start date is 04 November 2003 and the project crediting period will be 20 years (through 03 November 2023). The *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project will achieve Greenhouse Gas (GHG) removals through:

1. "Avoiding Planned Deforestation by stopping construction of the coastal highway (Carretera Costera)
2. Avoiding Planned Degradation by stopping conversion of native forest to *Eucalyptus* plantations"¹

The validation objective for this project included an assessment of compliance with the Verified Carbon Standard (VCS) Version 3 (and associated updated), and the likelihood that implementation of the planned Greenhouse Gas (GHG) project will result in the GHG emission removal enhancements as stated by the project developer (ISO 14064-3:2006). This validation assessed the GHG emission removals through Agriculture, Forestry and Other Land Use (AFOLU) criteria, specifically, a Reduced Emissions from Deforestation and Degradation (REDD) project with Avoided Planned Deforestation and Degradation activities.

The scope of the validation included: the GHG project and baseline scenarios; physical infrastructure, activities, technologies and processes of the GHG project; GHG sources, sinks, and/or reservoirs; types of GHGs; and time periods covered.

The geographic validation scope was defined by the project boundary (which will include a single project area), the carbon reservoir types, management activities, growth and yield models, inventory program, and contract periods.

The validation criteria followed the guidance documents provided by VCS and included the following: VCS Program Guide (04 Oct 2012, v3.4), Program Definitions (04 Oct 2012, v3.4), AFOLU Requirements (04 Oct 2012, v3.3), AFOLU Non-Permanence Risk Tool (4 October 2012), and the VCS Methodology VM0007: "REDD Methodology Modules (REDD-MF)" v1.3 (20 November 2012) and its associated modules and tools.

A summary of all findings is included in Appendix A. There are no restrictions of uncertainty.

ESI confirms all validation activities including objectives, scope and criteria, level of assurance and the PD are complete and in adherence to the VCS Version 3 and all associated updates as documented in this report. ESI concludes without any qualifications or limiting conditions that the PD "Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile" (v02 05 April 2014) meets the requirements of VCS Version 3 and all associated updates.

¹TerraCarbon and The Nature Conservancy, *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile*, Version 02, 5 April 2014.

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1 INTRODUCTION

1.1 Objective

The validation objective for this project included an assessment of compliance with the Verified Carbon Standard (VCS) Requirement Documents (VCS Standard v3.3, 04 October 2012 and all subdocuments) and the likelihood that implementation of the planned Greenhouse Gas (GHG) project would result in the GHG emission removal enhancements as stated by the project developer (ISO 14064-3:2006). This validation assessed the GHG emission removals through Agriculture, Forestry, and Other Land Use (AFOLU) criteria, specifically, a Reduced Emissions from Deforestation and Degradation (REDD) project with Avoided Planned Deforestation and Degradation.

1.2 Scope and Criteria

The scope of the validation included:

- the GHG project and baseline scenarios
- physical infrastructure, activities, technologies and processes of the GHG project
- GHG sources, sinks, and/or reservoirs
- types of GHG's
- time periods covered

The geographic validation scope was defined by the project boundary (which will include a single project area), the carbon reservoir types, management activities, growth and yield models, inventory program, and contract periods. The scope of the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project was outlined by the project developer prior to the validation initiation and is re-defined as follows:

Baseline Scenario	Construction of the coastal highway and conversion of native forest to Eucalyptus plantations
Activities/Technologies/Processes	REDD: The project consists of the following main activities: 1. Acquisition of the Valdivian Coastal Reserve (VCR) and establishment of protected status 2. Advocacy to stop construction of the Carretera Costera 3. Stopping conversion of native forest to Eucalyptus plantations 4. Ongoing protection and management activities
Sources/Sinks/Reservoirs	Carbon Pools: Above- and below-ground living tree biomass, dead wood, and Harvested Wood Products (HWP) GHG Emission Sources: Biomass burning (excluded in baseline, monitored ex post)
GHG Type	Carbon Pools: CO ₂ GHG Emission Sources: CH ₄ , N ₂ O
Time Period	Start Date: 4 November 2003 Crediting Period: 20 years (4 November 2003 to 3 November 2023)
Project Boundary	Portion of the VCR property– total eligible project area is 1,273 ha VCR Location: Coastal range of south-central Chile – Cordillera Pelada

1.3 Level of assurance

The level of assurance was used to determine the depth of detail that the validator placed in the Validation Sampling Plan to determine if there are any errors, omissions, or misrepresentations (ISO 14064-3:2006). Environmental Services, Inc., (ESI) assessed the project (general principles, data, sampling descriptions, documentation, calculations, etc.) to provide *reasonable assurance* to meet the project level requirements of the VCS Program. The evidence used to achieve a *reasonable* level of assurance is specified in the following sections.

1.4 Summary Description of the Project

As stated in the Project Description (PD), “the VCR is located approximately 40 km southwest of Valdivia in Region XIV (formerly Region X), Chile (see PD Figure 1.1). The VCR is situated in the Coastal Range of south-central Chile, in a section known as the Cordillera Pelada. It is located at the northern extension of the temperate rainforest ecoregion, and represents one of the last large fragments of Valdivian Temperate Forest. The area is of significant ecological value, home to numerous endemic species and globally-significant ecosystems and vegetation, such as Olivillo coastal forest (*Aextoxicon punctatum*) and Alerce (*Fitzroya cupressoides*); the latter is one of the world’s largest and longest-lived tree species. Significant stores of carbon are sequestered in the VCR’s native forests, with stocking levels estimated at over 800 metric tons of CO₂ equivalent per ha.

Prior to 2003, the property was owned and managed by an industrial timber company, Bosques S.A., that had been steadily converting native forest on the property to Eucalyptus plantations and coordinating with the Ministry of Public Works (MOP) and its agent the Chilean Army Corps of Engineers (CMT) on the construction of a coastal highway (Carretera Costera) traversing the property. When Bosques S.A. went bankrupt in 2003 due to financial mismanagement, the property became available for purchase, and in November 2003, The Nature Conservancy (TNC), recognizing its significant conservation value and imminent threats, acquired the property. In February 2012, TNC donated a portion of the property, consisting of approximately 9,453 ha, to the Government of Chile, to form part of Chile’s new Alerce Costera National Park; as a result, the VCR is currently approximately 50,251 ha in size.

TNC’s decision to purchase the property was made after extensive analysis of conservation threats and priorities in the region and also after identification of the potential of carbon credits generated through forest conservation activities in the region that could be explored as a revenue source to finance the acquisition and management of the property. Even after purchase of the VCR, carbon revenue remains critical to help finance the establishment of an endowment for long-term operations, and to help pay off the original acquisition costs, which were paid for through a loan from TNC’s internal Land Purchase Fund, with no other immediate sources of finance to repay the entirety of the loan identified as of the project start date. Generous philanthropic donations from TNC donors, the World Wildlife Fund (WWF), and Conservation International helped to partially offset but did not fully fund the original acquisition costs.

The acquisition of the property by TNC effectively stopped the ongoing conversion of native forest to Eucalyptus plantations, activities authorized through permits that were conveyed to the new owner, and that were expected to be exercised by the most likely alternate buyer (i.e. another industrial timber company with management objectives similar to Bosques S.A.). The acquisition further leveraged the position of TNC to advocate against and, ultimately, contributes to stopping the construction of the coastal highway.

The acquisition of the VCR and subsequent conservation actions by TNC, including ongoing protection and management activities, constitute two VCS-eligible REDD activities:

1. Avoiding Planned Deforestation by stopping construction of the coastal highway

2. Avoiding Planned Degradation by stopping conversion of native forest to Eucalyptus plantations”²

The two activities are combined as one project in the PD and the total eligible project area is represented by 1,273 ha of the VCR (86 ha of Avoiding Planned Deforestation and 1,187 ha of Avoiding Planned Degradation). The fundamental objectives of the project include: protecting biodiversity, improving the well-being and sustainability of rural and indigenous human communities surrounding the VCR, protecting long term forest carbon stocking, achieving sustainable long-term financing for the VCR, demonstration of a successful private sector funding strategy for climate change mitigation, building climate change mitigation capacity within the Chilean government and other institutions, testing scientific methodologies for quantifying avoided emissions and other impacts, improving voluntary carbon market accounting standards, helping to influence future climate change mitigation policies and laws, and creation of a reference center at Universidad Austral as part of a global REDD network.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation process closely followed ESI’s procedures for VCS validations outlined within our Management System Manual. In addition, the validation process was detailed in a separate Validation and Sampling Plan, which was approved by the Project Proponent on 28 September 2012.

For this validation, the sample size for the desktop portion of the validation included a complete review of the PD and supporting documents.

The field validation included an onsite review of a subsample of the project area. A risk based approach was used to select the validation areas in order to allow a review of a broad range of site characteristics (i.e. topography, proposed impact type, and access³), sufficient to provide the necessary sample size to meet a reasonable level of assurance, as directed by the professional judgment of the Lead Validator.

Within the selected sampling area, cluster plots (installed by the project developer) were randomly selected for validation sampling using ArcMap[®] software. Ten (10) cluster plots (approximately a 15% sample) were selected and proposed to be re-measured during the site visit⁴. During the site visit, conditions on-site only permitted access to 4 cluster plots (3 complete clusters and 1 partial cluster). It is not uncommon in validations/verifications that slight deviations to the sampling plan will occur due to actual logistical conditions encountered on site. Although conditions on-site did not allow all targeted plots to be sampled, sufficiently large portions of the project and surrounding areas were able to be accessed. Of the total 325 points installed by the project proponent the verifier inventoried 37 points, approximately 11% of the total. This provided a reasonable level of assurance regarding the assertions of the PD.

Cluster plots were sampled in the field using the same inventory methods described by the project developer (see Annex 15: “PROTOCOLOS DE CAMPO PARA LA MEDICIÓN Y MONITOREO DE LA BIOMASA FORESTAL EN LA RESERVA COSTERA VALDIVIANA”) with minor adjustments to the configuration of the cluster plots installed in portions of the proposed

²TerraCarbon and The Nature Conservancy, *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile*, Version 02, 5 April 2014.

³Volume was not a major consideration in the risk based approach as there is only one stratum.

⁴See Appendix B for a map of the cluster plots sampled during the field validation.

coastal highway to ensure only eligible project areas were sampled. Specifically, cluster plots located in the proposed coastal highway were sampled in a linear fashion along the long axis of the roadway, starting with the randomly selected plot center and moving generally north to south or east to west depending on the lay of the road, installing plots at fifty meter intervals until all 5 plots (a single cluster total) were completed.

The inventory was deemed to be sound by analysing both basal area per hectare estimates and biomass basal area ratios. Individual points were utilized in the analysis of both parameters. Both tests were analysed using unpaired tests as the sub points within clusters were not monumented for future inventories. Basal area per hectare was evaluated and confirmed using an unpaired T-test at the 90% confidence level. Biomass basal area ratios were evaluated and confirmed with an unpaired Mann-Whitney analysis at the 90% confidence level.

The validation criteria followed ISO 14064-3 and the guidance documents provided by VCS and included the following:

- VCS Program Guide (04 Oct 2012, v3.4)
- VCS Standard (04 October 2012, v3.3)
- Program Definitions (04 Oct 2012, v3.4) AFOLU Requirements (04 Oct 2012, v3.3) AFOLU Non-Permanence Risk Tool (4 October 2012, v3.2) PD entitled "Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile" (dated 06 February 2013)
- VCS Methodology VM0007: "REDD Methodology Modules (REDD-MF)" v1.3 (20 November 2012) and its associated modules and tools:
 - o VMD0001: "Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB)" v1.0 (03 December 2010)
 - o VMD0002: "Estimation of carbon stocks in the dead-wood pool (CP-D)" v1.0 (03 December 2010)
 - o VMD0005: "Estimation of carbon stocks in the long-term wood products pool (CP-W)" v1.1 (20 November 2012)
 - o VMD0006: "Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation and planned degradation (BL-PL)" v1.1 (20 November 2012)
 - o VMD0009: "Estimation of emissions from activity shifting for avoided planned deforestation (LK-ASP)" v1.0 (03 December 2010)
 - o VMD0011: "Estimation of emissions from market-effects (LK-ME)" v1.0 (03 December 2010)
 - o VMD0013: "Estimation of greenhouse gas emissions from biomass burning (E-BB)" v1.0 (03 December 2010)
 - o VMD0015: "Methods for monitoring of greenhouse gas emissions and removals (M-MON)" v2.1 (20 November 2012)
 - o VMD0016: "Methods for stratification of the project area (X –STR)" v1.0 (13 December 2010)
 - o VMD0017: "Estimation of uncertainty for REDD project activities (X-UNC)" v2.0 (31 July 2012)
 - o VT0001: "Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities (T-ADD)" v3.0 (01 February 2012)
 - o Clean Development Mechanism (CDM) Tool: "Tool for testing significance of GHG emissions in Afforestation/Reforestation CDM project activities (T-SIG)" v01

2.2 Document Review

A detailed review of all project documentation was conducted to ensure consistency with, and identify any deviation from, VCS program requirements (Version 3 and associated updates) and the VCS Methodology (VM0007 v1.3 and associated modules and tools). Initial review focused

on the PD and included an examination of the project details, data and parameters, quantification of GHG emission reductions and removals, and supporting documents.

Please see Appendix C for a complete list of documents and files provided by the client during validation, including any items associated with the risk analysis.

2.3 Interviews

Interviews were conducted with TNC representatives, the Valdivia onsite manager and Valdivia field crews.

2.4 Site Inspections

Site inspections occurred on 10-13 October 2012. Ten (10) cluster plots (approximately a 15% sample) were selected and proposed to be re-measured during the site visit. During the site visit, conditions on-site only permitted access to 4 cluster plots (3 complete clusters and 1 partial cluster). Though not all plots targeted were sampled, sufficiently large portions of the project and surrounding area were able to be accessed to gain sufficient confidence in the assertions in the PD. For verification, a second site visit is being conducted to obtain more plots.

During the field review, the following aspects of the project were assessed:

- pre-project conditions, as evidenced by condition of adjacent or nearby non-project areas and related
- current project conditions, including: reported tree species, reported standing density, and related

Direct field observations were performed as described in Section 2.1 above, sufficient to satisfy the professional discretion of the Lead Validator.

2.5 Resolution of Any Material Discrepancy

During the validation process, there was a risk that potential errors, omissions, and misrepresentations would be found. The actions taken when errors, omissions, and misrepresentations were found included: notifying the client of the issue(s) identified, and expanding our review to the extent that satisfied the Lead Validator's professional judgment.

During the course of the validation, fifty-three (53) validation specific Non-Conformity Reports (NCRs) and Clarifications (CLs) were identified. All NCRs/CLs were satisfactorily addressed. The NCRs/CLs provided necessary clarity to ensure the project was in compliance with the requirements of the VCS for GHG projects. For a complete list of all NCRs/CLs and their resolutions, please refer to Appendix A.

3 VALIDATION FINDINGS

3.1 Project Design

The scope of the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project was outlined in Section 1.2 of this report. This project is seeking registration under the VCS 3 as a REDD project and has been developed in compliance with the VCS Standard (4 October 2012, v3.3). Additionally, the project is in compliance with the VCS Methodology VM0007 v1.3 and associated modules and tools.

3.1.1 Project Proponent and Other Entities

As stated in the PD and confirmed during validation, “The project will be financed and implemented by TNC.” TNC is a District of Columbia non-profit 501(c) corporation. All project proponents affiliated with TNC are listed below:

Position/Personnel	Roles/ Responsibility	Contact Details
Sr. Business Advisor	Manage project validation, verification and registration, including hiring of contractors to assist in PD development, validation and verification; offset sales support and investor relations.	The Nature Conservancy Forest Carbon Team 4245 North Fairfax Drive, Suite 100 Arlington, VA 22203-1606 (703) 841-4533
1) South Andes Director 2) Science Coordinator 3) GIS/Data Specialist 4) Country Representative 5) Associate Director of Development 6) Finance & Operations Manager	General management and oversight for the TNC program in Chile is based in Santiago. Core staff providing GIS, Science, Financial, Marketing, and Government Affairs support for the VCR are also based in Santiago.	The Nature Conservancy Marchant Pereira 367, Of 801 Providencia, Santiago, Chile
1) Chile Conservation Manager (based in Santiago) 2) VCR Coordinator 3) Conservation Project Assistant 4) 9 additional staff reporting to the Coordinator	Day to day management of the VCR, including hiring of all staff, implementation of strategic plan, outreach to surrounding communities, tourism/education programs, park security and biological and carbon stock monitoring.	The Nature Conservancy Reserva Costera Valdiviana Chaihuin, Chile
Senior Attorney	Internal legal oversight and support; management of outside counsel.	The Nature Conservancy Rio de Janeiro, Brazil Tel via USA: (703) 841-5375

In addition to the project proponents, there are other individuals and organizations that will play an operative role in the project. These parties are presented below:

Other Entities	Point of contact	Roles/ Responsibility	Contact Details
Universidad de Austral, Valdivia, Chile	1) Trevor Walter 2) Miguel Carcamo 3) Aldo Farias	1) Primary research and author of sections relating to biological and stakeholder impacts of the project. 2) Technical advisor and economic research. 3) Technical advisor and GIS/mapping.	Valdivia, Chile 1) ecologue@gmail.com 2) miguelcarcamo@uach.cl 3) Aldo.farias@gmail.com
TerraCarbon LLC	David Shoch	Technical lead on development of VCS PD	5901 N. Sheridan Road, Peoria, Illinois 61614 USA David.shoch@terracarbon.com
SERVAL, Ltda. (Raul Troncozo)	Nestor Juarez and Marcos Contreras	Implementation of 2011 biomass inventory, including management of field crews	Chile nestorjuarez_60@yahoo.es mcontrerast@gmail.com
Environmental Services, Inc. (ESI)	Shawn McMahon	Validator/Verifier	Environmental Services, Inc. 3800 Clermont St., NW North Lawrence, OH 44666 United States of America Phone: +1-330-833-9941 smcmahon@esinc.cc

3.1.2 Project Start Date

The project start date is 04 November 2003 – the date of acquisition of the VCR by TNC. TNC's acquisition allowed it to cancel the legal permits that had allowed on-going conversion of native forest to Eucalyptus plantations. The project start date is also the date upon which TNC was able to begin advocating for the cessation of the planned coastal highway from the stance of an engaged property owner and significant stakeholder in the region, ultimately leading to the abandonment of the highway project by the MOP. This date was when TNC prevailed at the public bankruptcy auction in Santiago, Chile and took full fee title to the VCR (formerly Bosques properties).

3.1.3 Project Crediting Period

The project crediting period for this project is 20 years, beginning on 04 November 2003 and ending on 03 November 2023

3.1.4 Project Scale and Estimated GHG Emission Reductions or Removals

Project	Yes
Large Project	No

Estimated GHG emission reductions for the the first 10-year baseline period (through November 2013) of the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project (1,273 eligible ha) are listed below:

Years	Estimated GHG Emission Reductions or Removals (tCO ₂ e)
4 November 2003 – 3 November 2004	121,960
4 November 2004 – 3 November 2005	136,423
4 November 2005 – 3 November 2006	54,548
4 November 2006 – 3 November 2007	51,902
4 November 2007 – 3 November 2008	42,999
4 November 2008 – 3 November 2009	30,863
4 November 2009 – 3 November 2010	39,512
4 November 2010 – 3 November 2011	41,627
4 November 2011 – 3 November 2012	30,242
4 November 2012 – 3 November 2013	31,463
Total Estimated ERs	581,540
Total Number of Crediting Years in First 10-year Baseline Period	10
Average Annual Emissions Reductions	58,154

3.1.5 Project Activities

The validation affirmed that the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project establishes a protected status for 1,273 ha of the VCR and that TNC continues to both protect the project area from, and advocate against, Planned Deforestation (construction of the coastal highway) and Degradation (conversion from native forest to Eucalyptus plantations) and provide sound management for the property as a whole. Individual project activities are specified below:

Acquisition of the VCR and Establishment of Protected Status: As indicated in Section 3.1.2 above, the first project activity began when TNC prevailed at a public bankruptcy auction in Santiago, Chile and took full fee title to the VCR (formerly Bosques properties) on 04 November 2003. As part of the project activities for establishing protected status, a portion of the project lands will be designated as a Chile National Sanctuary and all project lands (1,273 ha) will have an Adapted Version of the Encumbrance of a Civil Code Easement-Type Restriction (*servidumbre*) established. Further, TNC's Management Plan and Environmental Impact Study for the VCR is being submitted to the Chilean environmental authority (Ministerio de Medio

Ambiente) for formal approval and enforcement of conservation purposes upon any future owner(s) of the VCR. These protection mechanisms are detailed in the PD (see Section 1.8, Table 1.5) and will ensure the permanence of the carbon stocks on the VCR well beyond the 20 year life of the project.

Advocacy to Stop Planned Deforestation (construction of the coastal highway): In addition to establishing a protected status for the project area, TNC has advocated relentlessly to stop the construction of the coastal highway. A background on construction of the coastal highway and TNCs efforts against it, as presented in the PD, is included below:

“During the military dictatorship of Augusto Pinochet (1973-1990) strategic planning of transportation infrastructure resulted in the development of several major highway projects, the most emblematic of which resulted in the construction of the 1,240 km Carretera Austral, linking Puerto Montt with Villa O’Higgins in Patagonia. While this route was developed due to the lack of a terrestrial connection to southern Chile, the Carretera Costera or Coastal Highway was projected to follow the entire coastline of Chile and provide an alternative to the main north-south national arterial (Ruta 5), eventually spanning 3,346 km of the country. The section proposed to run between Corral and Bahía Mansa, through the project area, was ordered built by decree of President Eduardo Frei Ruiz-Tagle to then Minister of Public Works (MOP) Ricardo Lagos in 1994.

Following the Presidential Mandate, the MOP approved technical specifications for the road project and formed an agreement with the Chilean Army Corp of Engineers (Cuerpo Militar de Trabajo, CMT) to construct it as specified, starting in Corral. Construction began in 1995 and by 2000 the highway had arrived in Chaihuín from Corral. In November of 2002 via a government resolution (D.F.L. MOP N°1857), 105.8 ha were expropriated from the VCR’s former owner, Bosques S.A., for the extension of the coastal highway south of Chaihuín. However, by then there was already strong opposition to the road project led by the Coalition for Conservation in the Coast Range (CCCC). The CCCC was formed by a variety of organizations from civil society including conservationists, scientists, professional organizations and indigenous groups, to increase the conservation value placed on the Coast Range, to develop new protected areas and to oppose threats to the landscape, the greatest of which was the construction of the Coastal Highway. Through the CCCC’s negotiations with the government an agreement arose in January of 2003 with the MOP (in participation with CONAF, CONAMA and the Regional Government), which resulted in a temporary suspension of construction activities pending revision of some design features aimed to reduce the footprint of the road, short of stopping construction outright.

In 2002, TNC and WWF completed a land tenure study of the project region (then Region X) to identify priority areas for private sector conservation. In conjunction with the land tenure study, TNC had held a workshop for the CCCC in order to elucidate private conservation possibilities and to relate their experience with private sector models applied in the US, to options available in Chile.

Though TNC never became a member of the CCCC, it took on a different and legally stronger role in the negotiations with the purchase of the VCR property in November 2003. As explained above under Project Start Date, the vested interest represented by the ownership of such a large area and clearly defined conservation objectives posed an important force in swaying the decision-making process of the MOP and the regional government. In this capacity, as an important land owner, TNC was invited to participate in the Technical and Legal Coordination Committee (CCTL), established by the January 2003 agreement as a collaborative multilateral body to advise on the Coastal Highway, and its participation on the CCTL is an important part of the project activity. Intervention through this forum, and through periodic meetings with the MOP and regional authorities, will continue through project implementation.”

Stopping Planned Degradation (conversion of native forest to Eucalyptus plantations): “On acquisition of the VCR, TNC became the holder of a series of forest “substitution” permits approved by CONAF, allowing for conversion of native forest to Eucalyptus plantations in the project area. As part of the project activity and its larger conservation vision, TNC has elected to not exercise the permits and conserve the native forest.

The Nature Conservancy officially cancelled the legal permits to convert native forest to eucalyptus plantations by sending notice to CONAF at the end of 2004. Furthermore, the permits only permitted conversion from 2003 – 2007 (as projected in the baseline, PD Section 3), and the permits were not renewed; therefore they are no longer usable, even had they not been cancelled.”⁵

Ongoing Protection and Management Activities: TNC provides continual protection and sound management activities on the VCR by following the established Conservation and Management Plans developed for the property. The Conservation Plan (see Annex 3: “PLAN DE CONSERVACIÓN RESERVA COSTERA VALDIVIANA”) was developed in 2005, and has been added to the public domain, and its approval under the Chilean Native Forest Law and its bylaw will be sought. The Management Plan (See Annex 7: “PLAN DE MANEJO RESERVA COSTERA VALDIVIANA”) was developed in 2010 and has also been added to the public domain. These plans include ecological conservation and biodiversity minded objectives/goals for the VCR and effective stewardship actions to meet the defined goals. The vision for the VCR, the Conservation and Management Plan objectives and conservation targets, as well as the management programs that have been developed to meet the objectives and conservation targets are summarized in the PD (see Section 1.8).

In addition to the management activities summarized in the PD and detailed in the Conservation and Management Plans, “TNC conducts: supervisory staff visits to the VCR at least two times a year, project activity reporting as part of quarterly operating unit progress reports, annual performance reviews for staff, and annual compliance training in Spanish.”⁶

3.1.6 Project Location

“The project area of 1,273 ha is located within the larger VCR property, in Region XIV, Chile, south of the city of Valdivia. At the time of TNC’s acquisition of the property in 2003, the property was part of Region X, which was subsequently subdivided by the Chilean government forming a new administrative Region XIV, which now contains the VCR. The project area was delineated, consulting engineering plans and permits, to align with areas designated for construction of the coastal highway and for “substitution” of native forest with plantations (see PD Figure 1.2).”⁷

Details of the project area’s land title were reviewed and are discussed in Section 3.1.8.1 below. Additionally, the supporting ArcView® shapefiles and kmz files titled “PlannedRoad_ProjectArea_FINAL” and “ForestConversion_ProjectArea_FINAL” were provided to the validator. A map and kmz file were also provided for the boundaries of the VCR as a whole, and containment of the project area to the VCR was validated in the field, via the title deeds, and through discussion with the property owner.

All boundaries were confirmed on the site visit for both the project area and the VCR as a whole.

⁵TerraCarbon and The Nature Conservancy, *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile*, Version 02, 5 April 2014.

⁶Ibid

⁷Ibid

3.1.7 Project Compliance with Applicable Laws, Statutes, and other Regulatory Frameworks

All relevant information regarding TNC's compliance with laws, statutes, and other regulatory frameworks can be found in the PD (Section 1.11) and referenced supporting documents. TNC declares conformity to all of the laws, codes, and decrees mentioned in PD Section 1.11.

Compliance with these laws was confirmed (with reasonable assurance) during validation.

3.1.8 Ownership and other Programs

3.1.8.1 Right of Use

The validation activities confirmed that the project area (1,273 ha) where Planned Deforestation and Degradation is Avoided as part of the project activity is a segment of a larger property (the VCR) for which TNC owns full fee title. The Purchase and Sale Agreement and title deeds proving ownership of the property have been reviewed and there are no restrictions of uncertainty regarding ownership and right to use.

In addition, TNC has the right to develop and sell carbon credits generated through their activities on the VCR property. A third party Chilean law firm (Carey y Cia), was contracted by TNC to investigate voluntary carbon offsets and Chilean Law on TNC's behalf. The memorandum produced by Carey y Cia has been reviewed and it indicates that TNC has the right to develop a voluntary carbon offset project and that their project development and voluntary carbon market activities are compatible with national regulation and environmental policies.

3.1.8.2 Emission Trading Programs and other Binding Limits

No emission reductions generated by the project are part of an emissions trading program.

3.1.8.3 Participation under other GHG Programs

The project has not been registered and is not seeking registration under any other GHG programs.

3.1.8.4 Other Forms of Environmental Credit Sought or Received

The project has not created wetland mitigation, water quality, air pollution, other non-VCS GHG emission reduction, or any other form of environmental credit.

3.1.8.5 Rejection by other GHG Programs

The project has neither applied to receive credits from, nor has it been rejected by any other GHG program.

3.1.9 Additional Information Relevant to the Project

3.1.9.1 Eligibility Criteria for Grouped Projects

Not applicable. This is not a grouped project.

3.1.9.2 Leakage Management for AFOLU Projects

As stated in the PD, "Throughout project implementation, TNC will continue to engage with the MOP and regional authorities, and in its capacity as member of the CCTL (explained in Section 3.1.5 above). TNC will advocate for low impact re-routing alternatives to the coastal highway,

including improving existing route T470, which can satisfy transportation objectives while reducing environmental impacts.

While TNC has no influence over the industrial forest sector in Chile, the Native Forest Law (Law 20.283/2008) approved in December 2007, and put into effect in 2008, has effectively addressed leakage by stopping conversion of native forest to plantation activity. The law aims to protect native forests from indiscriminate logging and to promote sustainable forest management. Most importantly with regard to leakage from the project activity, the law prohibits the conversion of native forests to non-native plantations, except where existing permits had been previously issued and continue to be in effect (as in the baseline case of the project)."

3.1.9.3 Commercially Sensitive Information

The following documents were reviewed by ESI during the validation. These documents are considered by TNC to be confidential and commercially sensitive and will be excluded from the publicly issued PD:

- 1) "Footnote 14 - PSA between Bosques and WDC and Clarification"
- 2) "Footnote 14 - PSA Woodland - TNC"
- 3) "Footnote 14 - WDC Shares Assign to TNC 2003-1"
- 4) "Footnote 14 -WDC Agreement March 2011-1"
- 5) "Footnote 15 - Voluntary Carbon Offsets - Chilean law memo"
- 6) "Footnote 21 - Memo, CMT 11 de Febrero 2004"
- 7) "Footnote 55 - Memo, Evaluacion CCCC del actuar de MOP referente al acuerdo de 2003"
- 8) "Financial projection - native forest restoration"

3.1.9.4 Further Information

There is no further additional information, which would have a bearing on the eligibility of the project relating to net GHG emissions reductions or removals, or quantification of net GHG emissions reductions or removals, that has not been included in the PD and its supporting documentation.

3.2 Application of Methodology

3.2.1 Title and Reference

The project is applying the VCS Methodology VM0007: "REDD Methodology Modules (REDD-MF)" v1.3 (20 November 2012) and its associated modules and tools. VM0007's associated modules and tools are listed in Section 2.1 above.

3.2.2 Applicability

The validation confirmed the project met the following applicability conditions of VM0007:

"1. Land in the project area has qualified as forest at least 10 years before the project start date."

Satellite imagery and aerial photographs demonstrated that the project area meets an internationally accepted definition of forest, and was such for a minimum of 10 years before the project start date (see PD Section 1.9, Figures 1.3 to 1.8)

"2. The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm³. If the project area includes

a forested wetlands growing on peat (e.g. peat swamp forests), this methodology is not applicable.”

Soils and cover type information, as well as the site inspection, demonstrated that the project area does not include any wetlands. As stated in the PD, “wetlands in the VCR are restricted to herbaceous wetlands along rivers.”

“3. Project proponents must be able to show control over the project area and ownership of carbon rights for the project area at the time of verification.”

As described in Section 3.1.8.1 above, TNC holds control over the project area and the ownership of the carbon credits.

“4. Baseline deforestation and baseline forest degradation in the project area fall within one or more of the following categories:

- Unplanned deforestation (VCS category AUDD);
- Planned deforestation (VCS category APD);
- Degradation through extraction of wood for fuel (fuelwood and charcoal production) (VCS category AUDD).”

The baseline deforestation (construction of the coastal highway) and degradation (conversion of native forest to Eucalyptus plantations) for the project fall within the Planned Deforestation category. Official permits authorizing the baseline deforestation and degradation activities demonstrated that these activities were planned and would have been the most likely land use scenario without the implementation of the project.

“5. Baselines shall be renewed every 10 years from the project start date.”

TNC declares, in Section 4.3.1 of the PD that “The baseline as outlined here in the Project Description is valid for 10 years from the project start date, through November 3, 2013, and will be revised on the first monitoring event subsequent to this date. “

“6. All land areas registered under the CDM or under any other carbon trading scheme (both voluntary and compliance-orientated) must be transparently reported and excluded from the project area. The exclusion of land in the project area from any other carbon trading scheme shall be monitored over time and reported in the monitoring reports.”

Lands within the project area have not been registered and are not seeking registration under the CDM or any other voluntary or compliance-oriented carbon trading scheme. Further, TNC declares that the exclusion of land in the project area from any other carbon trading scheme shall be monitored over time and reported in the monitoring reports.

“7. If land is not being converted to an alternative use but will be allowed to naturally regrow (i.e. temporarily unstocked), this framework shall not be used.”

As stated in the PD, “in the baseline, forest is cleared in the project area and converted to land uses that preclude natural regrowth (Eucalyptus plantations under continuous management and a road right of way that will be maintained free of vegetation).”

“8. Leakage avoidance activities shall not include:

- Agricultural lands that are flooded to increase production (e.g. paddy rice);
- Intensifying livestock production through use of “feed-lots” and/or manure lagoons.”

As described in Section 3.1.9.1 above, leakage management activities do not include flooding agricultural lands or intensifying livestock production.

3.2.3 Project Boundary

The appropriate carbon pools and GHG emission sources (as specified by VM0007) are accounted for and included in the project boundary. As shown in the PD, the carbon pools included in or excluded from the project boundary, and justification, are shown below:

Carbon pools	Included / Excluded	Justification / Explanation of choice
Aboveground	Yes	Mandatory to include. Most significant carbon pool.
Belowground	Yes	Included and treated together with aboveground biomass for completeness to include whole tree (above- and belowground) biomass.
Dead Wood	Yes	Significant pool, particularly in cool temperate rainforests, such as those in the project area, where decomposition rates are slow.
Harvested Wood Products	Yes	Included because wood harvest, and transfer of a portion of forest carbon to storage in long-lived wood products, takes place in the baseline.
Litter	No	Generally not significant (representing <5% of total stocks) and conservatively omitted per methodology.
Soil Organic Carbon	No	As per the methodology, exclusion is always conservative.

The GHG emission sources included in or excluded from the project boundary, and justification, are shown below⁸:

Source	Gas	Included	Justification/ Explanation
Biomass burning	CO ₂	No	CO ₂ emissions are already considered in carbon stock changes.

⁸TerraCarbon and The Nature Conservancy, *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile*, Version 02, 5 April 2014.

Source	Gas	Included	Justification/ Explanation
	CH ₄	Yes	Conservative to exclude in the baseline. Will be monitored ex post.
	N ₂ O	Yes	
Fossil Fuel Combustion	CO ₂	No	Emissions from fossil fuel combustion are conservatively excluded – emissions from this source in the baseline, from fuel consumption in machinery and transport related to road construction and plantation establishment activities, far exceed those in the project case.
	CH ₄	No	
	N ₂ O	No	
Use of fertilizers	CO ₂	No	Conservative to exclude in the baseline. No fertilizer use is contemplated in the project case as part of leakage mitigation or any other activity.
	CH ₄	No	
	N ₂ O	No	

3.2.4 Baseline Scenario

As described in Section 3.2.5 below, the module VMD0006 : “Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation and planned degradation (BL-PL)” v1.1 (20 November 2012) indicated that continuation of pre-project land-use, including ownership by a commercial forestry company and continued deforestation and degradation of native forest is the most plausible baseline scenario.

Based on validator research, review of project documents, and site visits conducted, the findings support the justification that the baseline land use scenario without the project will be continuation of pre-project land-use, including ownership by a commercial forestry company and continued deforestation and degradation of native forest. The construction of the coastal highway (86 ha of deforestation) and execution of existing permits to convert native forest to Eucalyptus plantations (1,187 ha of degradation) would have undoubtedly have continued had this project not been implemented. The lands exhibit several characteristics of significant ecological value; however, the more financially attractive ventures of deforestation and degradation would have taken precedence under other landowners. Such is the typical case in the financially driven world in which we reside.

3.2.5 Additionality

The methodology requires the use of VT0001: “Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities (T-ADD)” v3.0 (01 February 2012);” details of its use can for this project can be found in the Section 2.5 of the PD.

The validator confirmed that the two alternative scenarios identified by the project proponent represent realistic and credible land-use scenarios that would have occurred within the project area in the absence of the AFOLU project activity under the VCS.

As stated in the PD, the alternative scenarios identified by TNC are:

1. "A commercial forestry company acquires the property and implements CONAF permits/management plans to substitute native forest with Eucalyptus plantations and carry out sustained Eucalyptus plantation management, and to allow continued coastal highway construction by the MOP unopposed through the property. Note this is equivalent to continuation of the pre-project land-use (where ownership transfers via the Bosques bankruptcy to another similar commercial forestry company)."
2. "TNC or another entity acquires and conserves the property (stopping highway construction and conversion of native forest to Eucalyptus plantations) without the activity being registered as a VCS AFOLU project."

Both of these land use scenarios are in compliance with all mandatory applicable legal and regulatory requirements and are permissible by law. Following demonstration of legal permissibility, TNC, as required by VT0001, used VMD0006: "Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation and planned degradation (BL-PL)" v1.1 (20 November 2012) to determine which of the two alternatives identified above represent the most plausible baseline scenario⁹. VMD0006's step-wise approach justified and selected alternative number 1 above (acquisition by a commercial forestry company and carrying out planned deforestation and degradation) as the most plausible baseline scenario.

Following the use of VMD0006 to select the most plausible baseline scenario, TNC, as per VT0001, demonstrated that alternative number 2 (avoiding deforestation without revenue from the sale of GHG credits) is financially less attractive than alternative number 1. As alternative number 2 generates financial benefits beyond VCS-related income, related to philanthropic donations, an investment comparison analysis was appropriately chosen and used for this demonstration (PD Annex 14 risk analysis VCR revJan25.xlsx). Net Present Value (NPV) was the financial indicator used¹⁰ and NPV was found to equal -\$2,195,106 for alternative number 2 and \$14,790,041 for alternative number 1, respectively. The results of the sensitivity analysis conducted by TNC showed that the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions and further demonstrated that alternative number 2 is not financially competitive with alternative number 1. Following the financial and sensitivity analyses, the common practice analysis required by VMD0006 (see PD Section 2.5) indicated that the proposed project is not common practice in the region, is not the baseline scenario, and, thus, is additional.

Demonstration of Consideration of Carbon Finance: In addition to the required additionality tests of VT0001, TNC included the following text in the PD in order to demonstrate the explicit consideration of carbon finance and activities undertaken by TNC regarding the acquisition of the VCR:

"June 2001: TNC proposal to US Department of Energy (which was later funded) for carbon baseline studies at a portfolio of then existing and potential project sites, specifically including the "Valdivian forest region of Chile".

January 2003: Draft amendment to a contract with the Universidad Austral for work to prepare a report on the carbon baseline in Region X (which included the VCR project area at that time), Chile. Per TNC Chile Program Country Director, the purpose of the report was to establish a baseline for future use in carbon projects by TNC in Region X, within which the VCR, then known as the "Bosques tract", had been previously identified as a TNC priority in a 2002 land tenure study completed by TNC and WWF (personal communication, Margo Burnham, 2003 TNC Chile

⁹Details of the use of VMD0006 for this project can be found in the Section 3 of the PD.

¹⁰Discount rates and other details of the investment comparison analysis are included in Section 2.5 of the PD.

Program Country Director), and the study was intended for use in developing offsets in the VCR (personal communication, Bill Stanley, 2003 TNC Global Climate Change Initiative Director).

September 2003: Universidad Austral report delivered to TNC. The report acknowledges TNC's prevailing intent to develop carbon projects through forest conservation and restoration in Region X of Chile:

"The Nature Conservancy" (TNC) ha trabajado desde 1995 en el campo de la captura de carbono, desarrollando proyectos de protección, restauración y manejo de bosques en todo el continente americano a través de cooperación innovativa con empresas líderes del sector privado. En este sentido, TNC está desarrollando un estudio de factibilidad para establecer proyectos de protección y restauración de bosques en la décima Región de Chile, que signifiquen una reducción y captura de GEI que sean adicionales al negocio como común. Es por esto, que la primera prioridad es establecer el escenario de referencia o línea de base, ya que las reducciones de emisiones y captura de GEI que resultan de estos proyectos se miden al comparar el almacenamiento de C con proyecto, con el almacenamiento de C que se hubiera esperado sin proyecto."

Following acquisition of the VCR in November 2003, pursuit of carbon finance was still relevant because the bridge loan which made the property acquisition possible (through TNC's Land Purchase Fund) was as yet unpaid and with no immediate means of repayment, all the while accruing annual interest payments greater than \$200,000. As of the project start date, there was a funding gap of several million dollars that would be needed from unidentified sources to repay the bridge loan. The following evidence is provided to demonstrate the continuing consideration of carbon finance given by TNC in the context of the VCR acquisition post acquisition:

March 2004: Delivery of Neira report on carbon baseline in Region X. Neira, E., Romero, P. and A. Lara. 2004. Complementación del estudio para el diseño de una línea de base para captura de Carbono en la Xma Región de Chile. Instituto de Silvicultura, Universidad Austral de Chile.

2005: Delivery of Gonzalez report. González, P; Lara, A; Ganoso, J; Neira E; Romero P. Sotomayor, L. 2005. Comparison of Three Methods to Project Future Baseline Carbon Emissions in Temperate Rainforest, Curiñanco, Chile. Topical Report. U.S. Department of Energy, National Energy Technology Laboratory, Morgantown, WV USA. 32 p.

2006: Delivery of second Neira carbon study. Romero, Patricio; Neira, Eduardo; Lara, Antonio. Forest Cover and Carbon Changes in Coastal Temperate Rainforest, Chile. Universidad Austral de Chile.

September 2009: TNC commissioned Terracarbon for VCR carbon feasibility study, delivered January 2010. Shoch, D., Settlemyer, S. and J. Eaton. 2010. Forest Carbon Projects in the Valdivian Coastal Reserve, Chile. Feasibility Assessment."

These considerations and activities further demonstrate that the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project would not be possible without additional revenues from carbon finance. Ultimately, protecting a forested area in Chile without the implementation of a VCS REDD project is prevented due primarily to large financial barriers to independently acquiring and protecting an area of land. Even with potential philanthropic donations, a forest protection project in Chile does not constitute a financially rewarding venture.

3.2.6 Quantification of GHG Emission Reductions and Removals

3.2.6.1 Quantification of Baseline Emissions

The validator confirmed that the baseline emissions due to both deforestation (construction of the coastal highway) and degradation (conversion of native forest to Eucalyptus plantations) have been estimated in accordance with VMD0006 (see PD Section 3.1). Additionally, risk of abandonment has been appropriately assessed and demonstrates the project's eligibility for use of the module.

ESI thoroughly reviewed all information presented in the PD and its supporting documents against all of the requirements of VMD0006 to ensure consistency and identify any divergences. Where errors, omissions, and/or misrepresentations were found, ESI issued Non-Conformity Reports (NCRs) and Clarifications (CLs) to the project proponent. All NCRs and CLs (both qualitative and quantitative) were satisfactorily addressed by the project proponent. For a complete list of all NCRs/CLs related to VMD0006 and their resolutions, please refer to Appendix A of the Validation Report.

Specifically related to the validation of baseline emissions under VMD0006, ESI conducted an intensive review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data related to the baseline emissions to ensure consistency with VMD0006.

VMD0006's procedures for quantifying baseline emissions or removals involve several steps. Major steps and the validation process are outlined below:

1. Planned/projected deforestation area is determined based on a known deforestation rate.
 - a. For avoiding the planned highway construction, TNC used a conservative rate based on actual/observed construction rates. ESI validated this rate by thoroughly reviewing the land use change analysis (including remotely sensed imagery, classification, GIS shapefiles, and calculation spreadsheet (Annex 10)) TNC implemented (see PD Section 3.1.1) to determine the actual/observed construction rate. ESI also reproduced the analysis for randomly selected samples to ensure accuracy of the results.
 - b. For avoiding conversion to forest plantation, TNC derived the rate from the CONAF forest management plans/permits and determined the final operable area through a GIS analysis. ESI validated the rate by thoroughly reviewing the management plans/permits (Annexes 8 and 9). ESI validated the determination of the operable area (or project area) by comparing the CONAF paper maps to those that were digitized by TNC. Areas of the digitized boundaries, along with the exclusion of inoperable/ineligible areas (see PD Section 3.1.2) were checked via GIS shapefile review and independent reproduction. The associated calculation spreadsheet (Annex 11) was also thoroughly examined.
2. Likelihood of deforestation is determined.
 - a. The project area is not under government control and thus, as per Section 1.4 of VMD0006, L-Di was appropriately set to equal 100% by TNC.
3. Risk of abandonment is assessed.
 - a. For avoiding the planned highway construction, risk of abandonment is zero because the post-deforestation land use (a roadway) will not allow for natural forest regrowth. Thus, the deforestation activity is eligible and the module can be used.
 - b. For avoiding conversion to forest plantation, TNC assessed the potential risk of abandonment through an analysis of five proxy areas from within the VCR (see PD Section 3.1.2). ESI validated the proxy area analysis by independently comparing the time series imagery, identified stand boundaries, CONAF paper maps, and

- management plans/permits. A sample of the proxy areas were also accessible during the site visit. It was clear that none of the plantations were abandoned and were still commercially viable as of the project start date. Thus, the deforestation activity is eligible and the module can be used.
4. Baseline carbon stocking is determined from measurements of woody biomass sampled within the project area.
 - a. ESI validated the baseline carbon stocking estimates via field measurements and calculations review. During the site visit, three complete cluster plots and one partial cluster plot were re-measured in order to validate the inventory processes. ESI used its independently collected data and quantified the plot level carbon stocking using the same quantification methods used by TNC (see Annex 1). The results were then compared to the project proponent's reported inventory for the same locations. The results were analyzed using an unpaired Mann-Whitney test at the 90 percent confidence interval. Mean carbon stocking calculated from ESI's measurements were not found to be significantly different from those reported by the inventory at $\alpha = 0.1$. Thus, the inventory was deemed to be sound.
 - b. Regarding the calculations review, the inventory analysis (including associated conversion factors, formulas, and calculations) was provided by the Project Proponent in spreadsheet format (see Annex 1) to ensure all formulas were accessible for review. The validators recalculated subsets of the analysis to confirm correctness. ESI also reviewed a comprehensive assessment of data collection and storage procedures to ensure all opportunities for error in transposition of data between data were minimized.
 5. GHG emissions in the baseline are quantified as per Part 3 of VMD0006.
 - a. Emission sources (i.e. biomass burning, fossil fuel combustion or use of fertilizers) are conservatively excluded from the baseline for this project. ESI ensured that this was valid and met the requirements of STEP 1, Part d of VM0007. Combustion of fossil fuels is a fully optional source. Use of fertilizers must only be included where fertilizer use is enhanced as a leakage avoidance mechanism; ESI confirmed that this was not the case during the site visit. Lastly, it is conservative to exclude biomass burning in the baseline, but must be included in the project case if fire occurs. TNC's monitoring plan includes adequate methods for monitoring the areas burned under the project scenario.
 6. Baseline emissions or removals are quantified as per Section II of VMD0006.
 - a. The long-term carbon stock after deforestation/degradation, together with the baseline stock that is harvested and stored in long-term in wood products (calculated using VMD0005), are subtracted from the baseline stock (Equation 3). Emissions from any sources are then added and the planned deforested area and likelihood of deforestation are included using Equation 1. TNC provided their quantification of the baseline emissions in spreadsheet format (see Annexes 10, 11, and 16) to ensure all formulas were accessible for review. TNC also provided a step-by-step overview of calculations to ensure ESI understood the approach and could confirm its consistency with VMD0006. In addition, the validators recalculated subsets of the analysis to confirm correctness.

The aforementioned steps and validation procedures allowed ESI to confirm with reasonable assurance that the baseline emissions due to both construction of the coastal highway and

conversion of native forest to Eucalyptus plantations were estimated in accordance with VMD0006.

VMD0006's procedures for quantifying baseline emissions or removals involve several steps. General steps are described here; first, the planned/projected deforestation/degradation area is determined based on a known verifiable deforestation/degradation rate and a defined likelihood of deforestation. Next, the baseline carbon stocking is determined from measurements of woody biomass sampled within the project area. Baseline emissions or removals are then quantified by subtracting the long-term carbon stock after deforestation/degradation and the baseline stock that is harvested and stored in long-term in wood products¹¹ from the baseline pre-deforestation/degradation stock; emissions from any sources (e.g. biomass burning, fossil fuel combustion, or use of fertilizers) are then added. Note that emission sources are conservatively excluded from the baseline for this project as indicated in Section 3.2.3 above.

Estimated baseline total GHG emissions (as quantified using VMD0006) due to both deforestation and degradation for the the first 10-year baseline period (through November 2013) of the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project (86 ha of deforestation and 1,187 ha of degradation) are listed below:

Years	Estimated Baseline GHG Emissions (tCO ₂ e)
4 November 2003 – 3 November 2004	130,859
4 November 2004 – 3 November 2005	146,376
4 November 2005 – 3 November 2006	57,512
4 November 2006 – 3 November 2007	55,664
4 November 2007 – 3 November 2008	43,015
4 November 2008 – 3 November 2009	30,863
4 November 2009 – 3 November 2010	39,670
4 November 2010 – 3 November 2011	41,640
4 November 2011 – 3 November 2012	30,309
4 November 2012 – 3 November 2013	31,463
Total Estimated Baseline Emissions	607,369

¹¹The baseline carbon stock that is harvested and stored in long term wood products is calculated using VMD0005: "Estimation of carbon stocks in the long-term wood products pool (CP-W)" v1.1 (20 November 2012).

Total Number of Crediting Years in First 10-year Baseline Period	10
Average Annual Baseline Emissions	60,737

3.2.6.2 Quantification of Project Emissions

TNC demonstrated through appropriate evidence that ex-ante project emissions resulting from degradation due to illegal logging can be assumed to be zero. Additionally, TNC's project activities will not allow for further deforestation or forest conversion activities within the project area. Thus, for the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project, the project emissions equal zero throughout the first ten year baseline period.

ESI thoroughly reviewed all information presented in the PD and its supporting documents against all of the requirements of VMD0015 to ensure consistency and identify any divergences. Where errors, omissions, and/or misrepresentations were found, ESI issued Non-Conformity Reports (NCRs) and Clarifications (CLs) to the project proponent. All NCRs and CLs (both qualitative and quantitative) were satisfactorily addressed by the project proponent. For a complete list of all NCRs/CLs related to VMD0015 and their resolutions, please refer to Appendix A of the Validation Report.

Specifically related to the validation of project emissions under VMD0015, ESI conducted an intensive review of all evidence, supporting documents, and analyses that were used to demonstrate that the project emissions are in conformance with VMD0015 and are equal zero throughout the first ten year baseline period.

Ex-ante project emissions under VMD0015 is equal to the sum of stock changes due to deforestation, degradation, and natural disturbances, plus the total greenhouse gas emissions minus any eligible forest carbon stock enhancement (Equation 1). Guidance on values for ex-ante parameters can be found in the parameter tables (Section 6) of VMD0015. Each component and the validation process are outlined below:

Regarding ex-ante deforestation, TNC demonstrated through appropriate evidence that clear infrastructure; hiring and policies are in place to prevent deforestation. That is, TNC is taking several steps to ensure the establishment of protected status for the project area, strongly advocating for stopping the construction of the Carretera Costera, and has cancelled the legal permits to convert native forest to eucalyptus plantations. In addition, a Conservation Plan (see Annex 3) and a Management Plan in 2010 (see Annex 7) are in place. These deforestation prevention activities were validated through first-hand observations on-site and through thorough document review. Thus, ex-ante deforestation can be assumed to be zero throughout the first ten year baseline period, and nevertheless it will be monitored, and was monitored for purposes of the first verification period.

Regarding ex-ante degradation, TNC demonstrated through appropriate evidence that there is little to no potential for illegal extraction of trees to occur. Since the fall of 2009, no illegal logging activities were observed in the VCR through either patrol by TNC park rangers or consultation with the District Attorney's office (Fiscalia Regional) of the Ríos Region (where all reports of illegal logging by any enforcement body are collected). Moreover, the only observation of illegal logging between 2005 – 2012 in the VCR, was a case that was not located within the project area's geographic boundary, and was in fact very distant from the project areas. Observations and interviews conducted during the site visit confirmed that ex-ante degradation can be assumed to be zero throughout the first ten year baseline period.

Regarding ex-ante natural disturbances, the information presented (and validated) in Section 3 of the VCS Non-Permanence Risk Report (see Annex 13), adequately justified setting ex ante emissions from natural disturbances equal to zero for the first ten year baseline period.

As indicated in the response to Finding 10 above, the only GHG emission source included in the project scenario are those due to biomass burning. Thus, ex-ante GHG emissions originate in the module VMD0013. As per Section I of VMD0013, inclusion of emissions associated with biomass burning is always optional in the baseline, and is not required ex-ante in the with-project scenario if it is excluded from the baseline. Thus, ex-ante emissions associated with biomass burning can be assumed to be zero throughout the first ten year baseline period. VMD0013 must be used to account for emissions where fires occur ex-post. TNCs monitoring plan includes adequate methods for monitoring the areas burned under the project scenario.

Regarding forest growth and sequestration during the project, Section 5 of VMD0015 indicates that this parameter may be conservatively set to zero. Such was the case with this project.

3.2.6.3 Quantification of Leakage

Project proponents used the required modules VMD009: "Estimation of emissions from activity shifting for avoided planned deforestation (LK-ASP)" v1.0 (03 December 2010) and VMD0011: "Estimation of emissions from market-effects (LK-ME)" v1.0 (03 December 2010) to calculate (ex-ante) the leakage associated with activity shifting market-effects resulting from the project. The results of the modules provided the total (activity shifting and market-effects due to both deforestation and degradation) leakage estimates below:

Years	Estimated Leakage Emissions (tCO ₂ e)
4 November 2003 – 3 November 2004	8,898
4 November 2004 – 3 November 2005	9,954
4 November 2005 – 3 November 2006	2,964
4 November 2006 – 3 November 2007	3,761
4 November 2007 – 3 November 2008	15
4 November 2008 – 3 November 2009	0
4 November 2009 – 3 November 2010	157
4 November 2010 – 3 November 2011	12
4 November 2011 – 3 November 2012	67
4 November 2012 – 3 November 2013	0
Total Estimated Leakage Emissions	25,829
Total Number of Crediting Years in First 10-year Baseline Period	10

Average Annual Leakage Emissions

2,583

VMD0009

Under VMD0009, there are two options for quantification of activity-shifting leakage, where either: 1) the baseline agent of deforestation has been identified; or 2) where only a class of deforestation agents can be identified. Regarding stopping the planned highway construction, the baseline agent of deforestation was identified (the MOP), and thus Part 1 of VMD0009 was assessed by ESI. TNC demonstrated through appropriate evidence that the likelihood of activity shifting leakage is extremely low during the 10 year baseline period. That is, TNC collated historical records of highway construction by the MOP in the defined leakage zone from 2003 through 2011 and these records, demonstrated that no activity shifting leakage occurred. ESI's review of the highway construction records and TNC's activity shifting leakage analysis, confirmed that ex-ante emissions due to activity shifting are unlikely and can be assumed to be zero throughout the first ten year baseline period. This is in conformance with VMD0009, Step 1 and Section IV.

Regarding avoiding conversion to forest plantation, only a class of deforestation agents was identified (industrial timber company/production), and thus Part 2 of VMD0009 was assessed by ESI. Part 2's procedures for quantifying activity-shifting leakage involve several steps. Major steps and the associated validation processes are outlined below:

1. Identify commodity produced by the baseline class of agent.
 - a. ESI conducted a thorough review of all evidence, supporting documents, and analyses (see PD Section 3.3.2) that were used to demonstrate that Eucalyptus wood (used for chips) arising from plantations is the single commodity that is produced by baseline class of agent. ESI confirmed that this was the appropriate commodity to be used in the leakage analysis.
2. Assess proportion of available areas that are forested.
 - a. ESI thoroughly reviewed and confirmed all input data and its sources, as well as the calculations associated with TNC's assessment of the proportion forested areas that available for conversion to Eucalyptus plantation. TNC accurately determined PFC to equal 34% using data from the National Statistics Institute of Chile.
3. Evaluate project area relative to other forested areas for commodity production in the country.
 - a. ESI conducted a thorough review of all evidence, supporting documents, and analyses (see PD Section 3.3.2) that were used to assess and compare the productivity of Eucalyptus plantations in the project area and in alternative areas in the country. Appropriate references/experts were utilized and it was confirmed that productivity in the project area is lower than that of other regions of Chile.
4. Assess proportional leakage factor.
 - a. Based on the data used to assess and compare the productivity of Eucalyptus plantations in the project area and in alternative areas in the country, TNC appropriately set LKCP-ME,c,i to equal 0.2 (where average productivity of alternative lands is >15% more than the relevant strata in the project area).
5. Calculate estimated leakage.
 - a. ESI confirmed that ex-ante activity shifting leakage was calculated appropriately using equation 7 of the methodology by thoroughly reviewing TNC's transparent calculation spreadsheet (Annex 11). It is important to note that no activity shifting

leakage occurs after project year 2007 (Nov 2006 to Nov 2007), due to the new Native Forest Law going into effect at the end of 2007. The Native Forest Law (Law 20.283/2008) prohibits conversion of native forests to non-native plantations, except in cases where pre-existing permits are in place, as is the case in this project's baseline.

The aforementioned steps and validation procedures allowed ESI to confirm with reasonable assurance that the ex-ante leakage emissions due to both construction of the coastal highway, and conversion of native forest to Eucalyptus plantations, were estimated in accordance with VMD0009.

VMD0011

Regarding avoiding conversion to forest plantation, the estimation of ex-ante market effects leakage emissions under VMD0011 was not required. TNC provided adequate evidence to demonstrate that no wood products are produced from the initial native forest conversion activity. Rather, due to poor markets and long transport distances, the prior property owner would cut, pile, and occasionally burn trees that were harvested from the native forest. ESI validated these historical practices through first-hand observations and interviews conducted during the site visit. In this case, because the process of deforestation does not involve timber harvesting for commercial markets, ex-ante market effects leakage is zero throughout the first ten year baseline period.

Regarding stopping the planned highway construction, however, the estimation of ex-ante market effects leakage emissions under VMD0011 was required because construction of the highway will result in the deforestation of previously established plantations that contain commercial products (plantations of at least 15 years of age). To validate the ex-ante leakage emissions, ESI conducted an intensive review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data related to the leakage emissions to ensure consistency with VMD0011.

VMD0011's procedures for quantifying baseline emissions or removals involve several steps. Major steps and the validation process are outlined below:

1. Quantify market effects leakage through decreased timber harvest.
 - a. Leakage due to decreased timber harvest is equal to the baseline emissions from logging multiplied by a leakage factor (Equation 2). ESI confirmed that Equation 2 of the methodology was appropriately applied by thoroughly reviewing TNCs transparent calculation spreadsheet (Annex 10).
 - i. LFME: ESI conducted a thorough review of all evidence, supporting documents, and analyses (see PD Section 3.3.1) that were used to assess and compare the proportion of total biomass in commercial species that is merchantable (PMPi) to the mean proportion of total biomass that is merchantable for each forest type (PMLFT). TNC appropriately set LFME to equal 0.4 (where PMLFT is equal ($\pm 15\%$) to PMPi).
 - ii. Baseline emissions from logging: ESI confirmed that the baseline emissions from logging were calculated appropriately using Equations 3 and 4 of the methodology by thoroughly reviewing TNCs transparent calculation spreadsheet (Annex 10).
2. Quantify market effects leakage through decreased harvest of fuelwood and charcoal sold into regional and/or national markets.

- a. Leakage due to decreased harvest for fuelwood/charcoal product was excluded as no such activities occur in the baseline. As a result, net GHG emissions due to market effects leakage (Equation 1) is equal to market effects leakage through decreased timber harvest (Equation 2).

The aforementioned steps and validation procedures allowed ESI to confirm with reasonable assurance that the ex-ante leakage emissions due to both construction of the coastal highway, and conversion of native forest to Eucalyptus plantations, were estimated in accordance with VMD0011.

These assertions were confirmed during the validation event. In order to manage leakage, the leakage values reported above are deducted from the gross annual ex ante GHG reductions.

3.2.6.4 Summary of GHG Emission Reductions or Removals

The validator confirmed that net GHG emission reductions and removals have been estimated in accordance with VM0007 and its associated modules and tools. The results indicate that net GHG emission reductions or removals for the initial ten year baseline period are estimated at 581,540 tCO₂e (PD, Section 3.4).

3.2.6.5 Uncertainties Associated with the Calculation of Emissions

The validator confirmed that TNC followed VMD0017: "Estimation of uncertainty for REDD project activities (X-UNC)" v2.0 (31 July 2012) to ensure the results were conservative. TNC appropriately justified that the baseline deforestation and degradation rates are conservative; thus, there is no uncertainty associated with the baseline deforestation and degradation rates.

Total uncertainty of forest carbon pool stock estimates is reported in the PD as +/- 8% at the 95% confidence level. ESI reviewed PD Annex 01: "FINAL measurement error analysis.xlsx," and confirms that the reported uncertainty value to be calculated appropriately and in conformance with VMD0017. VMD0017 allows total project uncertainty values of up +/- 15% at the 95% confidence interval. For this project total uncertainty of the forest carbon pool stock estimates is equal to total project uncertainty because the uncertainty for the baseline deforestation and degradation rates equals zero (0). Thus, there are no deductions associated with uncertainty.

3.2.7 Methodology Deviations

As stated in the PD, the following the deviations to VM0007 apply to the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project:

"The rate of deforestation for the planned highway construction was based on historic construction rate for the same highway. Although a construction timetable was specified in the engineering plan, it was considered unrealistically aggressive compared to previous progress (explained further in Section 3.1). Although module BL-PL specifies that "where a valid verifiable plan exists for rate at which deforestation is projected to occur, this rate shall be used", the project instead conservatively employs the observed historic construction rate of the constructed section of the same road (and same logistics and operations by the CMT as would take place in the baseline) to set the rate of deforestation for the planned highway construction."

Section 3.5.1 of the VCS Standard states "Deviations from the applied methodology are permitted where they represent a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (ie, deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan)." As per BL-PL, the annual deforestation rate ($D\%_{\text{planned},i,t}$) is a parameter that is not monitored and

is provided at validation and at the time of baseline revision. It is set based on a valid verifiable plan or is measured from an analysis of Remote Sensing data and/or legal records for a number of proxy areas. TNC demonstrated that the deforestation rate identified in the engineering plan was unrealistically aggressive when compared to what has actually occurred on the ground under previous construction of the same road. Thus, in conservative efforts, TNC deviated from determining the deforestation rate from a valid verifiable plan. The alternative option in this case is to determine the deforestation rate through an analysis of Remote Sensing data and/or legal records for a number of proxy areas (measurement). They also deviated from this measurement procedure, and instead used measured rates of construction for the same exact road that is planned to be constructed in the baseline. The deviation increases the conservativeness of the quantification of GHG emission reductions/removals and, because the measurement of the road construction logistics and operations by the Chilean Army Corps of Engineers is more likely what would happen in the baseline, results in increased accuracy when compared to measured deforestation rates from a remote sensing analysis of proxy areas (analysis would contain different roads of different widths, as well as differing construction logistics and operations). Thus, ESI found the deviation to be reasonable, justified and in conformance with the requirements of Section 1.3 of VMD0006.

Activity shifting leakage related to stopping construction of the coastal highway employs module LK-ASP Part 1 "Where the specific deforestation agent has been identified" with the following deviation:

Per module CP-AB, "measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date." Native forest stocks in the VCR and project area were measured in a forest inventory taking place in 2010/2011, approximately 7 years after the 2003 project start date. While this represents a deviation from the methodology, application of stock estimates derived 7 years after the project start date logically aligns with the subsequent assumption in CP-AB and other pools modules in methodology VM0007 that "...stock estimates are valid in the baseline (i.e. treated as constant) for 10 years." The assumption that stocks are roughly at steady state is considered valid because the native forests in the project area are mostly mature stands with no significant disturbance history (see also Section 1.10).

Regarding appropriateness of the deviation of applying 2011 forest carbon inventory as the initial carbon stock employed in the baseline, TNC demonstrated that this is a reasonable measurement deviation (i.e. that stocks have been roughly stable for 6-7 years) for project accounting. That is, the forests in the project area are in a mature state with little to no biological growth and no significant disturbance history since the project start date. Diameter distributions plotted at the inventory level, and at the previously delineated stratum levels (which were subsequently rejected because there were no appreciable differences between the mapped strata), all show an uneven-aged reverse-J distribution with tails out past 100 cm dbh. Mature forests like these are generally near steady state or have insignificant accrual rates, in terms of biomass. This assumption was confirmed to be reasonable by an authority on Valdivian forests, Dr. Jorge Gayoso, Professor in the School of Forestry at the Universidad Austral, Valdivia, Chile (personal communication, November 2012). The site visit and review of the remote sensing analyses indicated that no significant harvest or windstorms (representing significant inputs to dead wood) have taken place in the VCR since the project start date. Thus, dead wood stocks would be to be slightly declining or static since the last major input, which would have predated the project start date. This would make it conservative to reference dead wood stock estimates from a later time. The deviation represents an acceptable deviation from the criteria and procedures relating to monitoring and/or measurement of GHG emission reductions or removals set out in VMD0001. Moreover, the deviation does not negatively impact the conservativeness of the quantification of GHG emissions reductions or removals.

Estimation of mean forest biomass carbon stocks per unit area employs a method different from that detailed in VM0007 module CP-AB (where the inventory level mean is derived from plot level

biomass per unit area estimates). The 2010/2011 forest carbon inventory, detailed in Annex 1, instead employed a double sampling approach producing independent estimates of live tree basal area (m^2/ha) and live tree biomass:basal area ratios (BBAR, expressed in $\text{t C}/\text{m}^2$), which were then combined to produce inventory level estimates of mean biomass per unit area. This sampling approach has been peer-reviewed (Avery and Burkhart 1994, Iles 2003, Marshall et al 2004) and is equally robust, and more efficient than, the more traditional approach outlined in VM0007 module CP-AB.

Regarding the methodology deviation, double sampling is a well-known and widely accepted approach to forest inventory. The method is widely used in the forestry industry as an efficient and cost effective approach for determining robust inventory level estimates of basal area, volume, biomass, etc. The approach is acceptable under Part 1, Option 2 of VMD0001 as it is a point (or variable radius) sampling method.

The deviation is related to Part 1, Step 3 of VMD0009, which calls for the measurement of carbon stock through the application of the selected or developed allometric equation on all trees on a sample plot. Instead of measuring the carbon stock on all “in trees” using a Basal Area Factor (BAF) 60 prism, TNC selected trees for measurement (of dimensions required for the selected or developed allometric equation) using a BAF of 240 (by combining two BAF 60 prisms). This “is known as the “Big BAF” approach to double sampling (see Marshall, D., Iles, K., and J. Bell. 2004. “Using a large-angle gauge to select trees for measurement in variable plot sampling.” Canadian Journal of Forestry Resources 34: 840-845 AND Iles, K. 2003. “A Sampler of Inventory Topics.” Kim Iles and Associates, Ltd.)

BBAR (or live tree biomass:basal area ratios (analogous to VBAR in the literature)) was calculated for all “in trees” using a BAF of 240. The measured BBAR was analyzed on individual trees and, using the average BBAR for measured trees, TNC estimated the carbon stocking as the PLOT BA * Avg Tree BBAR. As described in the above references, estimating BBAR at the tree level or plot level are equally valid (for application to basal area estimated at the plot level) - the conversion of m^2 to m^3 (or m^2 to mass, which is simply m^3 * a constant specific gravity) is a constant, and the result is unrelated to the scale at which it is derived.

Although the measurement approach deviated from traditional point sampling, carbon stocking was measured for each plot as required by Part 1, Step 3 of VMD0009. Further, TNC sufficiently demonstrated that double sampling using the “Big BAF” approach to be as equally robust as using traditional point sampling methods. The measurement deviation was justified as acceptable, and does not negatively impact the conservativeness of the quantification of GHG emissions reductions or removals.

Tree biomass was estimated with measured diameter at breast height (dbh) as the sole independent variable, in alignment with the construction of the Gayoso et al (2002) allometric equation used, developed specifically for the project region and forest type. Although height is not included, height is correlated with dbh and is implicitly included in the model.

For monitoring potential for illegal degradation, module M-MON is employed. Because it is extremely sensitive to ask of community members explicit questions regarding timber harvest activities, instead of the participatory rural appraisal approach specified in module M-MON, involving direct interviews in communities surrounding the project area to evaluate potential for illegal degradation, an alternative approach was pursued involving consultation with local authorities responsible for tracking these activities (elaborated in Section 4)."

As per Section 5.2.2.1 of VMD0015, the first step in Monitoring forest degradation due to illegal logging is to “complete a participatory rural appraisal (PRA) of the communities inside and surrounding the project area to determine if there is the potential for illegal extraction of trees to occur.” This is the only step of the forest degradation monitoring procedures identified in M-MON

from which TNC deviated. Instead of the PRA approach, TNC proposed to determine if there is the potential for illegal extraction of trees through the use of patrols by TNC park rangers and consultation with the District Attorney's office (Fiscalia Regional) of the Ríos Region (where all reports of illegal logging by any enforcement body are collected). ESI determined that this deviation was justified based on the sensitivity associated with asking community members explicit questions regarding timber harvest activities, and that the proposed frequency of implementation is the same as PRA approach (at least every 2 years). It is also very likely that the approach proposed by TNC will yield more reliable results when compared to the PRA approach. That is, TNC's park rangers and the District Attorney's office will undoubtedly provide more truthful monitoring information when compared to the PRA approach, which relies solely on the character and trustworthiness of the local peoples that are interviewed. The deviation is reasonable and it does not impact the conservativeness of the quantification of GHG emission reductions or removals. All other forest degradation monitoring procedures outlined in Section 5.2.2.1 of VMD0015 will be followed without deviation as described in PD Section 4.3.2.

The validation process confirmed that all of the aforementioned methodology deviations in this section are reasonable and have been appropriately justified. Further, the project is still in compliance with VCS rules while applying the methodology deviations. The deviations represent a deviation from the criteria and procedures relating to monitoring and/or measurement of GHG emission reductions or removals set out in VM0007. Moreover, the deviations do not negatively impact the conservativeness of the quantification of GHG emissions reductions or removals.

3.2.8 Monitoring Plan

The following are the primary data and parameters that were monitored prior to, and made available and assessed during validation:

- Location of project area
- Boundary of project area
- Area of planned deforestation in the baseline
- Area of planned degradation in the baseline
- Rate of planned deforestation
- Rate of planned degradation
- Baseline strata
- Number of trees
- Biomass allometric equations, coefficients, ratios and parameters
- Leakage calculations
- Risk calculations
- Total CO₂

The monitoring plan procedures and equipment were comprehensive and were found to be applicable to the parameters monitored. They were appropriately designed and provided reasonable assurance that the avoided emissions occurring from GHG sources, sinks, and reservoirs was (baseline) and will be (project scenario) accurately assessed. In accordance with the conditions of VM0007, emission sources are conservatively excluded from the baseline for this project; emissions from biomass burning will be monitored ex post.

The monitoring plan includes a Quality Assurance/Quality Control (QA/QC) plan to control for errors in measurement and data analysis. Application of the QA/QC plan will provide documentation and consistency in data archiving to permit efficient third-party auditing and evaluation against measurement and quantification standards over the life of monitoring.

TNC is responsible for the registration, monitoring, measurement, and reporting of avoided emission, within the timeframe required by VCS-AFOLU-REDD requirements.

3.3 Environmental Impact

In addition to avoiding CO₂ emissions, the *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project creates several environmental co-benefits.

The validation confirmed the likelihood that the project “will continue to have a significant positive impact on preservation of the biodiversity and provision of ecosystem services within the project area, relative to the baseline case. Deforestation and degradation of native forest in the baseline scenario would have negatively affected not only the native tree and plant species, but also a host of animal communities that dwell within or migrate through the Valdivian forests, some of which are globally rare.

Several endangered and endemic wildlife species use the habitat provided by the primary forest found on the VCR. These species’ abundance are expected be maintained and/or increase in the project area because critical habitat will not be lost. The endangered and endemic wildlife species that are likely to benefit from the project include:

- River Otter
- Pudu
- Mountain Monkey
- Magellanic Woodpecker
- Guina Cat
- Darwin’s Frog
- Valdivian Toad

The *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile* project supports all of these species, as well as many others, by protecting native primary forests. Further, the native forest types that will be protected, and will continue to provide wildlife habitat, are considered as unique and globally significant ecosystems. These include the Olivillo coastal forest (*Aextoxicon punctatum*) and Alerce forest (*Fitzroya cupressoides*)—the latter being the second oldest living tree species, with lifespans that can exceed 3,600 years. Also within the VCR are extensive *Nothofagus* forest areas that conserve a high diversity of endemic flora and fauna.

The project is also expected to provide nutrient and sediment reduction benefits to water bodies within the VCR. Portions of the rivers within the VCR were degraded under prior ownership by poor plantation management practices and due to the construction of the bridge crossing the Chaihuín River by the Chilean Army (as part of the Coastal Highway construction). The Chaihuín River is still recovering from the high sediment loading of the estuarine zone from the construction of the bridge, which had a negative impact on Shoe Mussels (*Choromytilus chorus*); these are harvested by locals as an important part of their economy.

Finally, benefits should also extend to the human population within the community of Huiro. The community of Huiro relies on the water quality of the Colún River where community members harvest shellfish. Prior to the project start date, this area had been impaired at times by high sediment loading from clearcutting and burning of native forest during the establishment of eucalyptus plantations. Both Chaihuín and the Cadillal communities rely on the Chaihuín watershed for drinking water, and Huiro is also supplied with water from small coastal watersheds within the VCR. Following the project start date, Chaihuín entered into an agreement with the

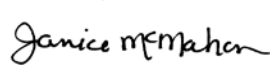
Reserve to develop a Rural Potable Water system (APR), to be facilitated by TNC's donation of 0.5 ha and water rights to the community.”¹²

3.4 Comments by stakeholders

Comments from stakeholders were appropriately documented and were found to be overwhelmingly positive. Where concerns have been identified, TNC has made tangible efforts to resolve any issues or concerns. The stakeholder input was confirmed through interviews with a sample of stakeholders conducted during validation.

4 VALIDATION CONCLUSION

ESI confirms all validation activities including objectives, scope and criteria, level of assurance and the PD are complete and in adherence to the VCS Version 3 and all associated updates as documented in this report. ESI concludes without any qualifications or limiting conditions that the PD “Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile” (version 02, 5 April 2014) meets the requirements of VCS Version 3 and all associated updates.

Report Submitted to:	Voluntary Carbon Standard Association 1730 Rhode Island Ave. NW, Suite 803 Washington, D.C. 20036 The Nature Conservancy 4245 North Fairfax Drive, Suite 100 Arlington, VA 22203-1606
Report Submitted by:	Environmental Services, Inc. Corporate Office 7220 Financial Way, Suite 100 Jacksonville, FL 32256
ESI Lead Validator Name and Signature:	 Shawn McMahon Lead Validator
ESI Division Regional Technical Manager Name and Signature:	 Janice McMahon Vice President and Forestry, Carbon and GHG Division Regional Technical Manager
Date:	06 APRIL 2014

SMM/JPM/rmb/VO12064.00 VCS Validation Report-Final-V3.doc
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¹² TerraCarbon and The Nature Conservancy, *Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, Chile*, Version 02, 5 April 2014.

APPENDIX A – VALIDATION NCR/CL SUMMARY

Item #	VCS Standard 3.2 Requirements (01 February 2012)	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)
1	2.2.1 The operating language of the VCS Program is English. The project description, validation report, monitoring report, verification report and all other project documentation (including all and any appendices) required under the VCS Program shall be in English.	The Standard states that "The project description, validation report, monitoring report, verification report and all other project documentation (including all and any appendices) required under the VCS Program shall be in English." Accordingly please provide Gayoso document and "PD Annex 15 Protocols del campo TNC VCR inventory FINAL 9Nov2010.doc" in English. Reference VCS Standard 3.2, "2.2.1	PD Annex 15 (inventory protocol) has been translated into English, and the translation has been uploaded to the data room to accompany the Spanish version. Per email from Shawn, ESI will no longer require translation of the Gayoso document.	Translated email dialog with Gayoso sufficient to answer questions. Addressed.		Y
2	3.5.1 METHODOLOGY DEVIATIONS Deviations from the methodology applied to the project are permitted where they represent a deviation from the criteria and procedures relating to monitoring or measurement (but not quantification) of GHG emission reductions or removals set out in the methodology. Deviations relating to any other part of the methodology shall not be permitted. Methodology deviations shall not negatively impact the conservativeness of the quantification of GHG emissions reductions or	Please provide PD Annex 04 Pavimentos.doc in English. Please provide a legible copy of Figure 3.1 in English. Please provide documents listed in Section 2.4, alternative 1 in English. Please document that limiting the scope of activity shifting leakage from planned forest clearance to "any north-south roads..." is, in addition to being more accurate, also a conservative definition. Please provide documentation that the baseline measurement occurring 7 years post	1) PD Annex 04 has been translated into English and uploaded to the data room ("PD Annex 04 Pavimentos_ENGLISH"). In addition, the four paragraphs of Spanish language text from this document that were included in Section 1.5 of the PD, has now been replaced in the PD with the English text. Figure 3.1 has been translated into English and uploaded to the data room ("Figure 3.1 VCR PD_ENGLISH"). RESPONSE PENDING: The documents in section 2.4 are being scanned and translated, and should be available in December. Please note that two documents (#3 and #4) in section 2.4 were referenced in error in the PD on p. 33, and those references have now been deleted from the PD; these documents were permits for native forest management, not for conversion of native forest to plantations. Documents #1 and #2 on p. 33 of the PD are the permits for conversion of native forest to plantations. 2) Focusing monitoring effort on likely areas of activity shifting leakage by the agent of planned deforestation serves to increase the accuracy of estimation of leakage, but it also will result in conservative estimates (i.e. it will tend to over-estimate leakage). Attributability is a key criterion in defining leakage by the VCS, per Program Definitions leakage	1) Pending document translations 2) Although the reasoning for limiting the leakage area has been stated, please include in the PD. And, please detail what the road construction activities in the leakage area are attributable to, other than the project activities. Please indicate, if possible, their relative	Part 1) Documents referenced in section 2.4 have been uploaded to the data room in both their Spanish version and English translated version. ("CONAF permit for Chaihuin sector stand R37 - Spanish", "CONAF permit for Chaihuin sector stand R37 - English", "CONAF permits for Venecia sector stands 528-535 - Spanish", "CONAF permits for Venecia sector stands 528-535 English", "CONAF permits for Venecia sector stands 566- 625 - Spanish", "CONAF permits for Venecia sector stands 566- 625 - English"). References to these permits have been updated in the PD, in the appropriate places. Part 2) The methodology deviations section of the PD has	Y

removals.	project start date was conservative relative to the baseline inventory on the project in years 1-6.	refers to "Net changes of anthropogenic emissions by GHG sources that occur outside the project boundary, but are measurable and attributable to the project." Not all road construction activities (and resulting deforestation) in the identified likely corridors of displacement are necessarily attributable to displacement of road construction by the project - nonetheless they will be quantified and deducted as leakage per the monitoring protocol. Hence the approach to identifying and discounting leakage will likely result in overestimation of leakage (because not all of it is necessarily attributable), and therefore conservatism is maintained. 3) Regarding appropriateness of applying 2010/2011 forest carbon inventory estimates to previous years (back to 2003), it is impossible to be certain what stocks were in previous years without past measurement data, which are lacking. However, we believe this is a reasonable assumption (i.e. that stocks have been roughly stable for 6-7 years) for project accounting because the forests in the project area are in an evidently mature state. This is demonstrated by diameter distributions plotted at the inventory level, and at the previously delineated stratum levels (which were subsequently rejected because there were no appreciable differences between the mapped strata), all of which show an uneven-aged reverse-J distribution with tails out past 100 cm dbh (for evidence of this, please see the graph on the right side of the "diam dists" tab of the revised inventory analysis spreadsheet that has been uploaded to the data room "PD Annex 1 - VCR inventory analysis revNov 2012.xls"). Mature forests like these are generally near steady state or have insignificant accrual rates, in terms of biomass. This assumption was considered reasonable by an authority on Valdivian forests, Jorge Gayoso of the Universidad Austral (personal communication, March 2012). It is further relevant that no significant harvest or windstorm (representing significant inputs to dead wood) has taken place in the VCR since the project start date - dead wood stocks would be assumed to be declining since the last major input, which would have predated the project start date. This would make it conservative to reference dead wood stock estimates from a later time (where further net decay is represented).	contributive amount. Please discuss the rationale behind excluding east/west roads from consideration. 3) Pending resolution of Gayoso dialog.	been updated to include the justification for the approach given here. Furthermore, the area in which leakage from road construction by the MOP is monitored has been expanded (to include a more inclusive east-west component of construction) to the area bounded by 1) the coast on the west, 2) the existing north-south highway Rt. 5 on the east, 3) the coastline from the town of Corral to Rt 207 on the north, and 4) the Rio Bueno on the south (representing the southernmost border of the Reserve). Deforestation resulting from road construction/improvement by the MOP that may take place in the designated monitoring area, and be accounted as leakage, would not necessarily be driven by the same needs as those the coastal highway was intended to satisfy. New roads/road improvements may be unrelated to development of scenic routes or improved access to forest industry holdings. The planned coastal highway closely followed the coastline, and had been justified to access commercial plantations no longer in operation, thus reducing the likelihood of leakage by removing a key driver. New road construction in the monitoring area may instead be driven by a range of other un-related objectives, for example linking Corral and La Union (which the coastal highway would not have done) or bypassing highways Rt. 5 and Rt. 207, and yet still (conservatively) accounted as leakage. Part 3) Per
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					conversation with Shawn on 4 January, item #3 regarding Gayoso is not applicable under this NCR.	
3	3.15 ADDITIONALITY Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project.	As noted in 1.13, Leakage Management, the Native Forest Law stopped the conversion of native forest to plantations. As stopping this conversion is one of the projects listed herein, please demonstrate how this project provides additionality beyond the 2008 law.	Under Chilean law, existing permits that had authorized native forest clearing after 2007 were grandfathered and were still authorized for use, under the Native Forest Law. However, in this project, the issue is not relevant, because the permits in this project were issued for conversion in the years 2003-2007 only. All conversion with these permits would have occurred prior to the end of 2007. Due to the project start date being 4 November 2003, in some of the charts in the PD, we referenced the fiscal year 4 Nov 2003 - 3 Nov 2004 as "2004", even though a portion of the fiscal year was in 2003. (Please see the caption to table 1.4 in the PD, which reads "* Hereafter, the year refers to the year at the end of the annual interval, hence 2004 represents the year from 4 November 2003 to 3 November 2004.") Similarly, we referenced the period 4 Nov. 2007 - 3 Nov 2008 as "2008". In this case, the conversion for fiscal year "2008" is an action that would have occurred in 2007. In Section 1.8, on page 14, we had indicated, in error, that the permits were from 2003-2008, and this text has been fixed to read "2003-2007". The authorized conversion years may also be confirmed by reviewing the second column of Table 3.10 in the PD where the permit years are listed, and by the explanatory caption at the bottom of Table 3.10, which states "Note that establishment is assumed to occur at the end of the calendar year, which ascribes to the following project year, which extends from 4 November to 3 November. E.g. a plantation established in December 2003 is assigned to project year 2004."	Addressed.		Y

4	3.19.1 PROJECT DESCRIPTION The project and its context shall be described in the project description using the VCS Project Description Template (or approved GHG program project description template where the project is requesting registration under an approved GHG program).	As the PD was received before the PD template was released (4 Oct 2012), please confirm if the project will update to the current PD template (v3.1). Please be sure to leave the footer from the template in the report so the version can be confirmed.	The PD has been updated to the latest version of the template (released October 2012) - changes are limited to revised header and footer (specifying version 3.1) and change in language from "proof of title" to "right of use" in Section 1.12.1	Addressed.		Y
5	6) A summary of relevant outcomes from any stakeholder consultations conducted.	As it is referenced in the PD as the basis for the concrete steps taken by TNC to address concerns, please provide a summary of the comments received from the Oct/Nov 2004 stakeholder meetings.	RESPONSE PENDING: TNC is synthesizing internal information relating to 2004 meetings and steps taken. Expected in December.	Pending	During the October and November 2004 meetings referenced in the PD, the Antillanca Indigenous Community requested recognition of its traditional use of an existing access road leading to a cove near the community of Huiro, where the community catches fish. In response, TNC provided a commitment to the community that this access road will be permanently free to use for anyone who wants access to the cove. This commitment has been fulfilled continuously since TNC's acquisition of the VCR in 2003, and will continue to be honored permanently, into the future. At the same meeting, the Antillanca Indigenous Community requested transfer of title to a 0.75 ha parcel adjoining the cove access, to use as a community cemetery. TNC responded by subdividing a parcel of land within the Reserve, for the cemetery and for donation to the community via the Chilean government agency for indigenous peoples, National Indigenous Development	Y

					Corporation (CONADI), with the understanding that it would then be donated to the community. More recently, and after TNC had already completed the subdivision of land for the cemetery, the community decided among themselves that they no longer want the cemetery land. In addition, one member of the indigenous community Antillanca, requested transfer in title of two parcels adjoining Huiro that comprise a total of 12.6 hectares. The community member had previously lived within the Reserve on land that he had been granted via a life estate held by his mother, the title to which had expired upon her death. The individual wished to vacate the property, and to live in closer proximity to the community in Huiro. TNC agreed to donate the requested land and has been working closely with CONADI to consummate the donation, which has taken considerable time because of the legal processes involved, preparation of an appraisal, subdivision blueprint, etc. CONADI is currently working on making the donation official, and in the meantime, TNC has already allowed the individual to move his family to the new parcel of land near Huiro. In addition, another family requested recognition of usufruct rights to use their houses and other infrastructure (warehouses, greenhouses, pens, orchards, etc.) located on TNC's property. TNC agreed to this, and has honored	
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					the family's request for usufruct rights (although TNC has title to the land).	
6	3.19.3 Commercially Sensitive Information All information in the project documents shall be presumed to be available for public review, though commercially sensitive information may be protected, as set out in VCS document Registration and Issuance Process, where it can be demonstrated that such information is commercially sensitive. The validation/verification body shall check that any information designated by the project proponent as commercially sensitive meets the VCS Program definition of commercially sensitive information. Information in the project documents related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring	As it is stated in several documents that TNC has a confidential contractual commitment to a philanthropic donor, please state in the PD what documents are commercially sensitive.	Note that the agreement with a major philanthropic donor, referenced in the PD and related documents, will not be publicly disclosed until approximately March 2013, so TNC will probably not register the carbon project on the VCS registry until then, and any information about the donation is confidential until publically disclosed. In addition, the following documents are confidential and commercially sensitive: 1) contract with philanthropic donor that will be provided for ESI's review; 2) Documents referenced in footnote 14, which have now been marked "CONFIDENTIAL" in the document title in the data room, including "PSA between Bosques and WDC and Clarification", "PSA Woodland - TNC", "WDC Shares Assign to TNC 2003-1", "WDC Agreement March 2011-1". (Note that the deeds and the explanatory map referenced in Footnote 14 are NOT confidential); 3) "Footnote 15 - Voluntary Carbon Offsets - Chilean law memo", which is now marked CONFIDENTIAL; 4) "Footnote 21 - Memo, CMT 11 de Febrero 2004" which is now marked CONFIDENTIAL; 5) "Footnote 55 - Memo, Evaluacion CCCC del actuar de MOP referente al acuerdo de 2003" which is now marked CONFIDENTIAL 6) "Financial projection - native forest restoration" which has been uploaded to the data room in response to NCR 64, and marked CONFIDENTIAL.	All requirements have been met except that all documents should be listed in the Documents table directly following the Table of Contents, the contract with the philanthropic donor needs reviewed by ESI, and possibly public disclosure of the philanthropic donor in March 2013.	The confidential documents are now listed directly following the Table of Contents in the PD. Per conversation with Shawn on 4 January; the donor contract is only needed for verification, not for validation.	Y

	of GHG emission reductions and removals shall not be considered to be commercially sensitive and shall be provided in the public versions of the project documents.					
Item #	VCS AFOLU Requirements Version 3.2 (1 Feb 2012)	Round 1 NCR/CL/OFI	Response from Client	NCR/CL/OFI	Response from Client	Satisfied (Y or N)
7	3.1.3 Where an implementation partner is acting in partnership with the project proponent, the implementation partner shall be identified in the project description. The implementation partner shall identify its roles and responsibilities with respect to the project, including but not limited to, implementation, management and monitoring of the project, over the project crediting period.	Please correct language in PD 1.3 to refer to Table 1.2 instead of Table 1.3 - "Roles and responsibilities of project proponents are elaborated in Table 1.3 below."	PD revised to correct table reference.	Addressed.		Y

8		Please state how water quality issues related to lack of road maintenance are being mitigated.	Please see the additions to the PD at the end of Section 5 explaining how these issues are being mitigated. The new additions state: "Evidence of erosion may be found in portions of the road network within the Reserve, and it is possible that this erosion may have a corresponding negative impact on water quality. However, these potentially negative impacts are mitigated by the following positive aspects of the current road network condition, relative to the baseline (the baseline being road conditions as they would have existed under continued ownership by an industrial timber company):• Many of the roads within the Reserve are no longer used, and vegetation has taken over these roads, providing more stability to the surface, more water retention, and less erosion than would have occurred in the baseline where primitive forest roads would have been maintained to a degree sufficient for transportation by 4-wheel drive vehicles. Currently, 68% of the road network that existed as of the project start date is no longer being used, and vegetation is overtaking these areas; 347 km of roads are now unused out of a total of 510 km of roads in the Reserve that were in place as of the project start date. • Funds received through the future sale of carbon credits would make it possible to undertake the repair of some of conditions that are causing erosion in the roads that are still in use. • A portion of the roads (13 km) within the Reserve were recently improved in conjunction with a native forest restoration pilot project, and these roads were designed to meet FSC standards, a significant improvement over the baseline scenario. "	Addressed.		Y
9	4) Total size of the project area.	Please provide total size of project area without parcels containing slopes too steep to qualify for harvest under CONAF.	The project area has been re-evaluated applying a new digital elevation model, resulting in a larger area excluded from the project, and the PD and all calculations have been revised accordingly. Project area has consequently been revised from 1,730.5 ha to 1,347.5 ha. A detailed explanation of the revised GIS analysis is provided in "Memo- VCR Revised Euc project area analysis 2012.12.17.doc" accompanying this response.	Pending shapefiles of topographic analysis requested during meeting.	The shapefiles were uploaded to the data room, and ESI was notified on 19 December about the location of the files in the data room. Rosie Brainard has confirmed via email on 4 January that ESI received all required shape files. The shapefile, PD, and related spreadsheets will be revised during the week of Jan. 28 to remove stand R38 from the project area, and to reflect a recalculation of the carbon benefits, after removing this stand.	Y Review of shapefiles complete. Addressed

Item #	VCS AFOLU Requirements Version 3.2 (REDD) (01 Feb 2012)	NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)
10	4.2.5 Eligible REDD activities are those that reduce net GHG emissions by reducing deforestation and/or degradation of forests. Deforestation is the direct, human-induced conversion of forest land to non-forest land. Degradation is the persistent reduction of canopy cover and/or carbon stocks in a forest due to human activities such as animal grazing, fuelwood extraction, timber removal or other such activities, but which does not result in the conversion of forest to non-forest land (which would be classified as deforestation), and qualifies as forests remaining as forests, such as set out under the IPCC 2003 Good Practice Guidance. The project area shall meet an internationally accepted	Please specifically state how the project areas meet the definition of a forest.	The most relevant forest definition for application to VCS REDD in Chile is as defined by the CDM Designated National Authority (DNA), Comisión Nacional del Medio Ambiente (CONAMA), which is the official Chile forest definition submitted to the UNFCCC. The threshold conditions are as follows: • Crown cover at least 25 percent • Minimum height of 5 meters at maturity • Minimum area of 0.5 hectares The forest classification, and delineation of eligible project area, applied the above definition through the image classification process, which can adapt to meet these thresholds (see GOFC-GOLD sourcebook COP-18 vers.1). During analysis and through examination of the resulting classification we ensure that the thresholds are met. (1) Forested areas with crown cover of < 25% are not classified as “forest” in the analysis. This is possible due to the difference in the spectral pattern in areas with low tree cover, and was confirmed in assessing classification accuracy and examination of high resolution Google Earth imagery (2) Forests that will meet the minimum height of 5 m are spectrally distinct from other vegetated areas with shorter stature, and would therefore be classified separately. This was verified in the accuracy assessment, and is further confirmed by the average stem heights of measure trees in the forest inventory area (4.5 m) were close to the 5 m total potential	Addressed.		Y

definition of forest, such as those based on UNFCCC host-country thresholds or FAO definitions, and shall qualify as forest for a minimum of 10 years before the project start date. The definition of forest may include mature forests, secondary forests, and degraded forests. Under the VCS, secondary forests are considered to be forests that have been cleared and have recovered naturally and that are at least 10 years old and meet the lower bound of the forest threshold parameters at the start of the project. Forested wetlands, such as floodplain forests, peatland forests and mangrove forests, are also eligible provided they meet the forest definition requirements mentioned above.		height threshold, meaning average total heights likely well exceeded the threshold, and certainly potential total heights (specifically referenced in the definition) exceed 5 m. Furthermore, the area covered by the CONAF forest permits, which represent the vast majority of the project area, is implicitly classified as forest. (3) Minimum areas are met by using a minimum mapping unit (MMU) of 0.81 ha, corresponding to 3 pixels by 3 pixels Landsat resolution (90m * 90m), providing close conformance to (and in fact a conservative application of) the 0.5 ha DNA minimum forest area threshold.			
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11	4.2.8 Activities that stop unsanctioned deforestation and/or illegal degradation (such as removal of fuelwood or timber extracted by non-concessionaires) on lands that are legally sanctioned for timber production are eligible as REDD activities. However, activities that reduce or stop logging only, followed by protection, on forest lands legally designated or sanctioned for forestry activities are included within IFM. Projects that include both avoided unplanned deforestation and/or degradation as well as stopping sanctioned logging activities, shall follow the REDD guidelines for the unplanned deforestation and/or degradation and the IFM guidelines for the sanctioned logging activities, and shall follow the requirements set out in Section 3.1.7.	As the PD references the legal permits to harvest and conversion of the native forest to Eucalyptus plantations, please discuss why the proposed conversion areas are defined as REDD activities and not IFM.	The project activity currently is defined as REDD under avoiding planned degradation. Under new guidance released in October, VCS AFOLU V3.3 section 4.2.9, the APDD category now includes "...activities where a forest system would have been cleared and replaced by a different forest system with a lower carbon stock and where the recovery of timber was not the primary objective of the initial forest clearance. For example, national land plans to reduce the forest estate and convert it to industrial-scale production of commodities such as pulpwood [as in the VCR project] and oil palm, where the converted land would still meet the country definition of forest land, are considered planned degradation." Further, methodology VM7 was updated to reflect the new VCS AFOLU guidance, and the relevant updated VM7 modules were released November 16 2012. Under Step 0 of the framework module, procedures for avoided planned deforestation/planned degradation apply to "land legally authorized and documented to be converted to non-forest or a managed tree plantation [the latter being the case of the VCR project]"	Addressed.	Y
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Item #	Approved VCS Methodology VM0007 Version 1.2, 31 July 2012 REDD Methodology Module REDD Methodology Framework (REDD-MF) Sectoral Scope 14	Round 1NCR/CL/OFI	Response from Client	Round 2NCR/CL/OFI	Response from Client	Satisfied (Y or N)

12	M-MON “VMD0015 Methods for monitoring of greenhouse gas emissions and removals”	CL - Based on limitations and issues discovered during the onsite verification, as discussed with TNC during the onsite an additional discussion is needed (conference call) to agree on an approach to verify the inventory. ESI will contact TNC to set up a call to discuss further.	Several discussions were held with the verifier to address the issue and an approach was agreed upon.	Addressed.		Y
13	X-UNC “VMD0017 Estimation of uncertainty for REDD project activities”	NCR - uncertainty calculations were not found in the PD or TNC's Chile Carbon Validation Files. Please point us to where these can be found.	Uncertainty calculations have been added to the PD in Section 3.4 prior to ex ante calculation of net project benefits	Addressed.		Y
14	REDD projects under the Methodology Framework are divided between three broad activity types: unplanned deforestation, planned deforestation and forest degradation through collection of wood for fuel and production of charcoal. A single project may include one, two or all three of these activity types. In table 1 on Page 6 the modules and tools are listed and it is indicated when use of modules/tools is mandatory under each activity type. The tool T-SIG should be used to justify the omission of carbon pools and emission sources.	Please follow the procedure in T-Sig tool to justify the elimination of mandatory module E-BB.	Emissions from biomass burning are conservatively ignored in the baseline, following guidance in methodology VM0007 module E-BB, which states that "Inclusion [of emissions of CO ₂ , N ₂ O and CH ₄ from biomass burning] in the baseline is always optional." The monitoring plan has been expanded to provide guidance on remote monitoring of incidence of fire, and now specifies that where burn areas are identified, T-SIG will be applied ex post, and where emissions are deemed significant will be included in project accounting. The parameter tables in the monitoring section have been expanded to include parameters used in E-BB. The monitoring report has also been updated to assess this potential source of emissions.	Addressed.		Y

15	Name of the project area (e.g., compartment number, allotment number, local name); Unique ID for each discrete parcel of land;	NCR - On page 63 of the PD describes a process by which TNC and CONAF agreed to criteria for locating the final project boundary. The validator found that at least one of these criteria (slopes in excess of 30%) were not followed in the location of the boundary. Please provide confirmation from CONAF that the criteria on page 63 were agreed to. Please provide an analysis demonstrating that the agreed CONAF criteria were met and how the issue has been addressed.	The project area has been re-evaluated applying a new digital elevation model, resulting in a larger area excluded from the project, and the PD and all calculations have been revised accordingly. Project area has consequently been revised from 1,730.5 ha to 1,347.5 ha. A detailed explanation of the revised GIS analysis is provided in "Memo - VCR Revised Euc project area analysis 2012.12.17.doc" accompanying this response. Response pending; we intend to provide a letter from CONAF confirming the required discounts from the permitted conversion areas; expected in January 2013.	Project proponent provided a walkthrough of the new digital elevation model to address questions. Pending letter from CONAF confirming required discounts. Also pending shapefiles of topographic analysis requested during meeting.	The shapefiles were uploaded to the data room, and ESI was notified on 19 December about the location of the files in the data room. Rosie Brainard has confirmed via email on 4 January that ESI received all required shape files. The letter from CONAF, confirming required discounts, was uploaded to the data room, and an explanatory email was sent to ESI on 7 January. The shapefile, PD, and related spreadsheets will be revised during the week of Jan. 28 to remove stand R38 from the project area, and to reflect a recalculation of the carbon benefits, after removing this stand.	Y Received and checked revised documents from client. Addressed
16	The project shall account for any significant increases in emissions of carbon dioxide (CO2), nitrous oxide (N2O) and methane (CH4) relative to the baseline that are reasonably attributable to the project activity. The GHG emission sources included in or excluded from the project boundary are shown in <u>Table 3 on Page 14.</u>	See earlier NCR regarding the use of T-SIG to eliminate E-BB module. Please clarify language in Table 2.2 to simply state that FFC emissions are excluded from both as a conservative measure.	Table 2.2 states that FFC emissions are excluded as a conservative measure. Table 2.2 has been updated to reflect that non-CO2 emissions from biomass burning will be monitored ex post, and module E-BB applied.	Addressed.		Y
17	a. Technical description of the monitoring task.	Please describe the means by which the deforestation rate, assumed to be zero, will be monitored.	Section 4.3.1 has been clarified to state that "The baseline as outlined here in the Project Description is valid for 10 years from the project start date, through November 3, 2013, and will be revised on the first monitoring event subsequent to this date. The baseline will be revised every 10 years from the project start date. Because the entire project area is deforested in the first 10-year baseline period, deforestation rate in the baseline for all subsequent baseline periods will be equal to zero."	Addressed.		Y

18	b. Data to be collected. The list of data and parameters to be collected shall be given in VCS PD.	Please describe the data to be collected in order to verify that the deforestation rate is zero.	As explained above, no data need be collected to set the baseline deforestation rate to zero in the second 10-year baseline period, because the entire project area is deforested in the first period.	Addressed.		Y
19	Project proponents shall use X-UNC to combine uncertainty information and conservative estimates and produce an overall uncertainty estimate of the total net GHG emission reductions.	See CL in line 27	Addressed in item 24 above.	Addressed.		Y
Item #	Approved VCS Module VMD0001, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)

20	Measurements of initial stocks employed in the baseline must take place within ± 5 years of the project start date, for simplicity referred to here as stocks at $t=0$.	Please discuss/justify the assumptions that were used to determine a steady state for all inventoried carbon pools. Please provide additional detail as to how the inventory presented meets this requirement or a justification as to why the requirement can be modified.	Regarding appropriateness of applying 2010/2011 forest carbon inventory estimates to previous years (back to 2003), it is impossible to be certain what stocks were in previous years without past measurement data, which are lacking. However, we believe this is a reasonable assumption (i.e. that stocks have been roughly stable for 6-7 years) for project accounting because the forests in the project area are in an evidently mature state. This is demonstrated by diameter distributions plotted at the inventory level, and at the previously delineated stratum levels (which were subsequently rejected because there were no appreciable differences between the mapped strata), all of which show an uneven-aged reverse-J distribution with tails out past 100 cm dbh (for evidence of this, please see the graph on the right side of the "diam dists" tab of the revised inventory analysis spreadsheet that has been uploaded to the data room "PD Annex 1 - VCR inventory analysis revNov 2012.xls"). Mature forests like these are generally near steady state or have insignificant accrual rates, in terms of biomass. This assumption was considered reasonable by an authority on Valdivian forests, Jorge Gayoso of the Universidad Austral (personal communication, March 2012). It is further relevant that no significant harvest or windstorm (representing significant inputs to dead wood) has taken place in the VCR since the project start date - dead wood stocks would be assumed to be declining since the last major input, which would have predated the project start date. This would make it conservative to reference dead wood stock estimates from a later time (where further net decay is represented).	Addressed.		Y
21	Above- and belowground biomass stock estimates are valid in the baseline (i.e. treated as constant) for 10 years, after which they must be re-estimated from new field measurements.	VM0007 requires that "Baselines shall be renewed every 10 years from the project start date" Please clarify measurement date.	Regarding baseline rate of deforestation, Section 4.3.1 has been clarified to state that "The baseline as outlined here in the Project Description is valid for 10 years from the project start date, through November 3, 2013, and will be revised on the first monitoring event subsequent to this date." Regarding baseline stock estimates, forest carbon stock estimates are derived from the 2010/2011 inventory (completed in February 2011) and thus are valid through February 2021. The monitoring plan has been revised to specify that "Stock estimates will be re-assessed at re-inventory on the first monitoring event subsequent to February 2021."	Addressed.		Y

22	Part 1, Option 2: Point Sampling with Allometric Equation method	Please provide more detail in the PD regarding the reduction of the original 130 clusters to the final 65 clusters. In particular, please describe how it was possible to reduce the sample size and still satisfy the statistical requirements. Please provide more detail on the decision to analyze Big BAF trees used for BBAR estimation as individual trees rather than as point samples.	As explained in the inventory report, despite the reduction from the original sample size from 130 to 65 clusters, CV's of basal area were much lower than anticipated (36% and 27% for the mature and successional strata, respectively, as compared with anticipated CVs, on which the original sample intensity was calculated, of 45% and 60%, respectively) and thereby achieving the precision target of +/- 10% of the mean at a 95% confidence level.	The first part of this NCR has been addressed. The second part of the NCR, regarding the analysis of the Big BAF trees as individual points rather than trees on a plot, was not discussed. Please address.	In application of the Big BAF sampling method, assessing basal area at the plot level and BBAR (directly analogous to VBAR) at the tree level, we followed the approach as outlined by Marshall, D., Iles, K., and J. Bell. 2004. Using a large-angle gauge to select trees for measurement in variable plot sampling. Canadian Journal of Forestry Resources 34: 840-845 AND Iles, K. 2003. A Sampler of Inventory Topics. Kim Iles and Associates, Ltd. Traditionally VBAR was assessed at the plot level on a subsample of plots (e.g. every 4th plot along a transect). The Big BAF approach was developed as a more efficient method to spread out the VBAR measurements in the field. Estimating VBAR or BBAR at the tree level or plot level are equally valid (for application to basal area estimated at the plot level) - the conversion of m^2 to m^3 (or m^2 to mass, which is simply $m^3 \times \text{a constant specific gravity}$) is a constant and the result is unrelated to the scale at which it is derived.	Y
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23	Step 2: Select or develop an appropriate and validated allometric equation for forest type/group of species j (e.g. tropical humid forest or tropical dry forest) or for each species or family j (group of species) found in the inventory (hereafter referred to as species group). Any equation selected may only be used if applicability has been demonstrated and validated per guidance in the parameters section below.	Please provide discussion and detail on use of Gayoso for trees exceeding 105cm.	During the inventory, 4 out of 158 measure trees exceeded the 105 cm dbh limit of Gayoso et al's dataset. With Big BAF sampling, the influence of potentially-biased biomass estimates (extrapolating beyond the dataset) would be realized in producing a biased BBAR parameter. To assess potential influence, we re-calculated BBAR, assuming that the biomass of the four measure trees > 105 cm dbh was equal to a 105 cm dbh tree (using Gayoso et al's allometric equation), thus cautiously (and clearly conservatively) assuming that biomass does not increase beyond 105 cm dbh. The BBAR recalculated applying this assumption (calculations documented in accompanying spreadsheet "VCR inventory analysis rev Nov2012" tab "alt BBAR") was 2.857, as compared with our current estimate of BBAR (which assumes that the Gayoso et al equation is robust beyond 105 cm dbh for the four trees in the dataset exceeding this threshold) of 2.871. This equal to a 0.49% difference in BBAR, thus any influence (in the current project estimates of forest biomass) of potential bias applying the Gayoso et al equation beyond 105 cm dbh is deemed insignificant.	Even though the results are not strongly influenced by inclusion of the 4 trees greater than 105cm, applying the rule that biomass is "capped" at a 105cm tree would be more appropriate and conservative. Please offer an alternative or make your suggested change in the final calculated numbers.	Per discussion with Shawn, on 4 January, the previous response is repeated. The difference between the clearly inaccurate "capped" approach and the potentially biased approach of assuming the model holds beyond the limits of the dataset is only 0.49% in terms of estimated BBAR. This is well below the 5% materiality threshold, and the existing treatment of the 4 trees exceeding 105 cm dbh is maintained.	Y
24	Step 3: Estimate carbon stock in aboveground biomass for each individual tree of species group j in the sample plot located in stratum i using the selected or developed allometric equation applied to the tree dimensions resulting from Step 1 and sum the carbon stocks in the sample plot	Please provide evidence that using average BA/plot and multiplying by the average BBAR per tree satisfies this requirement.	The Big BAF sampling method applied clearly operates differently than the methodology CP-AB module operation, and the PD has been updated to specify its use as a methodology deviation. The justification for the methodology deviation, now in the PD Section 2.6 follows: "Estimation of mean forest biomass carbon stocks per unit area employs a method different from that detailed in VM0007 module CP-AB (where the inventory level mean is derived from plot level biomass per unit area estimates). The 2010/2011 forest carbon inventory, detailed in Annex 1, instead employed a double sampling approach producing independent estimates of live tree basal area (m ² /ha) and live tree biomass:basal area ratios (BBAR, expressed in t C/m ²), which were then combined to produce inventory level estimates of mean biomass per unit area. This sampling approach has been peer-reviewed (Avery and Burkhart 1994, Iles 2003, Marshall et al 2004) and is equally robust, and more efficient than, the more traditional approach outlined in VM0007 module CP-AB."	Addressed.		Y
25	Step 4: Calculate the mean carbon stock in aboveground biomass for each stratum, converted to carbon dioxide equivalents	Please point to location of carbon stock expressed in CO ₂ e units.	The Annex 1 inventory report and the PD have been updated to provide a summary table clearing specifying stock estimates by pool in t C and t CO ₂ e units.	Addressed.		Y

26	Step 1: Calculate the belowground tree biomass carbon stock for each plot by multiplying the root to shoot ratio by the AGB calculated in Part 1	Please provide belowground biomass carbon stock estimates by plot.	Belowground biomass estimates cannot be derived at the plot level using the Big BAF sampling method, which constitutes a methodology deviation that has been added and justified in the PD. See response to item 37 above.	This is actually addressed in response to item 35 (not 37). Addressed.		Y
27	Step 2: Calculate the mean belowground tree biomass carbon stock for each stratum, converted to carbon dioxide equivalents	Please provide mean belowground tree biomass carbon stock for the project, converted to CO ₂ e.	The Annex 1 inventory report and the PD have been updated to provide a summary table clearing specifying belowground biomass carbon stock estimates in t C and t CO ₂ e units.	Addressed.		Y
28	Part 3: Aboveground non-tree biomass: Estimation of carbon stocks in aboveground non-tree woody biomass (CAB_nontree,i)	Please address the two applicability criteria regarding non-tree aboveground biomass (P. 1, VMD0001).	Non-tree aboveground biomass is absent in both post-deforestation baseline conditions: managed highway corridor and managed Eucalyptus plantations in both cases where regenerating vegetation is periodically removed by mechanical or herbicide treatments. It is therefore conservative to exclude non-tree aboveground biomass from the project boundary (as its inclusion would only increase baseline emissions and increase the amount of net VCUs accounted). Per the referenced module, non-tree aboveground biomass must be included as part of the project boundary if (1) Stocks of non-tree aboveground biomass are greater in the baseline than in the project scenario [not the case, as explained above, stocks in this pool are lower in the baseline], and (2) non-tree aboveground biomass is determined to be significant (using the T-SIG module). For the latter applicability criteria, use of the T-SIG tool could not possibly yield a significance determination for this pool, because the tool states that a pool can be deemed insignificant and excluded from accounting where the decrease in that pool is < 5% of the total decreases in pools and increases in emissions or < 5% of net removals by sinks, whichever is higher. Because the project activity, which involves conservation and no forest management interventions, results in no decrease in the non-tree aboveground biomass pool, zero decrease in the pool will logically be < 5% of either of the reference values.	Addressed.		Y

29	· Apply a biomass expansion factor to estimate total aboveground biomass from stem biomass. For broadleaf tropical trees this factor shall be:	Please detail that Gayoso value of 1/.7135 or 1.4 which expands stem biomass to AG biomass is appropriate for all diameter classes.	As explained in Gayoso et al 2002 (Gayoso, J.; Guerra, J.; Alarcón, D. 2002. Contenido de carbono y funciones de biomasa en especies nativas y exóticas. Proyecto FONDEF D98I1076 Medición de la capacidad de captura de carbono en bosques de Chile y promoción en el mercado mundial. 157 p.) the value 71.35% is the overall average ratio of stem biomass to total aboveground biomass, derived across species and diameter classes. Though clearly the ratio would vary among species and diameter classes, this resolution was not available in the Gayoso et al 2002 study.	Though the Gayoso study did not provide adequate resolution to assign different expansion factors to different diameter classes, the subsequent email from Gayoso indicated that "in older trees, total aerial biomass ratio / trunk with bark biomass is 1.25". Please justify the use of 1.4 for all trees in light of this new and more detailed information.	Clearly trees of different dimensions will have different expansion factors. The factor 71.35% (average stem: total aboveground biomass ratio across diameters and species), from which the 1.4 conversion factor was derived, is applicable in our validation analysis of the Gayoso equation, which we specifically did at the cluster level, NOT the tree level. We agree that it would not be valid to use the 1.4 factor if this analysis were done at the tree level. There were no published ratios or conversion factors available for different diameter classes, and the 1.25 factor for older trees suggested by Gayoso is to our knowledge unpublished and unconfirmed (though a reasonable assumption) - note that his comment was "En árboles mayores es posible [IT IS POSSIBLE] que la relación biomasa total aérea/biomasa fuste con corteza sea [COULD BE] de 1,25." Our analysis at the cluster level most closely approximates the scale at which Gayoso's 71.25% factor was derived.	Y
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30	· Plot all the estimated biomass of all the measured trees along with the curve of biomass against diameter as predicted by the allometric equation. If the estimated biomass of the measured trees are distributed both above and below the curve (as predicted by the allometric equation) the equation may be used. The equation may also be used if the measured individuals have a biomass consistently higher than predicted by the equation. If plotting the biomass of the measured trees indicates a systematic bias to overestimation of biomass (>75% of the trees above the predicted curve) then destructive sampling must be undertaken, or another equation selected. or	Please provide a chart showing the validation biomass estimates and the biomass function from Gayoso vs. DBH as specified in the module.	The chart specified has been produced and added to the Annex 1 inventory report and supporting calculations.	Addressed.	Y
31	Total height of tree (H)	As Gayoso does not use height as a variable, please list a deviation in the PD for not measuring heights for aboveground live.	The exclusion of height as a measured independent variable in tree biomass determination is now specified as a methodology deviation in PD Section 2.6.	Addressed.	Y

Item #	Approved VCS Module VMD0002,Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the dead wood pool (CP-D), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	NCR/CL/OFI	Response from Client	Satisfied (Y or N)
32	Measurements of initial stocks employed in the baseline must take place within ±5 years of the project start date, for simplicity referred to here as stocks at t=0.	NCR - The start date for this project is 4 November, 2003. The field inventory measurements were completed in early 2011, more than 7 years past the start date. The methodology deviation in the PD does not include the deadwood carbon pool. Please clarify how it was confirmed that the dead wood carbon pool has also been at steady state.	It is relevant that no significant harvest or windstorm (representing significant inputs to dead wood) has taken place in the VCR since the project start date - dead wood stocks would be assumed to be declining since the last major input, which would have predated the project start date. This would make it conservative to reference dead wood stock estimates from a later time (where further net decay is represented), even if steady state cannot be demonstrated.	Addressed.		Y
Item #	Approved VCS Module VMD0005,Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of carbon stocks in the long-term wood products pool (CP-W), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)

33	The approach outlined in this module employs emission factors (OF, SLF, and WW) derived by Winjum et al. 1998. In the event that new research findings updating or refining (e.g. for specific countries) OF, SLF and/or WW factors become available in the future (during the project crediting period), they will replace the factors included in the module, otherwise the factors in the module will remain valid.	CL - The source of data for OF, SLF, and WW is stated as VMD0015. The correct source is VMD0005. Please correct in Monitoring Report and PD where VMD0015 is referenced in error.	The PD and monitoring report have been revised to make the referenced correction.	Addressed.		Y
34	Equations must have been derived using a wide range of measured variables (commercial wood volume per unit area and total aboveground biomass per unit area) based on datasets that comprise at least 30 trees. Equations must be based on statistically significant regressions and must have an r^2 that is ≥ 0.8 .	CL - please provide the validator with information on the regression analysis for the 2007 inventory dataset that was used to determine commercial volumes. Also, please provide a justification for using in Table 3.4 a subset of the 2007 data found in Table 3.16. Please provide the entire report of this inventory.	The entire report of this inventory is provided in Annex 2 "Inventario Forestal Empresas TNC. 2007", in which all sampling and volume measurement procedures are detailed. In Table 3.4 of the PD, a subset of the full 2007 Eucalyptus plantations inventory is drawn from which biomass estimates for these strata are derived. The subset only includes plantations established from 1990-1992, which corresponds with the planting dates of the Eucalyptus stands existing within the project area. Thus, the 2007 estimate is for 15-17 year old stands. The Eucalyptus stands in the baseline (est 1990-1992) are deforested between 2007-2012 (PD Table 3.2), and thus basing biomass at the time of deforestation on 2007 (i.e. current or previous) volume estimates yields conservative results (i.e. biomass of 17-22 year old stands are based on biomass of 15-17 year old stands). The inventory subset used also provides for greater specificity to the project area (5 of the 2007 inventoried stands are actually located in the project area).	Although the referenced document is not in English, the explanation provided here will suffice. Please make reference to Annex 2 in the PD where appropriate. Addressed.	A reference to Annex 2 has been added to Tables 3.4 and 3.16 in the PD.	Y

35	(a) Direct forest inventory of the project area, distinguishing commercially viable stocks on the basis of species and tree size, referencing local expert knowledge or a participatory rural assessment (PRA) of harvest practices and markets; (b) Forest inventory from a proxy area in the same region, representing the same forest type and age class, distinguishing commercially viable stocks on the basis of species and tree size, referencing local expert knowledge of harvest practices and markets National and forest type-specific or eco-region-specific (e.g. from National GHG inventory).	CL - It is not clear what approach was used to determine Pcomi. Pcom was not found in the Monitoring Report. Please explain.	Parameter Pcom is only used in module CP-W Option 2 Commercial Inventory Estimation. As specified in the PD, Option 1 Direct Volume Extraction Estimation is used to estimate the longterm wood products pool.	Addressed.		Y
Item #	Approved VCS Module VMD0006, Version 1.0 (3 December 2010), REDD Methodological Module: Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation (BL-PL), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)

36	This module allows for estimating GHG emissions related to planned deforestation in the baseline case. The module assesses GHG emissions within the project area for the baseline period.	CL - several data and parameters that require monitoring in VMD0006 were not found in the Monitoring Report and PD. Example: Section 3.1 of the PD is referenced many times. L-Di is a default value in VMD0006. Please include all required monitored or default data and parameters in PD Section 4.	Parameters tables in the PD and monitoring report have been expanded to include VMD0006 parameters. Planned, D%planned and L-Di. It should be noted that these and other baseline parameters remain fixed (and are not monitored) for the 10-year baseline period; hence they are not updated in the 2011 monitoring report. In the parameter tables, reference is made to Section 3.1 of the PD where details on the source/derivation of these parameters is provided.	Addressed.		Y
37	The GHG emissions in the baseline within the project boundary shall be estimated using <u>equation 6 on page 9</u> .	CL - Table 3.19 provides a summary of total BL emissions that appear to come from Tables 3.10 and 3.18. The validator was not able to locate the calculations in the first column of Table 3.19 that sum to 58,404 tCO ₂ . Two Tables 3.10 were found in the PD.	Second Table 3.10 renamed Table 3.11a (and Table 3.11 renamed Table 3.11b - both new Tables 3.11a and 3.11b cover forest permit areas). The first column in Table 3.19 derives from current (and previous first) Table 3.10 (covering baseline summing calculations for the road construction scenario), which is a landscape table in Microsoft Word, and a separate section (i.e. possibly did not print but is viewable onscreen).	Please reformat table to print correctly.	Per discussion with Shawn on 4 January, ESI confirmed that the table does already print correctly.	Y

Item #	Approved VCS Module VMD0015, Version 2.0 (23 November 2011), REDD Methodological Module: Methods for monitoring of greenhouse gas emissions and removals (M-MON), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)
38	· The entire leakage belt, where required: data shall be available for the year in which monitoring and verification is occurring	Please describe how Google Earth imagery used for leakage assessment meets minimum quality standards described in this module (see above, include 30 x 30 m and current year requirements)	Google earth imagery is used for accuracy assessment purposes. Within Google earth, the imagery date and imagery provider are listed when the scene is focused in to the finest scale (zoomed in), and only areas with high resolution data from within 12 months of the classified image (e.g. 2010-2011 for the first monitoring report) are used. Imagery sources within Google earth vary, but in the project region they include the following data sources which both meet the VM0007 module BL-UP spatial requirements of a minimum of 5m x 5m pixel resolution for use in accuracy assessment: Geo-eye, spatial resolution of <2 m (0.41-1.35m) http://www.geoeye.com/CorpSite/products/earth-imagery/geoeye-satellites.aspx#geoeye1 Digital Globe, spatial resolution 2m http://www.digitalglobe.com/products#mapping&basic-satellite-imagery Satellite imagery used for image classification is Landsat data which meets the requirement of 30m 30m spatial resolution)	Addressed.		Y
39	· Update the Forest Cover Benchmark Maps for the project area and leakage belt.	Please include an update to the Forest Cover Benchmark Map for any activities identified within the leakage belt.	Planned deforestation/degradation does not employ a leakage belt approach in methodology VM0007.	Addressed.		Y
40	This should be estimated in % per year.	Please include a %deforestation rate in the PD as per this item.	The monitoring report Section 4.2 has been revised to specify that the monitored 2003-2011 annual deforestation rate is 0.06% (attributed to classification error, as explained in the monitoring report discussion).	Addressed.		Y

41	Then, a maximum possible forest cover map should be made for the most recent time period.	Please provide a maximum possible forest cover map as per this item.	The classified imagery for the VCR (of which the project area is a smaller subset) is 99.7% and 100% cloud free in 2003 and 2011, respectively. Because the area with cloud cover in either date does not exceed 10%, a maximum possible forest cover map does not need to be produced for estimating the total area of deforestation during the period.	Please note in the PD these cloud-free percentages.	PD Section 1.9 updated to specify cloud free percentage of 2003 imagery. Cloud free percentage of 2011 imagery already provided in 2011 monitoring report (Table 5.1, Section 5).	Y
42	The historical rate in % should be multiplied by the maximum forest cover area at the start of the period for estimating the total area of deforestation during the period.	Please provide estimate of total area of deforestation during the period.	Total area of deforestation (8.8 ha) is specified in Section 4.2 of the monitoring report.	Addressed.		Y
43	For each post-deforestation land use (u) estimate the long-term carbon stock (Represented by Equation 6 on Page 9)	Please indicate that the carbon stocks in the selected pools will be measured and estimated as in the baseline modules.	For monitoring, post-deforestation stocks are conservatively assumed to be zero, as specified in the monitoring report Section 4.2 Table 4.4.	Addressed.		Y
44	Carbon stocks in the selected pools (must be the same as those used in the baseline modules) must be measured and estimated using the methods given in modules CP-AB, CP-D, CP-L, CP-S.	Please indicate that the carbon stocks in the selected pools will be measured and estimated as in the baseline modules.	As stated above, all pools in the post-deforestation state, for monitored deforestation ex post, are conservatively assumed to be zero.	Addressed.		Y
45	An output of the PRA shall be a distance of degradation penetration from all access points (access buffer), such as roads and rivers or previously cleared areas, to the project area.	Please detail approach to estimation of degradation penetration	As stated in the monitoring plan, "Because it is extremely sensitive to ask of community members explicit questions regarding timber harvest activities, precluding direct interviews with communities potentially carrying out these activities, potential for illegal degradation will instead be monitored via periodic patrols throughout the VCR area, including the project area." Hence, no PRA is conducted and the entire project area and VCR is monitored (not just likely accessible areas). This alternate approach is explicitly listed as a methodology deviation in the PD Section 2.6.	The key issue in this NCR is that areas of degradation are monitored adequately. Specifically, the use of access points to guide the monitoring. Describe how the patrols are designed such that the access points are considered as part of the process.	Additional details on deployment of park guard patrols and identification of priority areas included in PD monitoring plan: "Patrols prioritize key access points/areas of activity, particularly in the areas of Colun, Chaihuin and the route from Hueicolla to La Union (Rts 470 and 80), the latter area in coordination with CONAF personnel posted at a permanent guard station at the national park near the reserve entrance. Notwithstanding the priority areas identified above, guard patrols are	Y

					deployed according to continuous re-assessments of threats, which may change in nature and location seasonally. Monthly meetings of park guards are held to assess current threats and using a planning grid of the reserve, select priority 100 ha grid areas for patrols on the basis of accessibility and threats. Monthly, 4 grids, covering an area of 400 ha, are investigated. Guards carry out patrols on foot, on motorcycles and in pickup trucks. Twenty camera traps are also deployed in priority areas to aid in monitoring threats. When incidents are encountered, guards will record details regarding the incident on standardized forms, including the location using GPS. In the case of illegal logging encountered, guards will specify the species and volume (cubic meters) extracted, and whether there was any contact with the persons involved. While in the field, guards maintain radio contact with the reserve administration office in Chaihuin, to which incidents are also relayed immediately by radio."	
46	If there is little to no evidence that trees are being harvested (see next paragraph on how to estimate emissions and use tool T-SIG to determine if significant or not) then degradation can be assumed to be zero and no monitoring is needed.	Please assure that T-SIG will be used if assumption is made that degradation is zero.	The PD and monitoring report have been revised to specify that T-SIG will be used to justify where degradation is assumed to be zero.	Addressed.		Y

47	The sampling plan must be designed using plots systematically placed over the buffer zone so that they sample at least 3% of the area of the buffer zone (ADegW,i).	Please detail that the supplemental plots will be located systematically across the area.	The PD and monitoring report have been revised to specify that supplemental monitoring plots (for illegal degradation) will be allocated systematically.	Addressed.		Y
48	If the stump is a large buttress, identify several individuals of the same species nearby and determine a ratio of the diameter at DBH to the diameter of buttress at the same height above ground as the measured stumps.	Please describe methodology for dealing with large buttress trees.	Buttressed stems are rare in Valdivian forests. As specified in the monitoring plan, diameters of stumps cut below breast height are conservatively assumed to be equivalent to diameter at breast height.	Addressed.		Y
Item #	Approved VCS Module VMD0016, Version 1.0 (13 December 2010), REDD Methodological Module: Methods for stratification of the project area (X-STR), Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)

49	At the project start and whenever biomass stocks are re-measured (i.e. at least every 10 years), project proponents must demonstrate after inventory that within the project area there are no unidentified (i.e. not previously stratified) discrete clusters of sample plots/points representing >10% of samples in the project area that consistently differ (i.e. each sample plot/point estimate) from the overall project mean by $\pm 20\%$.	CL - No PD Annex was found that demonstrates this requirement within the eligible project area.	This analysis has been completed and is now included in the revised inventory report. Per VM7 module X-UNC VMD16, the relevant criterion (demanding post-stratification of the project area) is 7 or more (>10% of 65 clusters) clustered sample points consistently exceeding $\pm 20\%$ of the mean. The value applied was basal area, directly correlated to biomass and because biomass per unit area estimates are not available at the sample level with the Big BAF method used, thus the threshold values were > 69.6 or $< 46.4 \text{ m}^2/\text{ha}$. Mapping of cluster level basal area estimates (provided in revised inventory report) reveal no groups of clusters/sample points meeting these criteria.	Addressed.	Y
50	A map displaying the final delineation of strata must be included in the VCS PD.	NCR- According to the PD the project area was stratified into mature and successional strata. No PD Annex was found with the final delineation of strata of the eligible project area.	The project area is not stratified into mature and successional areas. Only one native forest stratum is employed, justified based on inventory results (which initially delineated these strata but discovered no significant differences, and thus for project accounting these were combined into a single stratum). Nowhere in the PD are mature vs successional strata discussed (only in Annex 1 in discussion of the inventory design).	Addressed.	Y

Item #	Approved VCS Tool VT0001, Version 3.0 (1 February 2012), TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY IN VCS AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU) PROJECT ACTIVITIES, Sectoral Scope 14	Round 1 NCR/CL/OFI	Response from Client	Round 2 NCR/CL/OFI	Response from Client	Satisfied (Y or N)
51	Identify the financial indicator, such as IRR (investment rate of return), NPV (net present value), payback period, cost benefit ratio most suitable for the project type and decision-making context.	Please indicate why NPV is the most suitable financial indicator for this particular project type and decision-making context.	As indicated in the PD, under Table 2.6, Alvarez and Sandoval use NPV as the metric for quantifying financial benefits to investors in eucalyptus plantations in Chile, thus demonstrating that NPV is a metric employed by investors in a similar context to that of the project. (ÁLVAREZ, J.; SANDOVAL, E. 1999. Silvicultura Integrada en Eucalyptus nitens In: XII Silvotecna. Realidad y Potencial del Eucalipto en Chile. 23 – 44 p.) The use of NPV as the appropriate metric is supported by "Smith, David M., et al, <u>The Practice of Silviculture: Applied Forest Ecology</u> , Ninth Ed., 1997, p. 432", which states... "There are two basic capital investments in forestry. The most obvious is the money actually invested out-of-pocket in the costs of growing trees and holding the land beneath them. The usual way of analyzing these kinds of investments is by using compound interest calculations to compare the net present values of different courses of action. In this type of analysis all costs and revenues are discounted to the present using a chosen interest rate."	Addressed.		Y

52	a) Calculate the suitable financial indicator for the proposed VCS AFOLU project without the financial benefits from the VCS and, in the case of Option II above, for the other land use scenarios. Include all relevant costs (including, for example, the investment cost, the operations and maintenance costs), and revenues (excluding GHG credit revenues, but including subsidies/fiscal incentives where applicable), and, as appropriate, non-market cost and benefits in the case of public investors.	Please provide source of MAI estimate (16.2m³/ha/yr) for VCR E globulus plantations, as estimated from 2007 data. Please provide copies of references for Table 2.5 (PD). Please clarify the reason why there is no harvest in 2003 and 2004 in the Alternative 1 NPV Analysis. Please state why native forest conversion revenue in 2003-2008 isn't accounted for in NPV analysis alternative 1? Please provide supporting data to justify statement "and in fact this activity is conducted at a net cost to TNC (or any other entity that would focus on restoration objectives) because of the extensive reduced impact harvest precautions and cost of plant material and site preparations for the restoration."	1) The source of the MAI estimate (16.2m³/ha/yr) for VCR E globulus plantations is from Annex 2 and detailed in Table 3.16 of the PD. Copies of all references for Table 2.5 (PD) accompany this response. 2) References for Table 2.5: Copies of one reference (INFOR 2004) has already been uploaded to the data room ("Reference Table 2.5 (INFOR 2004) Informe Técnico 166 a" and "Reference Table 2.5 (INFOR 2004) Informe Técnico 166 b"; RESPONSE PENDING: we are obtaining the other references from Table 2.5 that were requested and expect to have them in December 3) No harvests take place in 2003 and 2004 in the Alt 1 NPV analysis because no Eucalyptus was planted in the VCR prior to 1990, which means that with a 15 year rotation the first harvest would take place in 2005. 4) No native forest conversion revenue in 2003-2008 is accounted in NPV analysis alternative 1 because as stated in the PD Section 3.1 "No wood products are produced from the initial native forest conversion activity. Historic practices of Bosques S.A., the prior property owner, involved no recovery of wood from native tree species during the forest conversion process due to poor markets for native timber combined with long transport distances. ... The same constraints faced by Bosques S.A. apply to the baseline agent and thus no recovery of wood products is expected to result from conversion of native forest in the baseline." 5) TNC has a contract with a major industrial timber company in Chile, "Masisa" to conduct the restoration activities. The pilot will be conducted over a period of 11 years, and although it produces revenue due to the removal of marketable eucalyptus, the overall project is forecast to result in a net loss to TNC as documented in the financial projection uploaded to the data room "CONFIDENTIAL TNC Financial Projection - native forest restoration.xls". Therefore, it is conservative to omit this projected net revenue loss from the NPV analysis.	Pending. See Client Response	The remaining documents in Table 2.5 have been uploaded to the data room (and labeled as "Reference Table 2.5: INFOR 1998 Monografia Eucalyptus" and "Reference Table 2.5: INFOR fencing costs"). Please note that INFOR 1998 is a book that had to be electronically scanned page by page, and therefore, in the data room, it consists of a zip file with a large number of individual PDF files. Regarding "INFOR fencing costs", please note that this is a more recent reference (than INFOR 2002 that was used in the original PD) and replaces the prior reference to INFOR 2002; this reference was used for the estimate of fencing costs, which is now CP \$40,000 / ha. The files "PD Annex 12 additionality analysis VCR Final rev 25Jan" and "PD Annex 14 risk analysis VCR revJan25" have been added to the data room to reflect updates due to the change in the estimate of fencing costs). Text in the PD relating to additionality analysis has also been updated to reflect this minor change relating to fencing costs.	Y
53	Include a sensitivity analysis that shows whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions.	Please include sensitivity analysis around the revenue (philanthropic donations) in Alternative 2.	We have updated the sensitivity analysis in Table 2.9, so that the scenarios for Alternative 2 now include not only a 10% and 20% reduction in costs, but also a concurrent 10% and 20% increase in philanthropic donations respectively (for the period 2013-2023). The old NPV results have been replaced by the new results, in Table 2.9.	Addressed.		Y

N/A		This is an addition by TNC; it was not part of ESI's original audit findings.	The following errors detected in the inventory analysis have been corrected (in revised calculation spreadsheet "VCR inventory analysis revNov2012") and stock estimates updated in the PD and monitoring report. For standing dead wood, the cluster level estimate is now calculated as the mean of the five component plots, as it had not been previously, resulting in standing dead stocks reduced to 1/5. For standing dead wood, decomposition state "0" is now specified as a placeholder for plots with no standing dead wood, which results in zero biomass for the plot. Decomposition states were all reviewed and checked for consistency: i.e. "1" if dbh only was recorded or "2" if height was also measured.	Addressed.		Y
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APPENDIX B - CLUSTER PLOTS SAMPLED DURING FIELD VALIDATION



APPENDIX C – DOCUMENTS REVIEWED

Documents Received on 9/11/12

- PD Annex 05 - road map coastal highway.pdf
- PD Annex 06 Informe 2 Imágenes y Mercados.pdf
- Monitoring Report Annex 1- VCR APD summing tables 2011 monitoring.xlsx
- Monitoring Report Annex 2 - VCR road APD analysis 2011 monitoring.xlsx
- Monitoring Report Annex 3- VCR Euc APD analysis 2011 monitoring.xls
- PD Annex 01 FINAL measurement error analysis.xlsx
- PD Annex 01 Forest Biomass Inventory Results for Valdivia Coastal Reserve.doc
- PD Annex 01 VCR inventory analysis.xls
- PD Annex 02 - Informe Inventario tnc_02.doc
- PD Annex 03 - Plan de Conservación Reserva Costera Valdiviana.pdf
- PD Annex 04 ANTECEDENTES DE LICITACION.doc
- PD Annex 04 Pavimentos.doc
- PD Footnote 19 INFOR Bulliten - In Tec 166.pdf
- PD Footnote 19 INFOR Bulliten - EstablecimientoEuca1.pdf
- PD Footnote 19 INFOR Bulliten - EstablecimientoEuca2.pdf
- PD Footnote 21 CMT 11 de Febrero 2004.doc
- PD Annex 07 - VCR Conservation Management Plan ENGLISH 05 2011.doc
- PD Annex 07 - VCR Conservation Management Plan SPANISH 05 2010.pdf
- PD Annex 10 VCR road APD analysis.xlsx
- PD Annex 11 VCR Euc APD analysis.xls
- PD Annex 12 additionality analysis VCR Final.xlsx
- PD Annex 14 risk analysis VCR.xlsx
- PD Annex 15 Protocolos del campo TNC VCR inventory FINAL 9Nov2010.doc
- PD Annex 16 VCR APD summing tables.xlsx
- PD Footnote 03 - Gaysoso 2003.doc
- PD Footnote 06 propuesta tecnica Santuario Naturaleza Colun Río Bueno.doc
- PD Footnote 08 - Presidential Mandate, Frei, 1994.pdf
- PD Footnote 09 - Protocolo de Acuerdo Enero8Mop-FIN.doc
- PD Footnote 11 - Invita a Participar de Comité.pdf
- PD Footnote 12 - permit cancellation letter with CONAF stamp.jpg
- PD Footnote 14 - Deed Chaihuin.pdf
- PD Footnote 14 - Deed Vanecia.pdf
- PD Footnote 14 - Explanatory Map of Chaihuin and Venecia parcels in VCR.jpg
- PD Footnote 14 - PSA between Bosques and WDC and Clarification.pdf
- PD Footnote 14 - WDC Shares Assign to TNC 2003-1.pdf
- PD Footnote 14- WDC Agreement March 2011-1.pdf
- PD Footnote 15 - Voluntary Carbon Offsets chilean law memo.pdf
- VCS 2011 Monitoring GIS files
 - o 2003 ForestNonForest
 - 2003_limiteRCV.shx
 - 2003_limiteRCV.dbf

- 2003_limitesRCV.prj
- 2003_limitesRCV.sbn
- 2003_limitesRCV.sbx
- 2003_limitesRCV.shp
- 2003_limitesRCV.shp.xml
- o 2011_ForestNonForest
 - 2011_limitesRCV.shx
 - \2011_limitesRCV.dbf
 - 2011_limitesRCV.prj
 - 2011_limitesRCV.sbn
 - 2011_limitesRCV.sbx
 - 2011_limitesRCV.shp
 - 2011_limitesRCV.shp.xml
- o VCS Project Areas FINAL
 - PlannedRoad_ProjectArea_FINAL.shx
 - Forest Conversion_ProjectArea_FINAL.kmz
 - ForestConversion_ProjectArea_FINAL.dbf
 - ForestConversion_ProjectArea_FINAL.prj
 - ForestConversion_ProjectArea_FINAL.sbn
 - ForestConversion_ProjectArea_FINAL.sbx
 - ForestConversion_ProjectArea_FINAL.shp
 - ForestConversion_ProjectArea_FINAL.shx
 - PlannedRoad_ProjectArea_FINAL.dbf
 - PlannedRoad_ProjectArea_FINAL.kmz
 - PlannedRoad_ProjectArea_FINAL.prj
 - PlannedRoad_ProjectArea_FINAL.sbn
 - PlannedRoad_ProjectArea_FINAL.sbx
 - PlannedRoad_ProjectArea_FINAL.shp

Documents Received on 9/13/12

- Valdivia_sur.jpg
- 1_Project Design VCS.docx
- PD Footnote 14 - PSA Woodland -TNC (2).docx.pdf
- PD Footnote 45 FAO FRA Chile 2005.pdf
- PD footnote 72 caracterizacion predios chahuin y venecia.pdf
- PD footnote 73 Informe Final Cordillera Pelada.pdf
- PD Footnote 79 Muñoz et al 2005a.pdf
- Valdivia_norte.jpg
- Valdivia_overview.jpg

Documents Received on 9/14/12

- PD Footnote 79 Muñoz et al 2005a.pdf
- 1_VCR REDD 2011 Monitoring Report.doc
- PD Annex 13 Non permanence risk report.docx
- PD Footnote 55 Evaluación CCCC del actuar de MOP referente al acuerdo de 2003.doc
- PD Footnote 56 Estudio Terram.pdf

- PD footnote 72 caracterizacion predios chaihuin y venecia.pdf
- PD footnote 73 Informe Final Cordillera Pelada.pdf

Documents Received on 9/17/12

- VCS_MonitoringPoints_Completed
 - o VCR_MonitoringPoints_Completed.shx
 - o VCR_MonitoringPoints_Completed.dbf
 - o VCR_MonitoringPoints_Completed.prj
 - o VCR_MonitoringPoints_Completed.sbn
 - o VCR_MonitoringPoints_Completed.sbx
 - o VCR_MonitoringPoints_Completed.shp
 - o VCR_MonitoringPoints_Completed.shp.xml

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- VCS Road
 - o cam_2004.shx
 - o cam_2004.dbf
 - o cam_2004.sbn
 - o cam_2004.sbx
 - o cam_2004.shp

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- VCS_ForestInventory2_2010.11
 - o VCR_ForestInventory2_2010.11.04.shp.xml
 - o VCR_ForestInventory2_2010.11.04.shx
 - o \VCR_ForestInventory2_2010.11.04.dbf
 - o VCR_ForestInventory2_2010.11.04.prj
 - o VCR_ForestInventory2_2010.11.04.sbn
 - o VCR_ForestInventory2_2010.11.04.sbx
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Documents Received on 10/01/12

- Gayoso et al 2002.pdf
- english_spanish_glossary12_06.pdf

Documents Received on 10/22/12

- Protocolos del campo TNC VCR inventory FINAL 9Nov2010_ENG.doc

Documents Received on 12/03/12

- VCR Conservation Management Plan ENGLISH through chapter 6.doc

Documents Received on 12/10/12

- VCR REDD APD revNov2012.docx
- CONFIDENTIAL TNC Financial projection - native forest restoration.xlsx

- Figure 3.1 VCR PD_ENGLISH.dot
- NCR responses Nov2012.xlsx
- PD Annex 1 Forest Biomass Inventory Results for Valdivia Coastal Reserve revNov2012.doc
- PD Annex 1 VCR inventory analysis rev Nov2012.xls
- PD Annex 04 Pavimentos_ENGLISH.doc
- PD Annex 13 Non permanence risk report revNov2012.docx
- PD Annex 15 Protocolos del campo TNC VCR inventory FINAL 9Nov2010_ENG.doc
- PD Footnote 14 - CONFIDENTIAL PSA between Bosques and WDC and Clarification.pdf
- PD Footnote 14 - CONFIDENTIAL PSA Woodland -TNC (2).docx.pdf
- PD Footnote 14 - CONFIDENTIAL WDC Shares Assign to TNC 2003-1.pdf
- PD Footnote 14- CONFIDENTIAL WDC Agreement March 2011-1.pdf
- PD Footnote 15 - CONFIDENTIAL Voluntary Carbon Offsets chilean law memo.pdf
- PD Footnote 21 - CONFIDENTIAL CMT 11 de Febrero 2004.doc
- PD Footnote 55 CONFIDENTIAL Evaluación CCCC del actuar de MOP referente al acuerdo de 2003.doc
- political risk calculation.xlsx
- Reference Table 2.5 (INFOR 2004) Informe Técnico 166 a.pdf
- Reference Table 2.5 (INFOR 2004) Informe Técnico 166 b.pdf
- VCR REDD 2011 Monitoring Report revNov2012.doc

Documents Received on 12/20/12

- VCR Revised Euc project area analysis 2012.12.17.doc
- Established plantations and slope 1.jpg
- Established plantations and slope 2.jpg
- Established plantations and slope 3.jpg
- NCR responses 17Dec2012.xlsx
- NCR responses 19Dec2012.xlsx
- PLAN DE MANEJO RESERVA COSTERA VALDIVIANA Final Spanish.pdf

Documents Received on 01/02/13

- VCR REDD APD rev17Dec2012.docx

Documents Received on 01/03/13

- PD Annex TNC VCS PA 2012.12.12
- PD Annex 06 - 2011_lc_analysis.7z
- Memo -VCR Revised Euc project area analysis 2012.12.17.doc
- PD Annex 1 Forest Biomass Inventory Results for Valdivia Coastal Reserve revNov2012.doc
- PD Annex 1 VCR inventory analysis rev Nov2012.xls
- VCR REDD APD revNov2012.docx
- VCR road APD analysis 2011 monitoring revDec2012.xlsx
- PD Annex 10 VCR road APD analysis rev Dec2012.xlsx
- PD Annex 11 VCR Euc APD analysis rev Dec2012.xls
- PD Annex 13 Non permanence risk report revNov2012.docx
- PD Annex 16 VCR APD summing tables rev Dec2012.xlsx
- political risk calculation.xlsx

- VCR APD summing tables 2011 monitoring revDec2012.xlsx
- VCR Euc APD analysis 2011 monitoring revDec2012.xls
- VCR REDD 2011 Monitoring Report revDec2012.doc
- VCR REDD 2011 Monitoring Report revNov2012.doc
- VCR REDD APD rev17Dec2012.docx
- VCR_2011 Monitoring _GIS files
 - o 2003_ForestNonforest
 - 2003_limitesRCV.shx
 - 2003_limitesRCV.dbf
 - 2003_limitesRCV.prj
 - 2003_limitesRCV.sbn
 - 2003_limitesRCV.sbx
 - 2003_limitesRCV.shp
 - 2003_limitesRCV.shp.xml
 - o 2011_ForestNonforest
 - 2011_limitesRCV.shx"2011_limitesRCV.dbf
 - 2011_limitesRCV.prj
 - 2011_limitesRCV.sbn
 - 2011_limitesRCV.sbx
 - 2011_limitesRCV.shp
 - 2011_limitesRCV.shp.xml
 - o VCSProjectAreas_FINAL
 - PlannedRoad_ProjectArea_FINAL.shx
 - Forest Conversion_ProjectArea_FINAL.kmz
 - ForestConversion_ProjectArea_FINAL.dbf
 - ForestConversion_ProjectArea_FINAL.prj
 - ForestConversion_ProjectArea_FINAL.sbn
 - ForestConversion_ProjectArea_FINAL.sbx
 - ForestConversion_ProjectArea_FINAL.shp
 - ForestConversion_ProjectArea_FINAL.shx
 - PlannedRoad_ProjectArea_FINAL.dbf
 - PlannedRoad_ProjectArea_FINAL.kmz
 - PlannedRoad_ProjectArea_FINAL.prj
 - PlannedRoad_ProjectArea_FINAL.sbn
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- PD Annex 14 risk analysis VCR revJan25.xlsx
- PD Annex 06 CONAF letter English.docx
- PD Annex 06 CONAF letter part 1 Spanish.jpeg
- PD Annex 06 CONAF letter part 2 Spanish.jpeg
- PD Annex 06 CONAF letter part 3 Spanish.jpeg
- PD Annex 08 CONAF permit for Venecia sector stands R528-R535 ENGLISH.docx
- PD Annex 08 CONAF permit for Venecia sector stands R528-R535 SPANISH.pdf
- PD Annex 08 CONAF permit for Venecia sector stands R566-R625 ENGLISH.docx

- PD Annex 08 CONAF permit for Venecia sector stands R566-R625 SPANISH.pdf
- PD Annex 09 CONAF permit for Chaihuin sector stand R37 ENGLISH.docx
- PD Annex 09 CONAF permit for Chaihuin sector stand R37 SPANISH.pdf
- PD Annex 12 additionality analysis VCR Final rev 25Jan.xlsx
- VCR REDD APD rev25Jan2013.docx
- Reference Table 2.5 INFOR fencing costs.pdf
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 - o 1.pdf
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- Memo - VCR Revised Euc project area analysis 2013.01.30.docx
- VCR_PA20130130.kmz
- VCR APD summing tables 2011 monitoring revFeb2013.xlsx
- VCR APD summing tables rev Feb2013.xlsx
- VCR Euc APD analysis 2011 monitoring revFeb2013.xls
- VCR Euc APD analysis rev Feb2013.xls
- VCR REDD 2011 Monitoring Report revFeb2013.doc
- VCR REDD APD rev1Feb2013.docx
- VCR REDD APD rev6Feb2013 CLEAN.docx
- VCR additional GIS Files

- o HueicollaRoad_50mBuffer.shx
- o ForestConversion_PA_20130129.dbf
- o ForestConversion_PA_20130129.prj
- o ForestConversion_PA_20130129.sbn
- o ForestConversion_PA_20130129.sbx
- o ForestConversion_PA_20130129.shp
- o ForestConversion_PA_20130129.shp.xml
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- o HueicollaRoad_50mBuffer.dbf
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- o HueicollaRoad_50mBuffer.shp.xml

Documents Received on 02/14/13

- PD Annex 13 Non permanence risk report Final validation version.docx (14 Feb 2013)

Documents Received on 04/05/14

- VCS REDD 2011 Monitoring Report 5April2014 redline.doc
- VCR REDD APD FINAL 5April2014 CLEAN.docx
- VCR REDD APD FINAL 5April2014 redline.docx
- VCS REDD 2011 Monitoring Report 5April2014 CLEAN.doc

5 APPENDIX D – NON-PERMANENCE RISK REPORT

Factor	Rationale & Quality	Conclusion
I. Internal Risks		
Project Management	Project is a REDD project that does not involve tree planting = 0. This is an APD project; the site visit indicated illegal logging activities are not occurring and that ongoing enforcement is not required to prevent encroachment by outside actors = 0. (Nevertheless, it was confirmed that TNC park guards do monitor for illegal logging as part of the project monitoring plan, and TNC consults with local government officials at the district attorney's office to confirm any acts of illegal logging as part of the monitoring plan) Project proponent provided sufficient evidence demonstrating that the management team includes individuals with significant experience (at least five years) in all skills necessary to successfully undertake all project activities = 0 (see Appendix 3 of Annex 13 for additional detail). hamitl The management team has an office in Chile and in the Project Area = 0. Project proponent provided sufficient evidence demonstrating that the management team includes individuals with significant experience (at least five years) in AFOLU project design and implementation, as well as carbon accounting and reporting under the VCS program or other approved GHG programs = -2 (see Appendix 3 of Annex 13 for additional detail). An adaptive management plan is in place (see Annex 7); it includes a process for monitoring progress and documenting lessons learned or corrections that may be needed, and incorporating them into project decision-making in future monitoring periods = -2.	A risk rating of -4 is appropriate given the rationale provided.
Financial Viability	The Project Proponent provided sufficient evidence to provide reasonable assurance that the break-even point is less than 4 years = 0 (see Annex 14 for additional detail). TNC provided a confidential contract that was executed with a philanthropic donor. The donation is contingent upon pursuing the carbon project, and will pay off land acquisition debt and establish an endowment fund. The provided contract sufficiently demonstrates that the project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven = 0.	A risk rating of 0 is appropriate given the rationale provided.
Opportunity Cost	Annex 14 indicates that NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities = 0. TNC is a non-profit organization as per the VCS definition = -2. A legal agreement was executed between TNC and another US-based conservation NGO, acting as trustee for TNC's philanthropic donor, on 20 February 2013. The agreement legally requires TNC to execute a permanent easement, to be held by a third party entity in Chile, which will protect the carbon stocks in the VCR in	A risk rating of 0 is appropriate given the rationale provided.

	perpetuity. The contract was provided by TNC and reviewed by ESI. ESI also discussed the issue of providing a contract which commits to obtaining a conservation easement with VCS to obtain clarification on rule intent. Post discussion with Sam Hoffer it was agreed that the contract appears to address all the requirements to obtain the mitigation score, even without the conservation easement in place = -8.	
Project Longevity	A legal agreement was executed between TNC and another US-based conservation NGO, acting as trustee for TNC's philanthropic donor, on 20 February 2013. The agreement legally requires TNC to execute a permanent easement, to be held by a third party entity in Chile, which will protect the carbon stocks in the VCR in perpetuity. Any project with a legally binding agreement that covers at least a 100 year period from the project start date shall be assigned a score of zero for project longevity.	A risk rating of 0 is appropriate given the rationale provided.
<u>Total Internal Risks</u>		0
<u>External Risks</u>		
Land Tenure and Resource Access Impacts	The ownership documents ("Purchase and Sale Agreement – Woodland – TNC," "Deed Chaihuin," "Deed Venecia," "Explanatory Map of Chaihuin and Venecia Parcels in VCR," "PSA Clarification memo," "WDC Agreement March 2011," and "WDC shares assign to TNC 2003") provided reasonable assurance that ownership and resource access/use rights are both held by TNC = 0. Please note that the Purchase and Sale Agreements, as well as the WDC shares assignment and agreement documents are confidential and commercially sensitive. The site visit confirmed with reasonable assurance that no disputes over land tenure or ownership exist within the project area = 0. A legal agreement was executed between TNC and another US-based conservation NGO, acting as trustee for TNC's philanthropic donor, on 20 February 2013. The agreement legally requires TNC to execute a permanent easement, to be held by a third party entity in Chile, which will protect the carbon stocks in the VCR in perpetuity = -2.	A risk rating of 0 is appropriate given the rationale provided.
Community Engagement	There are no communities living within the project area – confirmed during site visit. There are 28 towns and communities within 20 km of the Valdivian Coastal Reserve (VCR). However, only three of these communities have a direct relationship to or reliance upon the resources within the VCR. Chaihuin (pop. 254), Huiro (pop. 123) and Cadillal (pop. 23) are dependent on natural resources both within the VCR (non-timber forest products principally) and adjacent to the VCR (marine and riverine fish, shellfish, and seaweed). The site visit confirmed with reasonable assurance that the VCR staff has conducted social assessments through past and ongoing meetings with these communities. They have supported agreements with these communities to foster sustainable uses that meet the needs of these communities. For example they have established a program to provide	A risk rating of -5 is appropriate given the rationale provided.

	free firewood to the community, specifically the schools and the elderly. Additionally, TNC also has established access agreements with fisherman's unions in Chaihuin, Huiro, and Niebla to provide land based access to the marine resources. It is clear that TNC has consulted the vast majority (>20%) of potential users through the communities' democratically elected leadership, with whom the VCR staff interacts on a regular basis in the course of making management decisions about the project. Additionally, TNC has sufficiently demonstrated that reliance on the actual project areas within the VCR is unlikely given their more distant locations from the communities. Thus, the default risk value of zero is applicable to the project. The site visit and interviews conducted provided reasonable assurance that the project will provide improved freshwater quality and employment opportunities for the local communities who derive livelihoods from the project area. TNC also employs a Social Programs Coordinator who is present on site to develop community programs. = -5.	
Political Risk	Independent calculation of the governance score for Chile (2007-2011) is 1.16. This is eligible for a score of 0. Confirmed that Chile has an established Designated National Authority under the CDM and has at least one registered CDM Afforestation/Reforestation project = -2.	A risk rating of 0 is appropriate given the rating for governance and participation in beneficial projects.
<u>Total External Risks</u>		0
<u>Natural Risks</u>		
Fire, pests and disease, extreme weather, geologic risk	Fire – justification for the 100 year + return interval is supported with adequate documentation. Confirmed that fires are unlikely to affect more than 25% of the carbon stocks in the project area due to the dispersal of project areas across the larger VCR geography. Thus, the associated risk for fire is reasonable = 0. The validation also confirmed that fire prevention measures are in place (six park guards on staff trained in fire prevention, availability of local fire brigade) = 0.5 mitigation. Pest and Disease - The forests of the project area have a high diversity of tree species, and, like other diverse temperate forests, are not known to be subject to catastrophic disturbance by insect pests or forest diseases. Forest pests and diseases as a source of risk are more relevant in forests or plantations with low species diversity and consequently susceptible to extensive damage due to pest and disease outbreaks, which tend to be concentrated on single host species. Justification for the 50 to 100 year return interval is supported with adequate documentation and the validators could not locate any	A risk rating of 1 is appropriate given the rationale provided for the greatest natural risk of earthquakes and landslides.

	information that would lead them to think that significance was scored incorrectly (insignificant) = 0. Extreme Weather - justification for the 100 year + return interval is supported with adequate documentation. Confirmed that extreme weather events are unlikely to affect more than 25% of the carbon stocks in the project area due to the dispersal of project areas across the larger VCR geography. Thus, the associated risk for extreme weather is reasonable = 0. Geologic Risk – Confirmed that earthquakes and associated landslides are the most significant geologic risk to the project area. Justification for the earthquake return interval of every 50 to 100 years is supported with adequate documentation. Given that the project area is relatively level (road construction is the baseline scenario and areas with slopes equal to or exceeding 30% are excluded), the potential for landslides is reduced. The validators agree with the significance level and associated score of 1.	
<u>Total Natural Risks</u>		1
<u>Total Risk Score</u>	The minimum risk rating of 10 has been applied and validated (sum of Internal, External, and Natural Risks = 1)	10