APPRAISAL REPORT

SBT Fund Teak Appraisal
12,795 hectares in Mato Grosso, Brazil

Prepared for:

Stichting Bewaarder Tectona

Effective Date:

June 30, 2022

Prepared by:

Timothy Mack

Report Date:

October 17, 2022

363.22.01

October 17, 2022

The Board of Directors
Stichting Bewaarder Tectona
Bussummergrindweg 1 H, 1406 NZ Bussum

RE: SBT Fund Teak Appraisal

Dear Sirs:

We are pleased to submit this appraisal of the Stichting Bewaarder Tectona (SBT) teak interest in Brazil. SBT owns the timber rights to existing teak stands located in 12 teak farms scattered across Mato Grosso State, Brazil. The interest totals 12,795 productive hectares, of which, 906.36 are owned by local landowners and Floresteca S.A.

This is an update to past valuations. As with past reports, this appraisal provides an independent opinion of market value for the SBT interest in the overall project. SBT is our client and SBT and its investors are the sole intended users of this report. We understand SBT will use this appraisal for asset tracking and financial reporting purposes.

Based on our inspection of the property, and our investigation and analysis of market data, the market value of the SBT interest, as of June 30, 2022 is:

<div align="center">

*** USD NINETEEN MILLION SEVEN HUNDRED THOUSAND ***
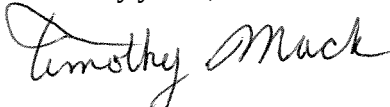***** $19,700,000*****
($1,540 per gross planted hectare)
Market Value Range: $16.7 to $22.6 Million

</div>

Overall value is down 38% from 2021. Property area is down 3% as a result of harvesting, accounting for a portion of the decrease. The largest contributor to the decrease is log price changes, followed closely by cost changes (logging and land clearing). Changes to yield predictions also negatively impact value. Negative changes are offset modestly by a lower discount rate (down 50 basis points).

This appraisal is documented in a USPAP appraisal report format with all prices and values stated in United States Dollars (USD), unless otherwise noted. The following report presents assumptions and limiting conditions, pertinent facts about the market and the subject property, and the reasoning leading to my conclusions. It conforms to the *Uniform Standards of Professional Appraisal Practice* (USPAP). The signed Certification is attached as Appendix A.

Sincerely yours,

Timothy Mack

Timothy J. Mack, CGA
Timberland Appraiser
Sewall Forestry & Natural Resource Consulting

EXECUTIVE SUMMARY

SUBJECT PROPERTY

The subject is located in two areas, one clustered north of Cuiabá in the Jangada region of Mato Grosso and another around the small city of Cáceres in the Cáceres region. One farm lies in the Salto do Céu region. The property is highly parcelized, totaling 12,795 hectares.

EFFECTIVE DATE OF APPRAISAL

June 30, 2022

PURPOSE & INTENDED USE OF APPRAISAL

The purpose of the appraisal is to develop an opinion of market value for the SBT interest in teak timber rights.

CLIENT AND INTENDED USERS

SBT is our client and SBT and their investors are the sole intended users of this appraisal. The intended use of the report is to estimate market value for tracking asset performance and financial reporting.

HIGHEST AND BEST USE

Highest and best use is commercial timber production.

PROPERTY RIGHTS APPRAISED

Property rights appraised are the SBT interest in rights to the existing teak crop across 12 farms in southern Brazil.

VALUE CONCLUSION (USD)

Income Approach:	$19,700,000
Final Value Conclusion:	$19,700,000
Value per Gross Planted Hectare:	$1,540

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FIGURES AND TABLES

APPENDIX

Appendix A.   Certification and Qualifications of Appraiser
Appendix B.   Base DCF Harvest Schedule and Projected Cash Flows

ASSUMPTIONS AND LIMITING CONDITIONS

1. Unless specified otherwise, this appraisal assumes that the subject properties are free of liens and encumbrances, in responsible ownership, and under competent management, with free and clear title. The appraiser assumes no responsibility for matters legal in nature and infers no opinion of title.

2. The appraiser has taken legal descriptions and dimensions from sources thought to be authoritative, but neither assumes nor suggests responsibility for either. The appraiser has not surveyed the properties. Maps, drawings and pictures presented in this report are intended merely to assist the reader.

3. This report may not be used by any party other than the *client* and *intended users*, as so identified in this report, without the prior written consent of the appraiser. No portion of this report or addendum material may be photocopied and/or distributed to a third party without the prior written consent of the appraiser.

4. Possession of all or any part of this report, or a copy thereof, does not confer the right of publication. Neither all nor any part of this report may be conveyed to the public through advertising, public relations, news releases, sales brochures, or other media without the written consent and approval of the appraiser. Nor shall the appraiser, firm, or professional organization of which the appraiser is a member be identified without prior written consent of the appraiser.

5. This report may not be used for any purpose other than the purpose for which it was prepared. Its use is restricted to consideration of its entire contents.

6. The preparation of this report shall not obligate the appraiser to testify or appear in court unless prior arrangements have been made with the appraiser.

7. In the event that this valuation relates to a portion of real estate that is part of a larger interest in real estate:

   a) The value reported is for only such real estate as outlined and should not be construed as applying with equal validity to other portions of a larger portion or interest;

   b) The sum of values estimated for individual portions of real property may not equal the value of the entire property considered in its entirety.

8. Unless specified otherwise, the appraiser has not considered the existence of potentially hazardous material on the property used in the construction or maintenance of improvements, if any, or the existence of toxic wastes. The appraiser is not qualified to detect such substances. It is assumed that the property is free of hazardous waste as that term is defined under both federal and state statutes. The appraiser has not been provided with an environmental study, nor has the appraiser undertaken any environmental study. The reader is urged to consult experts in this field if appropriate.

9. The appraiser has not undertaken a soils analysis in conjunction with this study.

10. It is customary for clients to make available to the appraiser certain data that are relevant to the market value of the subject property. In cases where the income capitalization approach is applied, these data would include income and expense data for the past three years or more. Standards Rule 1-4 of the *Uniform Standards of Professional Appraisal Practice* states: "In developing a real property appraisal, an appraiser must collect, verify, and analyze…such comparable rental data as are available to estimate the market rental of the property; [and] such comparable operating expense data as are available to estimate the operating expenses of the property." Floresteca SA (FSA)

     provided terms of the investment arrangement with SBT but did not provide detailed revenue and cost information data for the property. Sewall Forestry & Natural Resource Consulting's (SFNR) income and expense projections are based on timber projections as supplied by FSA, as well as the terms of the investment, as described by FSA.

11. USPAP requires appraisers to report sales of the subject property within the past three years, and to analyze these sales in relation to current market value. SBT report no sales or additions to the property over the last three years.

12. The Uniform Standards of Professional Appraisal Practice (2020-2023 ed.) defines an **extraordinary assumption** as "an assignment-specific assumption as of the effective date regarding uncertain information used in the analysis which, if found to be false, could alter the appraiser's opinions or conclusions." We treat the following items as extraordinary assumptions for this appraisal:

    a) The area and GIS information are accurate.

    b) The estimate of future growth rates provided for the property manager are accurate.

    c) Estimates of current inventory are accurate.

13. The effective date for which this appraisal is valid is June 30, 2022. Accordingly, our estimates reflect our perception of what a prudent investor would expect to pay for the subject property on that date.

14. This appraisal is documented as an appraisal report as set forth in USPAP Standard 2.

15. The appraiser is not liable for any consequential or special damages arising from any error in the conduct or presentation of the appraisal. Any liability on the part of the appraiser or appraiser's firm is limited to the amount of fees actually collected for work conducted by the appraiser or appraiser's firm in connection with the appraisal.

16. All values unless otherwise noted are expressed in terms of United States dollars. Unless otherwise noted, all prices were converted at the rate of 1.000 USD = 5.057 BRL.

17. Acceptance of this report is subject to the understanding that SFNR's client indemnifies SFNR against any costs that SFNR incurs outside the scope of the assignment for which SFNR has been engaged. Such costs include labor and direct costs arising from: (a) extended discussions of our work product, provided these discussions do not arise from substandard performance by SFNR or by some other circumstance caused directly by SFNR, and provided these discussions could not have reasonably been anticipated by SFNR under the terms of our engagement; (b) requests for information, to the extent that such requests lie outside the scope of what would reasonably be expected of SFNR in performing the assignment; (c) re-work or additional analysis that lies beyond the scope of what would reasonably be expected of SFNR in performing the assignment; (d) compliance with audits of SFNR's client or any party or intended user connected with the client or the property that is the subject of this assignment, and regardless of whether such audit is conducted by the client, a representative of the client, or some external party such as the Securities and Exchange Commission, and where compliance includes demands for information and/or testimony; and, (e) other unanticipated matters related to the original assignment. Should such costs arise, SFNR reserves the right to charge reasonable fees for labor (hourly or daily rates) and direct expenses, and to expect payment within 30 days of invoicing.

1. INTRODUCTION

The subject of this appraisal is a teak timber interest held by the Stichting Bewaarder Tectona (SBT). The interest totals 12,795 productive hectares, of which, 906.36 are owned by local landowners and Floresteca S.A.

PROPERTY IDENTIFICATION AND HISTORY

SBT owns an interest in a teak investment project initiated by Floresteca S.A. (FSA) in the mid-1990s. The overall project is estimated to total 12,795 hectares[1] as of June 30, 2022, the effective date of appraisal. The interest is in 12 teak farms scattered across Mato Grosso State, Brazil (Figure 1.1).

FSA initiated the investment with numerous investment groups. Investors were sold rights to a single rotation of teak. The underlying land is held by a combination of owners, including FSA. Investors own the rights to the timber until final harvest, at which time control of the land reverts to the landowners. FSA was responsible for establishing the farms and continues to manage them on behalf of the various owners, based on arrangements spelled out in the investment agreement described to Sewall Forestry & Natural Resource Consulting (SFNR).

PROPERTY RIGHTS APPRAISED

Property rights appraised are the SBT interest in the rights to the existing teak crop located across 12 teak farms, listed in Table 1.1.

PURPOSE OF THE APPRAISAL

The purpose of the appraisal is to develop an opinion of market value for the SBT interest in the teak timber rights described above.

CLIENT, INTENDED USER AND INTENDED USE

SBT is our client and SBT and their investors are the sole intended users of this appraisal. The intended use of the report is to estimate market value for tracking asset performance and financial reporting.

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[1] There is ongoing harvesting on the property. The total area estimate is based on TRC estimates of harvesting to be complete as of the effective date.

SEWALL FORESTRY
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SBT - Brazil Teak Assets

Legend

Subject

0   35   70   140
Kilometers

National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
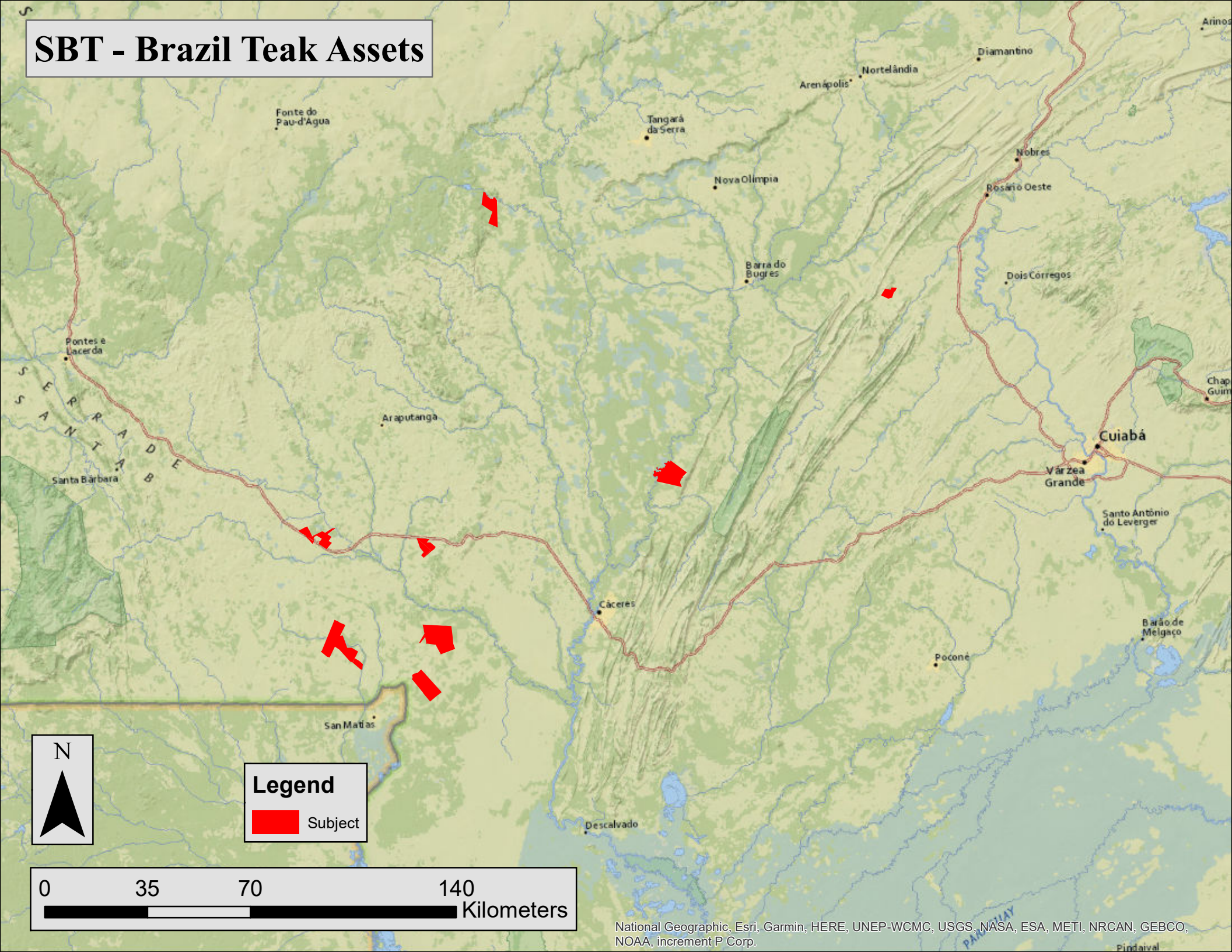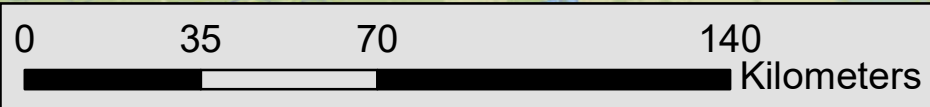
Table 1.1. SBT Interests by Farm

			As of 6/30/2022
Region	Farm	Planting Year	Total Planted Area
Cáceres	Bambu	1999	495.37
		2000	567.53
	Barranquinho	2002	960.13
		2003	12.78
		2004	1,002.89
	Cacimba	2002	565.75
		2003	10.19
	Duas Lagoas	2000	919.89
		2001	1,515.03
		2005	202.93
		2006	215.84
	Mutum	2007	511.32
	Sao Jose	2007	301.22
	Sao Miguel	2001	97.52
		2002	5.71
	Santa Maria do Jaru	2002	1,059.97
		2003	206.72
	Santa Maria do Jaru II	2008	94.42
	Santa Fe	2003	2,550.47
Jangada	Paiolandia	1997	278.38
		1998	93.89
Salto do Céu	Terra Santa	2004	1,127.10
Total:			**12,795.05**

Source: TRC

IMPORTANT DATES

Tim Mack of SFNR inspected the subject on July 16 to 19, 2019. Mr. Mack was accompanied by Cassiano Sasaki of TRC, FSA's contracted manager. We have not inspected the property in support of the current assignment. The effective date of appraisal is June 30, 2022. SFNR completed the analysis on July 26, 2022 and the report on October 17, 2022.

SCOPE OF WORK

For this appraisal, SFNR conducted the following tasks:
- Reviewed and analyzed data and materials provided by SBT and FSA;
- Interviewed representatives from FSA;
- Applied the income and cost approaches;
- Reconciled the values to arrive at a value conclusion;
- Prepared this appraisal report.

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EXTRAORDINARY ASSUMPTIONS

The Uniform Standards of Professional Appraisal Practice (2020-2022 ed.) defines an extraordinary assumption as "an assignment-specific assumption as of the effective date regarding uncertain information used in the analysis which, if found to be false, could alter the appraiser's opinions or conclusions."[2] Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis. For this appraisal, we have made the following extraordinary assumptions:

1. The area and GIS information are accurate.

2. The estimate of future growth rates provided for the property by FSA are accurate.

3. Estimates of current inventory, as derived from plot data from the subject, are accurate.

DEFINITION OF MARKET VALUE

The Dictionary of Real Estate Appraisal, 7th Edition, states that "The most widely accepted components of market value are incorporated in the following definition: *"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."[3]*

The Dictionary also cites the definition used by agencies that regulate federally insured financial institutions in the United States, and the definition used for this appraisal, as: *"The most probable price that a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:*

- *Buyer and seller are typically motivated;*

- *Both parties are well informed or well advised, and acting in what they consider their best interests;*

- *A reasonable time is allowed for exposure in the open market;*

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[2] Appraisal Institute. 2015. The Dictionary of Real Estate Appraisal, Sixth Edition, Chicago, IL, p. 83.
[3] Ibid. p. 141.

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a Huber Company

- *Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and*

- *The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."*

(12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)"[4]

The International Valuation Standards define "fair market value" as: "The estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion."[5]

It is important to observe that the following elements are common to each of the foregoing definitions:

- Market value results when the parties are typically motivated, are generally well informed, and are acting in their own best interests;

- Market value results when the property is exposed to the market for a reasonable length of time;

- Payment is in cash or its equivalent.

SFNR's market value estimate is our opinion of the probable price obtainable in a market free of abnormal influences. A basic limitation of any appraisal is that it is an opinion of value and is therefore not a guarantee that a property will sell at the appraised value.

APPRAISAL UNITS

Unless otherwise stated, units reported for this appraisal are based on US dollars (USD) for value, hectares for area and cubic meters for volume. Where necessary, any prices provided in Brazilian Reais (BRL) have been converted to USD using an exchange rate of 5.057 BRL per USD.

APPRAISAL STANDARDS

The complete appraisal process and resulting report were performed in accordance with the *Uniform Standards of Professional Appraisal Practice* ("USPAP"), the Appraisal Institute's Code of Professional Ethics and Standards of Professional Appraisal Practice.

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[4] Ibid, p. 142.

[5] International Valuation Standards Committee. 2011. International Valuation Standards 2011, Eighth Edition, London, U.K, p. 20.

INVESTMENT TERMS

The terms of the investment agreement between SBT and FSA differ from conventional practices common to the timberland investment market. As such, they are worth enumerating, as they form the basis for assumptions used in our analysis. The following are key terms in the agreement, as described to SFNR by FSA:

- SBT owns the rights to the existing crop of timber on the various properties.

- FSA is responsible for managing the timber, including oversight of all harvest activity.

- FSA has entered into an agreement with Teak Resources Company (TRC) for the management of the assets and sales and purchase of the teak.

- SBT does not pay for any ongoing silvicultural or administrative costs related to the management of the property, as would be the case for most timberland investments. FSA is responsible for these costs, but will charge SBT with a one-time management fee of $4,500 per hectare, plus $600 per year per hectare in which a harvest cycle takes longer than 20 years, incurred at the time of final harvest. This cost is expected to adjust downward, based on revenues owed to SBT for past harvests.

- Harvest revenues are based on quarterly market surveys of roadside prices contracted with Consufor, a Brazilian consulting firm.

  - TRC buys logs from SBT from harvests at its own risk for its account.

  - SBT is paid on a residual stumpage basis, based on the Consufor roadside pricing, less harvest costs.

- SBT is required to pay for all final harvest costs, but not harvest costs from thinnings. Thinning costs are assumed to be included in the management fee described above.

- SBT must also pay all necessary costs to bring the property back to a pre-forestry condition following final harvest. This includes clearing the land of stumps ($1,054 per hectare).

- SBT must pay FSA a 5% performance fee upon harvest of the trees. The performance fee is:

  - 5% * (Roadside Harvest Revenues – Harvest Costs – Land Clearing)

- Full rights to the land revert to FSA or the other underlying landowners following final harvest and stump clearing. SBT has no right to future rotations.

2. MARKET DESCRIPTION

This year's report is an update to our 2019 through 2021 reports. A more comprehensive description of overall international and Brazilian market factors can be found in our 2019 report.

INTERNATIONAL TEAK SUPPLY

Global demand for teak, Covid-19 notwithstanding, is sufficient that all harvested volume currently finds its way to market. This has created an incentive for managers to overharvest naturally grown teak. As natural teak supplies dwindle, plantation investment has increased in an attempt to meet demand. Plantation-grown trees generally yield a relatively low-density wood that lacks many of the qualities that make natural teak so unique and valuable (Keogh, 2008). Some have argued that because the global teak market is relatively small and specialized, a flood of lower-quality plantation-grown wood could potentially swamp the market and drive prices down. There is evidence for this reflected in the price of smaller thinning-aged logs, the supply of which has increased in recent years as Latin American plantation managers continue to thin maturing stands. However, while prices have softened for the smallest log grades, demand remains good for larger sizes.

A price series for Myanmar's SG-4 export grade, one of the lower sawlog grades, commonly exported to India, shows that demand for natural teak, even low grade, remains strong. The trend supports an average real annual increase of over $70 per hoppus ton (FOB) over the period. While the rate of increase has slowed over the last 10 years, it remains positive.

Closer to the subject, Latin American plantation prices have declined in recent years. Figures 2.1 and 2.2 summarize teak pricing by log size for thinnings and final harvests since 2011. Prices are for Central America for which we have much data. Data from Brazil is more limited and we are unable to show those prices without compromising the confidentiality of other clients' data. However, while not Brazilian, the Central American price series portray recent trends across all of Latin America.

Prices for logs from thinnings have declined since 2011. Many cite an overabundance of small logs in the market, as many of the early Central American plantations are now old enough for thinning. Declines in final harvest prices over the same period are less noticeable and appear to have stabilized beginning in 2018. It is worth noting that log buyers prefer final harvest logs over thinned logs, evident from pricing histories. This is more a function of age, rather than harvest type. Older logs have superior wood qualities for which buyers are willing to pay more. This trend, while not demonstrated by the charts, persists within thinnings, in which, older thinning material often receives higher pricing.

Figure 2.1. Central American Teak Price Trends - Thinnings
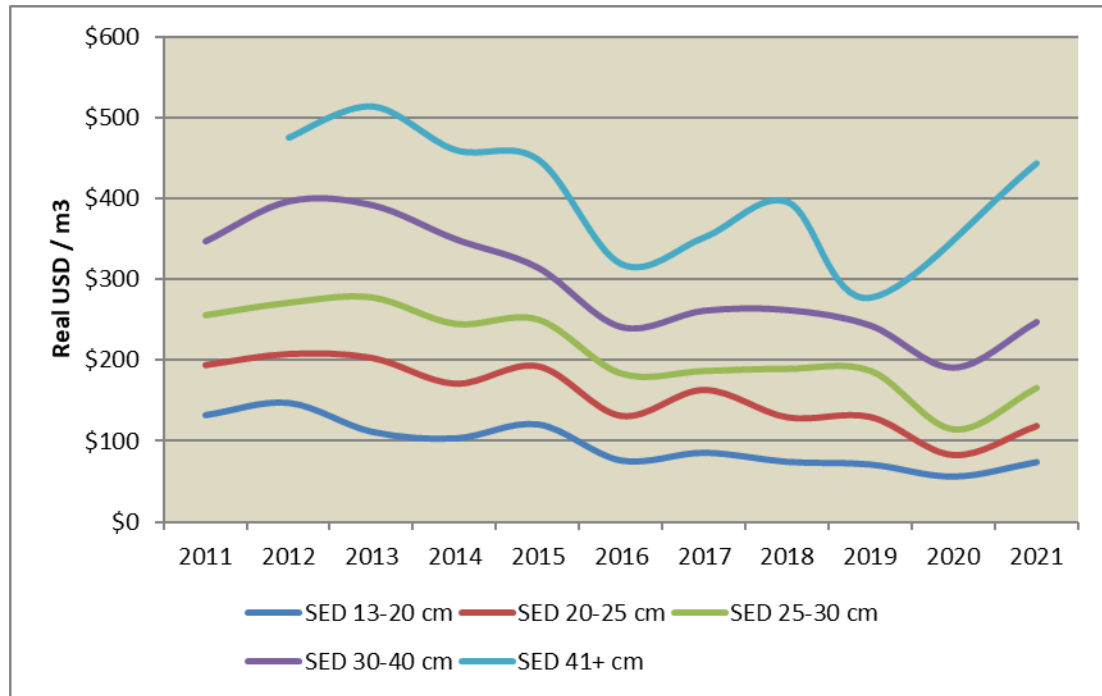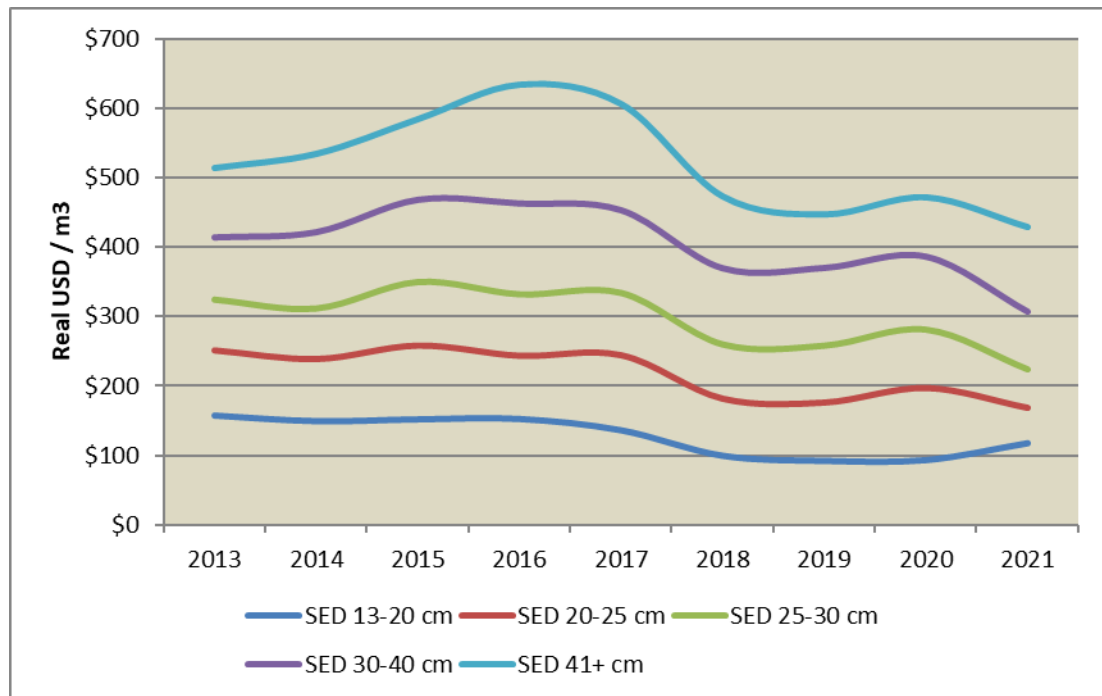

Figure 2.2. Central American Teak Price Trends – Final Harvests

Other factors affecting price are financial disruptions to the Indian economy over the last 2 to 3 years, leading to devaluation of the Indian Rupee. This left Indian log buyers with less purchasing power, which may also have contributed to price declines. To make things worse, the ongoing pandemic completely upended the market in the first half of 2020 and part of 2021. Because of this, 2020 pricing information was sparse and difficult to interpret. More recently, several growers report log buyers are purchasing again in an effort to bolster depleted inventories back home in India. Many growers SFNR has spoken with are cautiously optimistic demand will return to pre-pandemic levels going forward.

Where are long-term teak prices likely to go? Those less bullish say that current teak plantations established across the globe have the potential to supply enough wood in excess of current consumption. Indeed, the trends depicted in Figures 2.1 and 2.2 support such a view. Proponents of this view argue that the same market phenomenon currently impacting the smallest log sizes will eventually show up among the larger sizes. Optimists point to the loss of Myanmar logs and a growing Indian middle class as evidence that demand is likely to keep pace with supply over the long run. Future consumption will come from middle-class Indian consumption, which at this point has plenty of upside potential. India is currently the world's sixth-largest economy and growing.[6]

Land-use competition is another factor to consider. Costa Rica and Ecuador are home to some of the earliest plantations in Latin America, many of which are now approaching final harvest age. It remains to be seen if all of these plantations will be returned to teak following harvest, especially smaller farms. Appraisal work by SFNR throughout Latin America finds that in some cases, highest and best use may no longer be for forestry. In other words, owners of such plantations might be better off converting to other uses or selling the land following harvest to agricultural buyers, rather than continuing with teak management. This dynamic has the potential to play out more across Latin America if land prices continue to rise, mitigating the potential for future supply. This avenue of thought is supported by the marked reduction in greenfield planting in recent years. SFNR is aware of only one investor in the region that is planting greenfield teak at this time.

Brazilian Teak Resource

Most teak farms in Brazil are planted on former cattle grazing lands. Teak is generally found in the States of Mato Grosso, Pará, and Roraima. Teak investors include local business interests seeking tax shelters available from forestry investment to institutional timberland investment organizations. The emergence of teak as a commercial plantation species is part of a broader trend seen throughout the rest of Latin America, especially Central America, where teak farming has taken place over a long period of time in some areas.

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[6] Countries by GDP: The Top 25 Economies in the World (investopedia.com). Updated 27 June 2022.

Most teak growers produce teak for the export sawlog markets. Primary destinations include such Asian countries as India and Vietnam. The business model throughout much of Latin America is to sell "stumpage" roadside from thinnings and final harvests to teak buyers. Logs are loaded into containers roadside and hauled to a local port for shipment to Asia. TRC, the property's manager, is an exception to the rule. They have chosen to take control of a larger portion of the supply chain. TRC is currently marketing logs directly to buyers in Asia and selling logs directly to teak buyers there on a CIF basis in the various Asian ports. TRC has also developed a small sawmill in the Mato Grosso region in cooperation with other teak investors. Small logs from first thinnings are sawn into squares for export to Asia. TRC reports superior log returns as a result of selling directly into the Asian market and pre-processing the smaller logs prior to export.

3. REGIONAL AND NEIGHBORHOOD DESCRIPTION

ECONOMIC NEIGHBORHOOD

Demographics

The subject property is located in two primary groupings in southwestern Mato Grosso. A portion of the property is clustered north of the City of Cuiabá in the Jangada region. The rest of the property is located around the smaller city of Cáceres. Both regions are lightly populated, with only a few medium-sized towns. Mato Grosso as a state has one of the lowest population densities in Brazil; 2020 estimated population[7] was 3,526,220. The areas around the subject property are home to agricultural operations, including sugarcane, soybeans, and rice, as well as numerous cattle ranching operations. Cattle ranching dominates use.

Infrastructure

The primary public highways in the immediate vicinity of the properties in the Jangada region are BR-163 and MT-246, while BR-174, MT-174, MT-339, BR-070, and MT-343 serve the Cáceres region. Federal highways important in greater Mato Grosso include BR-163, which runs north from Cuiabá to Cachimbo in Amazonas, and BR-174, 264, 251 and 242. Most of the high-quality roads and thoroughfares are found in the southern and eastern parts of the state. The northwestern corner of Mato Grosso is very remote.

The region's paved highway infrastructure is somewhat limited, though unpaved local and state roads provide adequate access to most areas. In places, the local roads are poorly maintained and often clogged with slow-moving commercial traffic. Trucks transport over 75% of Brazil's cargo.

In general, Brazil's railroad infrastructure is incompletely developed. Several differing regional rail gauges were initially built and continue to disrupt continuous national rail service. Brazil has recently privatized its railway system, reportedly improving freight transport efficiencies. There is rail service planned across the state of Mato Grosso that would traverse the southern portion of the state, passing through Cuiabá.

Land Uses

In addition to the region's substantial cattle grazing, it supports scattered agriculture, primarily sugarcane, but also soybeans and cotton. Though subsistence farms and pastures may be located anywhere, most slopes support native timber growth. Few teak plantations,

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[7] http://www.citypopulation.de/Brazil-MatoGrosso.html

other than the subject property, are evident. Each of the properties is in an area devoted primarily to farming and ranching, unaffected by any urban or suburban influences. Though a low density of scattered rural residential uses exists along the public roads, no impending changes in land use are apparent.

PHYSIOGRAPHIC NEIGHBORHOOD

The physiographic neighborhood is defined by the locational and physical characteristics of the subject property's environs. It is important to understand how a subject property compares to similar properties with respect to several physical characteristics. Climate, topography and soils influence the relative values for similar properties within a physiographic neighborhood. Figure 3.1 depicts Brazil's ecological zones. The subject property is subject to a tropical wet and dry climate. The original vegetation here was mixed tropical forest, but much of this has been replaced by grasses of the genus *Brachiaria* that are used for cattle grazing.

Figure 3.1. Ecological Zone Map
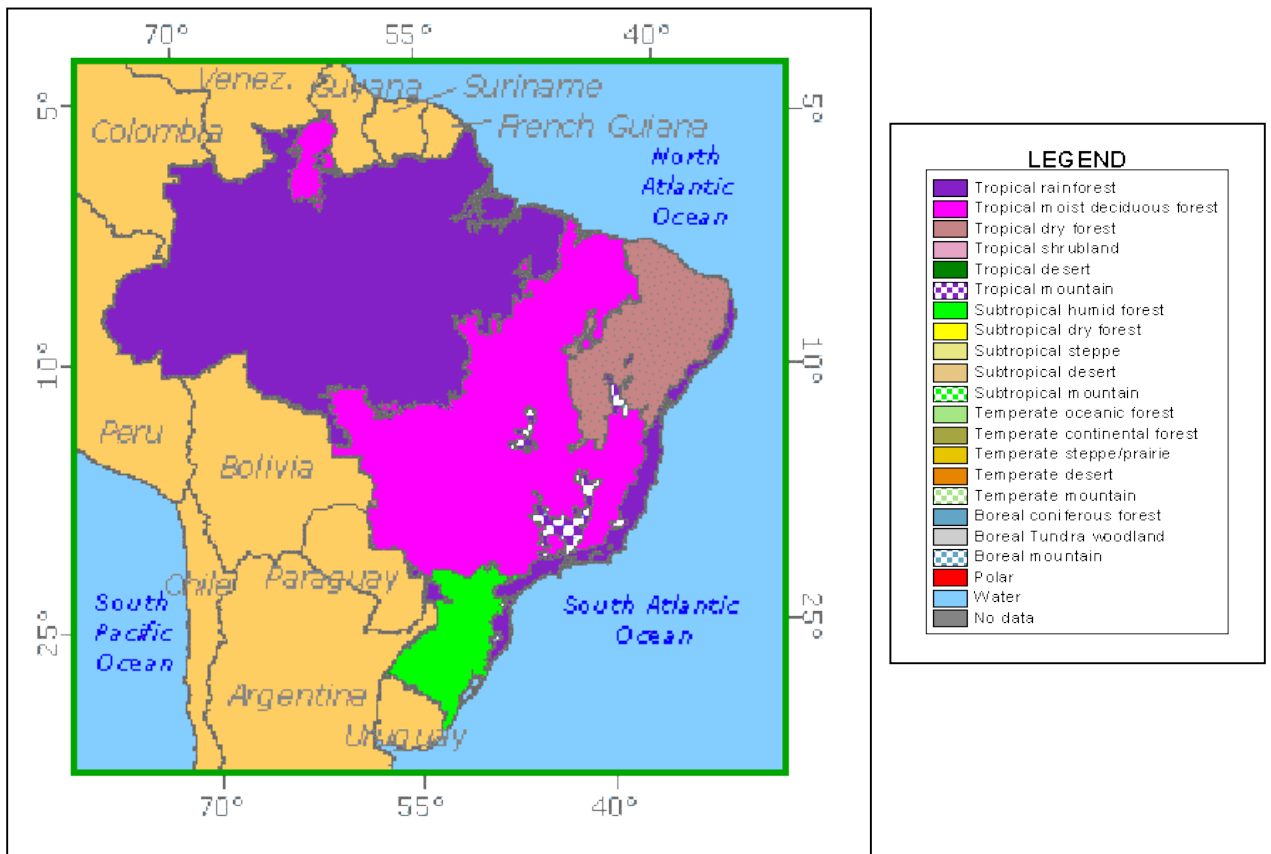
Climate

This region has a tropical wet and dry climate characterized by consistently high temperatures (above 18°C year-round) and pronounced wet and dry seasons. Mato Grosso state has a slightly lower average annual rainfall of approximately 1,600 millimeters as compared to Pará at 2,000 millimeters on average, another teak-growing region. The rainy season is somewhat shorter, running from early October to the end of April.

Topography, Soils and Drainage

The region's topography is defined by a series of small mountain ranges in the southern portion of the state. These mountainous regions give rise to local relief that ranges from very steep to gently rolling. Areas in close proximity to river systems are much flatter. The northwestern reaches of Mato Grosso state, closer to the Amazon basin, become much flatter with shallow local relief.

4. PROPERTY DESCRIPTION

PROPERTY SIZE AND CONFIGURATION

The subject is located in two areas, one clustered north of Cuiabá in the Jangada region and another around the small city of Cáceres in the Cáceres region. The property is highly parcelized, with the SBT interest effectively totaling 12,795 hectares of the planted area. Figure 1.1 summarizes the interest by region and farm. Overall size is down 3% from our 2021 appraisal. The reduction results from ongoing final harvesting, after which land use returns to its owners.

The subject has a weighted average age of 19.6 years (Table 4.1). The majority of stands (90%) were planted with conventional seed stock, but there are some newer clonal plantings present (Figure 4.1). Most of the plantations are from 18 to 22 years old (Figure 4.2). Clonal plantings are more recent.

Table 4.1. Property Age Class Summary

SBT - Brazilian Teak - June 30, 2022			
Species	**Age**	**Hectares**	**Percent**
Teak			
Seeds	14	55	0.4%
	15	239	1.9%
	18	2,011	15.7%
	19	2,640	20.6%
	20	2,592	20.3%
	21	1,613	12.6%
	22	1,434	11.2%
	23	549	4.3%
	24	94	0.7%
	25	278	2.2%
Teak Seed Stock	**20.0**	**11,505**	**89.9%**
Clones	14	39	0.3%
	15	573	4.5%
	16	216	1.7%
	17	203	1.6%
	18	119	0.9%
	19	140	1.1%
Teak Clonal Stock	**16.2**	**1,290**	**10.1%**
Established Teak	**19.6**	**12,795**	**100.0%**

Source: TRC

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Figure 4.1. Area by Genetic Material
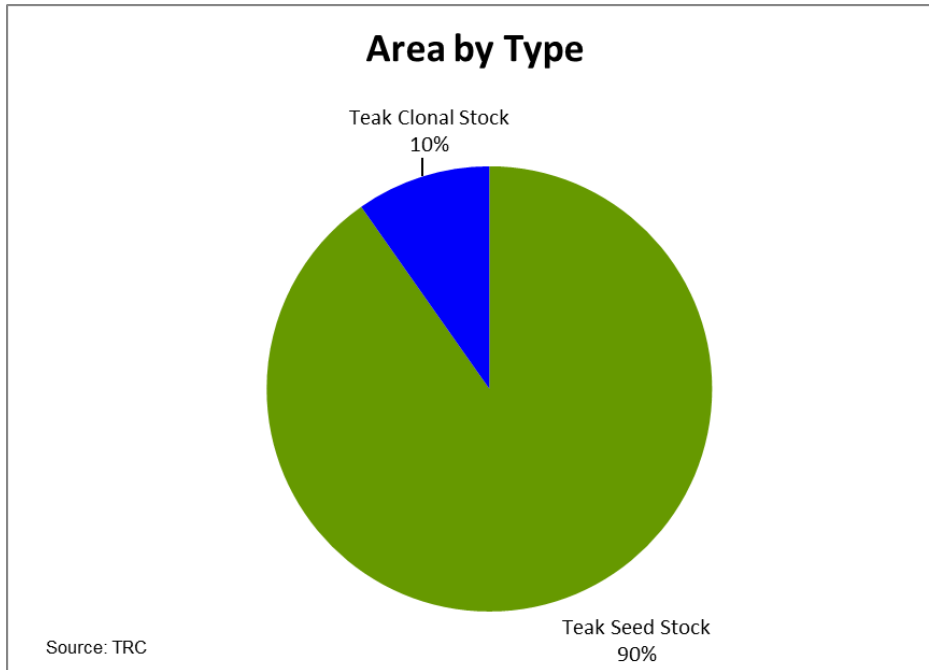
Figure 4.2. Age Class Distribution
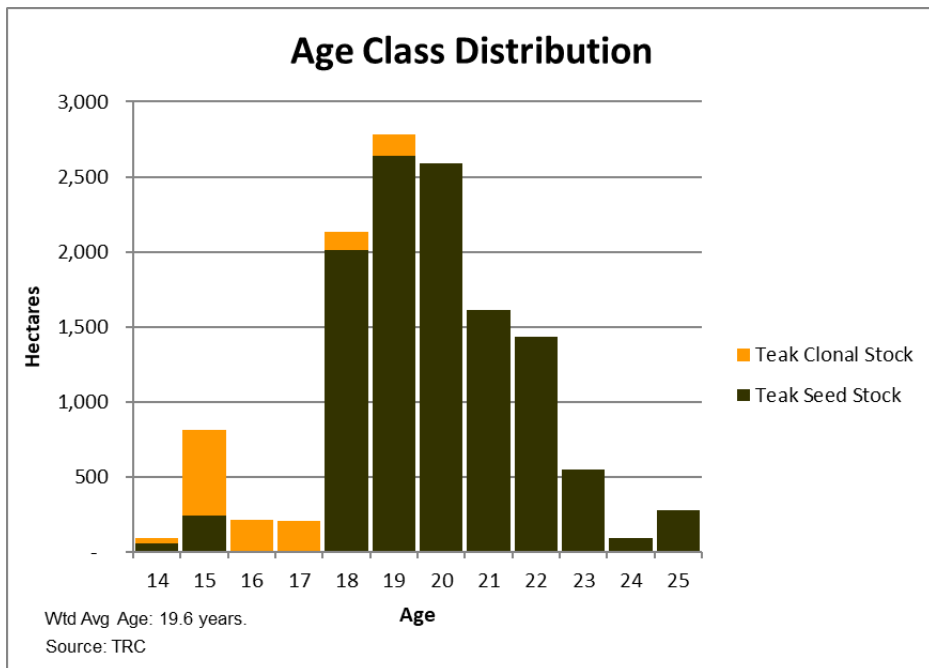
MERCHANTABLE TIMBER

Merchantable volume is estimated to be 886,453 cubic meters, or 69.3 cubic meters per merchantable hectare. Merchantable volume is based on stands 14 years and older for purposes of this appraisal. Gross timber value, the retail value of the timber regardless of liquidity constraints, is estimated to be $63,630,342 (see Cost Approach chapter). The inventory is based on permanent sample point data measured from 2019 to 2022, provided by FSA. Volumes have been updated by SFNR to the effective date for this appraisal, based on growth and yield information reported by FSA.

Table 4.2. Timber Volumes

SBT - Brazilian Teak - June 30, 2022						
	Merchantable	**Hectares**	**m³/Ha**	**GTV/Hectare**		
	Planted Area	**12,795**	**69.3**	**$4,973**		
Species	**Product**	**Volume (m³)**	**% Volume**	**Unit Value**	**Total Value**	**% of Value**
	Logs 18-20 cm	106,410	12.0%	$ -	$0	0.0%
	Logs 20-25 cm	301,738	34.0%	$ 30.35	$9,157,944	14.4%
	Logs 25-30 cm	257,389	29.0%	$ 76.73	$19,748,756	31.0%
Teak	Logs 30-35 cm	149,392	16.9%	$ 132.45	$19,787,649	31.1%
	Logs 35-40 cm	54,839	6.2%	$ 193.87	$10,631,407	16.7%
	Logs 40+ cm	16,685	1.9%	$ 257.99	$4,304,586	6.8%
	Subtotal	**886,453**	**100.0%**	**$ 71.78**	**$63,630,342**	**100.0%**
Total:		**886,453**	**100.0%**	**$71.78**	**$63,630,342**	**100.0%**

Source: Woodstock model starting inventory.

SOILS

A detailed soils analysis has not been provided. This description is based entirely on the inspection of a representative portion of the property. The soils are for the most part alluvial in origin. Soil quality varies from farm to farm, which likely explains much of the variation observed among the plantations visited. Most of the wetter soils along the drains and streams are located in permanent reserve areas and are therefore not included in the productive portion of the properties.

ACCESS

Each of the farms is well accessed by a network of public paved and dirt roads along with graded private dirt roads. Private interior roads appeared to be in good condition. The region supports a large amount of agriculture, including grazing and sugar cane production. It was evident during our inspection that the other landowners in the region helped in the maintenance of secondary roads. Overall, access was good.

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SILVICULTURE

Silviculture is intensive, as with other plantation species. Site preparation is typically a disc and subsoil (site-specific), followed by pre-emergent herbicide. Most of the seed stock was planted on a 3 x 3- (1,111 trees per hectare) or 3 x 2- (1,667 tph) meter basis; clones were planted predominantly at a spacing of 3 x 4 (833 tph) meters. In the weeks following planting, young seedlings are manually freed of competition in a small area around the plant using a hoe or spade. Once the seedlings are larger, much of the competition control can be accomplished with periodic mowing or herbicide applications.

Trees are pruned for quality during the early years of the rotation. Current pruning height is 5 meters. The property is managed on a 3- to 4-thinning regime. The ideal plan for seed-stock stands is for a pre-commercial thinning around age 4 years, followed by commercial thinnings around ages 8, 12, and 15 years. Clonal stands are scheduled for pre-commercial thinning at age 5 years, followed by commercial thinnings around ages 10 and 14 years. The purpose of this density-management regime is to ensure good tree form during early growth, and an ample collection of crop trees entering the middle portion of the rotation. The goal of the thinning regime is to produce approximately 150 to 160 trees per hectare for the final harvest, which is scheduled to occur beginning at age 20.

Many teak growers in Latin America are switching from traditional seedling stock to clonal stock for planting. The advantage of clonal stock is increased productivity, with yield gains estimated at 20% to 30%. Only 10% of the property is currently planted with clones. Differences between clones and seed stock planted side-by-side are visually striking. While clonal production has become commonplace among teak growers, the property has a low percentage of clonal stock because much of it was established prior to the emergence of clonal planting. Were it planted today, it would almost certainly be 100% clonal stock.

FOREST RISKS

Insects

One main insect possesses the ability to damage plantations in this region of Brazil: leaf cutter ants. They can be a problem in younger forest plantations but are present in nearly all plantations. Control of leaf cutter ants is with spot insecticide treatments one to two times annually, usually early in the rotation. FSA reports having treated stands in the past for ants.

Pathogens

No obvious signs of disease were observed during our inspection. FSA reports some problem with disease in 2016 in some of the plantations at the Capim Branco and Bocaina farms. FSA conducted a series of sanitation harvests to capture mortality and eliminate the problem.

Fire

There is a defined wet and dry season in Mato Grosso. Annual rainfall averages 1,600 millimeters. During the dry season, which usually occurs in late May through September, there may be up to 3 months with little to no rainfall. During this dry season, wildfires are common, but are most frequently small and localized. FSA has implemented fire breaks both internally and externally surrounding many of the farms. Fire breaks, for the most part, were observed to be well-maintained. Agriculture and cattle farmers in the region use fire as an agricultural tool, so fire breaks on the property boundaries are essential. Overall, fire is of no greater threat to the subject than it would be for any other timberland property in the region. The effects of recent fires were observed throughout the property during a past inspection. Older teak trees are fire resistant. We observed no signs of fire-induced mortality during our visit.

IMPROVEMENTS

Building improvements on the property have not been considered in this valuation. Improvements consist primarily of encampments for forest workers and buildings for equipment storage and maintenance.

PROPERTY TAXES

The main taxes that apply to the subject are a variety of income taxes. The ICMS taxes, which are levied on state-to-state commerce within Brazil, do not apply to these farms since the ICMS does not apply, or gets credited back, on products destined for export. Fuelwood sales are local (within state) and therefore are not subject to the ICMS tax.

The property is also subject to property taxes (ITR), which SBT is responsible for paying. FSA did not provide property tax information for the subject. However, they do report that SBT's property tax obligation is covered under the management fee due at final harvest.

ZONING AND ENVIRONMENTAL ISSUES

Forest management activities are subject to national land use restrictions that limit the area that can be converted to forest plantations. The legal reserves usually include buffers around water bodies, natural forest, and additional areas where the landowner has had to replant with native tree species. The property is fully planted and TRC reports that all necessary reserves are in place to meet the government's reserve requirements.

The property is Forest Stewardship Council-certified. FSA reports that certification does not necessarily garner higher prices, but it does gain access to markets, such as those in Europe, which might not otherwise accept the wood.

5. HIGHEST AND BEST USE ANALYSIS AND VALUATION PREMISES

HIGHEST AND BEST USE ANALYSIS

Highest and best use (HBU) is the cornerstone of value in the appraisal process. *The Dictionary of Real Estate Appraisal* defines HBU as: *"the reasonably probable use of property that results in the highest value. The four criteria that the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity"* *(Appraisal Institute, 2015, p.109).*[8] The subject property is vacant timberland. Consequently, we will only consider the highest and best use "as vacant."

For a use to pass as the HBU, it must be **legally permissible, physically possible, financially feasible,** and **maximally productive**. Above all, it must be supported by land use trends for similar property in the market area. Therefore, it must be plausible when considering the most likely buyers and the uses they anticipate. The actions of the marketplace must ultimately guide the appraiser's HBU analysis.

Highest and best use analysis proceeds in two ways: an examination of the land as if vacant and of the property as improved. The first analysis is undertaken either with vacant land or when the existing improvements clearly have come to the end of their economic life. The second analysis addresses the present and possible future alternative uses of the property as currently improved. In both analyses, four categories of uses are sequentially examined:

1. Possible - Uses that are physically possible on a particular site considering its size, configuration, topography and geological characteristics.

2. Legally permissible - Uses allowed by zoning and other restrictive authority (town ordinance, deeds, etc.)

3. Feasible - Uses yielding positive economic returns.

4. Maximally productive – The use that maximizes property value.

Physically possible: The existing timber stands reveal that the subject properties are capable of producing timber; therefore, forestry is a physically possible use for the subject property. Because of its size and rural, somewhat remote location, the subject property is well suited for timber production. Other physically possible uses observed within the immediate neighborhood include sugar cane and cattle production.

Legally permissible: Despite the fact the other uses besides timber production exist within the neighborhood, legal uses of the appraised interest are limited to timber production, under the terms of the investment agreement between FSA and SBT.

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[8] In Federal condemnation, HBU is defined as "That use of property which may reasonably be expected to produce the greatest net return to the land over a given period of time. It is sometimes called the 'optimum use'."

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Financially feasible: Because timber production is the only legal use of the property allowed under the terms of the investment agreement, timber production is by default the only financially feasible use of the property.

Maximally productive: Of the uses that meet the test of legally permissible, physically possible, and financially feasible, and with the presence of local and international timber export markets in the subject market area, the maximally productive use is estimated to be for teak production for local and international markets.

Likely buyers would come from both within and outside Brazil. Within Brazil, investment entities such as pension funds might have interest in the property. From outside, institutional investment managers would express interest.

Therefore, the highest and best use for the subject is for timber production.

VALUATION PREMISES

Appraisal technique seeks to duplicate the process, conscious or unconscious, by which the typical buyer of the property would arrive at the price to be paid. That is, in appraising property, the appraiser must put himself in the shoes of the typical buyer. What process would this prospective purchaser use to arrive at the price to be paid? It is also important to consider the willing seller's viewpoint.

Appraisal theory holds that market value can be estimated in three ways: the cost approach, the income capitalization approach, and the sales comparison approach.

The **cost approach** consists of the summation of several elements, usually including bare land, pre-merchantable timber, and merchantable timber (and, if present, the depreciated replacement cost of improvements). It is founded on the principle of substitution; that is, a buyer would pay no more for the subject property than the cost to purchase a comparable parcel of land and replace improvements having similar utility. When applied to timberland, it can be useful if there are several distinct economic units that can be valued separately. The bare land component can be valued from sales of cutover land, or from land allocations in timberland sales. Timber is treated as an improvement and is valued by comparing it with open market stumpage sales of similar timber. Other assets can also be valued separately.

The cost approach extracts the value of separate economic units from different sales, and then "assembles" the value components into an indication of total property value. A difficulty with the cost approach is that it violates the "unit" rule by assuming that the property is purchased piecemeal instead of as a package of assets. Investors in South America sometimes apply the

cost approach to timberland properties, although more as a check on the income approach than as an independent basis for establishing acquisition price. When large quantities of land and slow-growing timber are involved, it often results in grossly inflated total values. However, applied to rapidly growing plantation forests in Brazil, it may produce credible results if projected timber value increases match or outpace the discount rate.

The **income capitalization approach** is based on the principle of anticipation, which states that value is derived from the anticipation of future benefits. It is most appropriate for properties that are regularly bought and sold based on their ability to generate a net operating income stream. Large commercial timberland properties fall into this category.

The **sales comparison approach**, also founded on the principle of substitution, holds that a buyer will pay no more for the property than the price at which he can obtain a substitute property having similar utility. Analysis is based on open market prices recently paid for similar properties in the market area. Purchase price allocations produce unit rates that may be applied to the subject property components. Where necessary, each sale's unit prices are adjusted to account for the influences of financing, interest conveyed, sale conditions, time (market conditions), location, physical characteristics, and other factors that drive sale price. The approach is particularly useful for commercial timberland in active, competitive markets.

SUBJECT VALUATION METHODOLOGY

We have discussed market issues with most of the small group of timberland investors involved in this area of international investment. It is clear that most market participants rely primarily on the income approach when valuing international timberland investments. Institutional investment managers may appear to rely exclusively on it, but they nevertheless collect information about other transactions to ensure they remain competitive in their acquisition efforts. Thus, to emulate the process used by informed investors, we perform an income analysis.

To appropriately understand the data used to perform income projection, cost, or component, values must be analyzed. Because many investors often employ the cost approach as a check on DCF analysis when conducting due diligence, it is reasonable to do so in support of this appraisal. We therefore perform a cost approach for this appraisal.

SFNR has endeavored to utilize the sales comparison approach in this appraisal assignment. SFNR's interpretation of USPAP is that the appraiser should make a reasonable attempt to employ this relatively empirical valuation approach. Furthermore, investors participating in international timberland investments have expressed to SFNR a desire that, where relevant comparable sales data of sufficient quality exists, the sales comparison analysis should be

used. SFNR maintains a database of teak timberland sales from Central America,[9] which we have used for sales comparison analysis in the past. However, a major problem with the sales approach in this case is the nature of the interest appraised. The interest is a timber right to an existing timber rotation, excluding rights to the land. All of the teak transactions in the SFNR database involve fee simple interests, not timber rights. Therefore any use of these transactions, in the case of the subject, would be inappropriate. We therefore do not incorporate the sales approach for this appraisal.

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[9] We are also aware of several deals involving Brazilian properties, but neither buyers or sellers from these deals have volunteered sufficient data to incorporate them in our analyses.

6. COST APPROACH

The cost approach analysis uses unit rates from timberland transactions to derive unit values for bare land and open market stumpage sales to derive merchantable timber prices. A combination of cost forwarding and discounted cash flow analysis is used to derive pre-merchantable timber prices.

LAND VALUE

The subject is the interest in the current timber crop; therefore, there is no need to value the land.

LOCAL TIMBER PRICES

FSA reports that log prices paid to SBT for harvested timber are based on quarterly teak price surveys conducted by Consufor, based in Curitiba, Brazil. The Consufor survey focuses on non-FSA teak sales from around Mato Grosso. Consufor reports prices on a roadside basis in both BRL and USD. Table 6.1 summarizes the Consufor prices for the last 22 quarters. Revenues paid to SBT by FSA are essentially a residual stumpage rate, based on the Consufor price less harvesting costs.[10] Because the terms of the agreement are set by the Consufor study, the payment arrangement is analogous in many ways to a fiber supply agreement between a land base and a forest products mill, such as a sawmill or pulp mill. In such cases, the terms of the agreement are generally assigned to any potential buyer. It is our understanding that were the SBT interest to be sold, any potential buyer would be locked into the Consufor pricing mechanism. As such, Consufor prices are integral to any valuation of the interest, as they will dictate future revenues.

The prices shown in Table 6.1 are on a roadside basis. SFNR's roadside price is based on the most recent 3-year average ending in Q2 2022. The cost approach relies on stumpage pricing, so we must adjust these prices to account for harvest and transport costs to roadside. Table 6.2 shows our final stumpage estimates based on the Consufor survey data and the harvest cost information provided by FSA.

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[10] SBT is responsible for harvest costs for final harvests, but not at the time of thinnings. All thinning costs are included in the management cost fee SBT pays at the time of final harvest.

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Table 6.1. Consufor Roadside Pricing Survey Results

Year	Quarter	Price by Log Size (m3 true)					
		18-20 cm	20-25 cm	25-30 cm	30-35 cm	35-40 cm	40+ cm
2017	Q1	$40	$94	$109	$200	$304	$366
	Q2	$42	$65	$110	$181	$266	$351
	Q3	$34	$60	$112	$181	$268	$353
	Q4	$28	$60	$113	$183	$272	$357
2018	Q1	$28	$60	$112	$180	$267	$349
	Q2	$28	$62	$108	$166	$255	$361
	Q3	$26	$57	$105	$160	$234	$304
	Q4	$27	$57	$105	$159	$233	$286
2019	Q1	$28	$60	$109	$158	$229	$282
	Q2	$27	$59	$107	$157	$220	$277
	Q3	$26	$64	$110	$159	$222	$280
	Q4	$27	$65	$113	$158	$218	$274
2020	Q1	$25	$65	$116	$169	$214	$261
	Q2	No Data Height of Pandemic					
	Q3	$26	$63	$112	$160	$203	$256
	Q4	$22	$55	$110	$155	$197	$255
2021	Q1	$20	$50	$102	$147	$190	$240
	Q2	$20	$54	$105	$152	$188	$237
	Q3	$25	$50	$94	$140	$178	$232
	Q4	$26	$51	$91	$138	$175	$229
2022	Q1	$28	$51	$95	$144	$180	$238
	Q2	$33	$52	$88	$134	$171	$235
Recent 3-year Average		$29	$56	$103	$151	$194	$249
Pre-Pandemic 3-year Average		$29	$61	$110	$168	$242	$311
Long-term Average		$28	$60	$106	$161	$223	$287

Source: Consufor Surveys

Table 6.2. Teak Stumpage Prices

Diameter (cm)	Thinning $/m³	Final Harvests $/m³	Thinning $/m³	Final Harvests $/m³
	Current		3-Year Target	
	Roadside Pricing			
Logs 18-20 cm	$ 29	$ 29	$ 29	$ 29
Logs 20-25 cm	$ 56	$ 56	$ 59	$ 59
Logs 25-30 cm	$ 103	$ 103	$ 106	$ 106
Logs 30-35 cm	$ 151	$ 151	$ 161	$ 161
Logs 35-40 cm	$ 194	$ 194	$ 223	$ 223
Logs 40+ cm	$ 249	$ 249	$ 287	$ 287
	Stumpage			
Harvest Costs ($/m3)	$ -	$ (29.00)	$ -	$ (29.00)
Logs 18-20 cm	$ 29.00	$ -	$ 29.00	$ -
Logs 20-25 cm	$ 56.00	$ 27.00	$ 59.35	$ 30.35
Logs 25-30 cm	$ 103.00	$ 74.00	$ 105.73	$ 76.73
Logs 30-35 cm	$ 151.00	$ 122.00	$ 161.45	$ 132.45
Logs 35-40 cm	$ 194.00	$ 165.00	$ 222.87	$ 193.87
Logs 40+ cm	$ 249.00	$ 220.00	$ 286.99	$ 257.99

Source: Consufor and Floresteca

Prices shown are for logs 18 centimeters in diameterand larger. TRC's's Cassiano Sasaki reports that there are energy markets (biomass) in the area, but demand is sporadic, and sales into such markets tend to be opportunistic. We therefore limit our analysis to log products. We model a minimum log diameter of 18 centimeters. Mr. Sasaki reports that the smallest logs are shipped to Floresteca's sawmill in Cáceras, where they are sawn into squares before shipment to India. He also reports that, based on haul distances from the subject farms to the mill, combined with logistics costs from the square mill to India, it is not economical to export logs less than 18 centimeters in diameter.

MERCHANTABLE TIMBER VALUE

Merchantable timber value is calculated by multiplying total standing merchantable timber by the stumpage values just described. In this case, merchantable timber is defined as belonging to stands age 14 years or older. Prices shown in Table 6.2 form the basis of the merchantable timber value reported in Table 6.3. Merchantable timber volumes shown in the table are based on inventory data provided by FSA. Gross merchantable timber value is estimated at $58,138,671, based on this calculation. Under normal circumstances, this would become our final estimate of merchantable timber value. However, the SBT interest is unique in its cost-sharing arrangement. Besides harvesting costs at the time of final harvest, SBT must also pay a one-time average management cost of $5,544[11] per harvested hectare. SBT is also responsible for land clearing costs of $1,054 per hectare to bring the land back to a pre-forestry condition. Finally, FSA is entitled to a 5% performance fee on roadside revenues less harvest costs and land clearing. Assuming a liquidation scenario, it is therefore reasonable to subtract these costs from gross timber value to arrive at an adjusted timber value. Management costs, land clearing, and FSA incentive costs total -$86,651,862, resulting in final adjusted timber value of -$28,513,191.

It is highly unusual for a negative value to occur in the cost approach. There are several reasons for this:

1. The management cost arrangement in which SBT must pay a large one-time cost at the time of final harvest is unusual in that it is "back-loaded" and does not accurately reflect current costs. In most instances, timberland investors would have paid for management costs on an as-required basis over the life of a stand, thereby obviating the need for such a charge at final harvest. This cost factor is the leading contributor to such a low indication of value.

2. The same can be said for the land clearing cost, which is significant, but still less than the gross value of the timber.

Table 6.3. Cost Approach

SBT - Brazilian Teak - June 30, 2022		Volume (m3)	Unit Value	Total $
	Logs 18-20 cm	106,410	$0.00	$0
	Logs 20-25 cm	301,738	$27.00	$8,146,926
Teak	Logs 25-30 cm	257,389	$74.00	$19,046,786
	Logs 30-35 cm	149,392	$122.00	$18,225,824
	Logs 35-40 cm	54,839	$165.00	$9,048,435
	Logs 40+ cm	16,685	$220.00	$3,670,700
		886,453	$65.59	$58,138,671
Management Costs		12,795.0	-$5,543.80	-$70,933,245
Stump Clearing Costs		12,795.0	-$1,054.00	-$13,485,983
TRC Performance Fee	(Roadside price - harvest costs - land clearing) * 5%			-$2,232,634
Subtotal Costs:				-$86,651,862
Adjusted Merchantable Timber:				-$28,513,191
	Hectares	USD/Hectare		
Total Area	12,795	-$2,267		
Plantable Area	12,795	-$2,267		-$28,513,191
			Rounded to	-$29,000,000

3. A common problem with the cost approach is that it often treats the value of standing timber based on a "liquidation" basis. That is, it only recognizes the value of the timber based on its current condition. Teak stands always generate their maximum value at the very end of their rotation when product mixes include higher proportions of larger, higher-value logs. As such, the approach almost always fails to recognize future value; thereby, understating the intrinsic value of the investment.

Often one can argue that the conservative nature of the merchantable timber value calculation is offset by an overly optimistic view of liquidity, which assumes that all the timber could be harvested at once and placed into the market with no price impact. However, in this case, the magnitude of the management costs on the back end of the investment period overwhelms any value derived from the gross estimate of timber value, resulting in an unrealistically negative value. An alternative would be to treat the merchantable timber similar to that of pre-merchantable timber, which factors in future value, as well as costs. However, to do so effectively reduces the cost approach to a simple DCF analysis. This would obviate any need for the approach in the first place, since we are already applying a DCF analysis within the income approach (described later).

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[11] Note that the base cost is $4,500, plus $600 per hectare for each year beyond age 20 for which a stand is held for final harvest. However, TRC owes SBT back revenues from prior harvest activity. The revenues are to be subtracted from the management cost, resulting in the average cost reported above.

PRE-MERCHANTABLE TIMBER VALUE

The property no longer has any projects that are young enough to qualify as pre-merchantable (less than 14 years); therefore, no pre-merchantable analysis is needed.

INDICATED VALUE BY THE COST APPROACH

Table 6.3 summarizes the results of the cost approach analysis. Based on this unit summation analysis, the estimated market value is -$29,000,000. Were it not for the negative value generated by the cost adjustments, the concluded value under the cost approach would be higher. Under normal appraisal conditions we would not have to adjust value downward for deferred management and clearing costs. These costs combined equal -$86.7 million. It is worth noting that under normal conditions in which we would typically ignore these costs, the indicated value from the cost approach would be $58.1 million. One could argue that this is the correct value, since it produces a value more in line with customary management practices and the charging of costs. However, insofar as the current estimate of value from the Cost Approach is much lower than we would expect, this fails to account for any influence on value resulting from the typical timing and allocation of management and clearing costs. This cost stream is one which any knowledgeable buyer would almost certainly factor into their due diligence.

The cost approach, because of the unique circumstances surrounding the SBT interest, does not produce a credible measure of value. Because of this, we do not factor it into our final estimate of value. We have; however, included discussion of it here for purposes of providing a comprehensive opinion of value. It is instructive, as it helps to highlight the unique nature of the investment.

7. INCOME CAPITALIZATION APPROACH

The Income Capitalization Approach (ICA) derives market value directly from the income-producing potential of the property. The format used in this appraisal is Discounted Cash Flow (DCF) analysis. The DCF analysis estimates net annual income for the subject property in each year of the projection period. The analysis is conducted on a real, pre-tax basis, designed to emulate typical investor behavior. It is SFNR's experience that most investors hold to this convention. The analysis assumes no taxes, other than property taxes. Because of this, a real, pre-tax market-derived discount rate is used to discount annual net incomes. SFNR worked with the timberland managers in estimating forest management costs and timber productivity estimates specific to the property. These data include timber rotations, silviculture, and management costs. Base timber prices are as discussed in the previous chapter (see Table 6.2).

UNIT MEASURES

All financial values are expressed in USD. All volumes are presented in cubic meters and all area figures are hectares.

DISCOUNTED CASH FLOW METHOD ASSUMPTIONS

The DCF process has several aspects that can vary, depending on country, region, property type and value definition. This section provides SFNR's approaches on timing convention, projection period and reversion value.

Timing Conventions

Each Woodstock planning period is one year in length (i.e., an annual period). Woodstock applies all actions (harvest and silvicultural activities) at one point in time during the planning period. When applying discount rates, SFNR assumes that cash flows occur at different points in time during the year. The following timing conventions are typically used for Southern Hemisphere DCF models. SFNR recognizes that revenues generated from harvesting can occur throughout the year. In order not to be too aggressive on the timing of the cash flows, harvest revenue is treated as mid-year. Costs are also assumed to occur at mid-year.

Projection Period

The projection period should reflect or account for the holding period anticipated by typical investors. In most cases where properties are held fee simple or future rotations are anticipated, we model a 20-year holding period. However, because this is a timber right with a finite lifespan, we model the investment to its natural conclusion, less than 10 years.

Inflation

The appraisal analysis is presented in real terms. The cash flow projections and discount rates are therefore net of inflation.

Reversion Value

There is no need for a reversionary value, as the interest is subject to a finite term.

Tax Considerations

Forests can be valued either pre-tax or post-tax. Institutional capital makes up the bulk of current timberland investors. Such investors often analyze deals on a pre-tax basis. While this treatment often does not apply to offshore investments, deals are typically structured to mitigate most, or all, of the tax burden. Therefore, we model cash flows for the subject on a pre-tax basis.

Since our analysis is pre-tax, we employ a pre-tax discount rate. Producing a post-tax analysis would require using a lower discount rate that would more or less offset the outflow of cash included in the post-tax model, thus arriving at generally the same conclusion.

YIELD TABLE GENERATION

Growth and yield assumptions used for the DCF analysis are based on projects developed by FSA, based on the property's permanent plot system. FSA provided unique yields for nearly every farm/year combination for the investment. SFNR found a few instances where yields were missing. This was for projects with insignificant areas, presumably with insufficient plot data for reliable modeling. SFNR borrowed yields from nearby projects deemed to be sufficiently similar in these few instances. A cursory comparison of this year's yields with last year's found the 2022 yield projections, as provided by FSA, to be lower than reported in 2021. This change has a downward influence on value.

Most of the stands found on the property have received final thinnings, so the next harvest entry will be a final harvest. Exceptions include stands at Barranquinho, Mutum, Santa Maria do Jauru II, and Terra Santa. These stands are scheduled for one more thinning before their final harvest.

DISCOUNT RATE

For this appraisal, SFNR applies a discount rate of 11.0% real (net of inflation). The real discount rate converts projected future cash flows into their net present value. A market basis for the discount rate helps produce a reasonable estimate of value, especially for a long-term investment in which the value is sensitive to the timing of cash flows.

Evolution in Discount Rates

We first consider the evolution of discount rates applied to timberland valuations in the US for context. US timberland values previously peaked in 2008 in conjunction with compressed risk premia across the investment universe, as capital sought investments with better expected return than traditional assets that seemed overvalued. To be competitive, investors lowered discount rates for timberland as well, producing higher values. Although timber prices were declining at the time, *expected* prices are often stickier because of the evidence that prices revert to the mean.[12] There was little variation in discount rates among timber regions and properties as purchasers assumed little difference in risk (Figure 7.1).

Figure 7.1. Mean Real (ex-Inflation) Discount Rate for US Timberland Since the 1990s
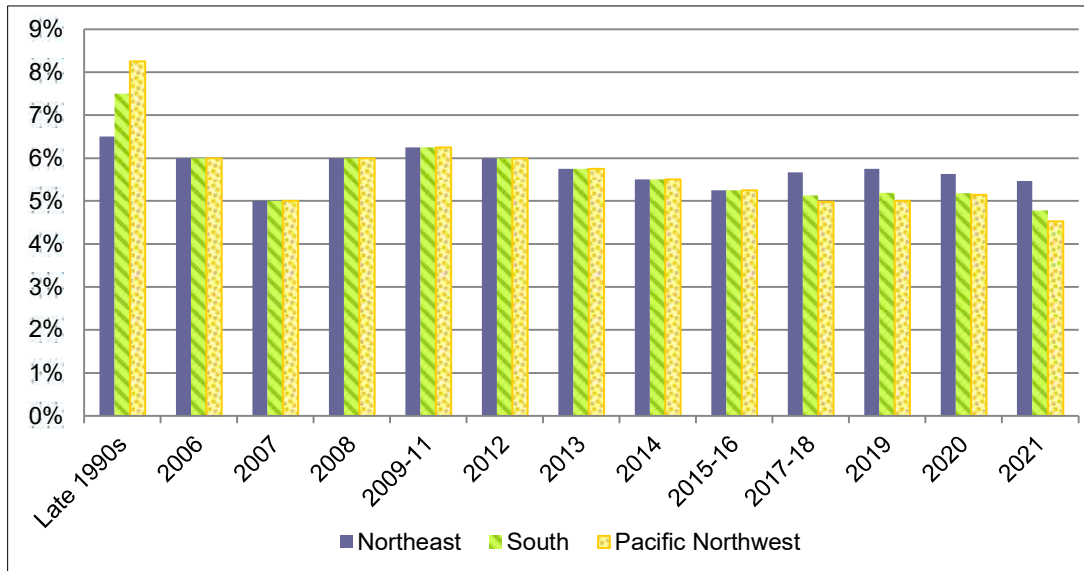
Source: SFNR Investor Surveys

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[12] Forest Research Notes 6(3), 2010. Southern Pine Sawtimber Price Trends – Update.

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The 2008 global financial crisis imposed considerable investor uncertainty, and timberland discount rates rose above 6.0% real. The bid-ask spread widened, and "no-sales" resulted for some offerings. SFNR's representation of prospective buyers in their due diligence, various appraisal assignments and our analysis of significant transactions indicated the prevailing investment environment.

SFNR's Investor Survey indicated discount rates fell by about ¼ percentage point per year starting in 2012 such that by 2015, rates had returned to pre-financial crisis levels. Subsequent Investor Survey results showed differences emerge among the major regions. In 2021, real long-term interest rates declined, and investors advised that discount rates applied to US timberland are lower as well.

We attribute the decline in rates since 2012 to a similar drop in prospective rates of return for mainstream investments, as well as relative demand for timberland. Optimism around new demand segments, such as carbon credits, biofuels and mass timber in large-building construction (substituting for concrete and steel) adds to support from healthy wood products earnings, which can buoy transaction prices.

Discount Rate Approaches

In selecting a discount rate, we consider recent US 10-year Treasury yields as a "risk-free" benchmark suited to timberland's investment horizon, albeit the near end. We then review alternative indicators to see that an appropriate risk premium for the subject is added, implicitly or explicitly, to arrive at a discount rate that reflects the risk parameters of the timberland investment at hand. For non-US timberland valuations, we apply a premium or discount for country risk.

There are three approaches that we considered to determine an appropriate discount rate for a timberland investment by a US dollar-based investor:
1. Implied discount rates of transactions
2. SFNR's Investor Survey of market participants
3. Capital Asset Pricing Model (CAPM) applied to timberland

In the case of the last two, we begin with the US rate, treating it as our timberland benchmark for a well-established, low-risk, active market. For non-US timberland valuations such as the subject, we then add any risk premium to account for property-specific risk as well as country-specific risk.

1. Implied Discount Rate

Transactions can provide empirical evidence of market discount rates. SFNR can derive implied discount rates (IDRs) in two ways. First, we may ask a buyer what discount rate they applied in their valuation. This approach most directly reflects investor behavior. Unfortunately, investors are disinclined to disclose their actual discount rate for a transaction. This is especially true for non-US deals. While most investors decline to disclose deal-specific rates, many are willing to opine on geographically specific generic rates, which in some ways can be more useful than deal-specific IDRs. More on this in the discussion of our annual investor survey below.

Second, we can compute a transaction's projected internal rate of return (IRR) as well as an IDR based on the sale price and assumptions regarding projected expenses and revenues. In some cases, SFNR has direct experience in the acquisition due diligence for a bidder. By virtue of this, we are well-informed regarding the prospective cash flow profile of a property to then derive the IDR. However, even under these conditions, we may be limited to our own interpretation of the "correct" set of assumptions for the transactions. This is often because investors may share data with an appraiser, while at the same time hold back the assumptions they apply to the data.

Regardless of the method employed, it is important to recognize that the buyer's implied discount rate is driven by their unique perception of risk, future prices and costs, projected timber yield, and sale of portions of the property, for example. There are many variables and assumptions to consider when estimating a discount rate. When not privy to the buyer's assumptions, it is necessary to estimate them to derive the implied discount rate.

Risk can be incorporated into an analysis by adjusting projected cash flows, the discount rate itself, or a combination of the two. Some investors account for risk by adjusting projected cash flows directly, so adjustments to the discount rate among projects will be relatively small compared to those who account for risk by adjusting the discount rate itself.

Unfortunately, we lack adequate data to estimate and IDR in this case.

2. SFNR Investor Survey

SFNR uses our Investor Survey as a key reference to gauge timberland market conditions. This is an effective way to capture investor sentiment and the relative risk profile ascribed to various investment regions and opportunities.

In SFNR's 2021 Survey, based on responses from 29 active timberland investment managers, mostly US-based, 23 replies addressed the broad US discount rate. We asked for the "base" discount rate (real, pre-tax, before investment manager fees and expenses) currently required to purchase generic timberland investments in the US. Respondents could report a single rate for the US, or if they assumed regional differences, they could specify rates they would apply to the South, Northeast, Great Lakes, Pacific Northwest, Inland Northwest, and Northern California.

Selected survey results are summarized below:

What is the US base discount rate required for competitive bids?
Mean 4.60%; Median 4.5%; Mode 4.5%; Range 3.0% to 5.5%

Over the past 12 months, have discount rates stayed the same, risen, or fallen?
Same (4) | Fallen (21) | Risen (0)
By how much? Mean -0.38%; Median -0.25%; Mode -0.25%; Range -2.0% to 0%

How much committed capital is out there now?
Mean $3.1 billion; Median $3 billion; Mode $2 and $4 billion; Range $1-5 billion

Have you bought properties with a view to placing carbon agreements on them?
Compliance market: Yes (11) | No (15)
Voluntary market: Yes (13) | No (13)

The survey indicates a base rate of 4.5% to 4.75% for the US, ¼- to ½-point lower than our 2019 and 2020 surveys, as i) repeat respondents (the majority) indicated consistent change and average 4.5%, and ii) those that specified by region also were lower than the prior survey for the US overall. Further, we posed questions regarding carbon credit effects on major value parameters. Respondents indicated that (i) price is discounted for properties with compliance-market carbon agreements in place, (ii) the most commonly cited characterization of properties with compliance-market carbon agreements is that they have less optionality, and (iii) the vast majority of respondents are exploring opportunities in the voluntary carbon market.

Brazil Base Rate
Respondents to our annual investor survey are asked to opine on appropriate discount rate premiums or discounts to be applied to the base US rate in order to build country-specific discount rates. Respondent risk premiums/discounts account for country-specific risks related to political, economic, and currency related factors.

Brazil is one of the countries included in the survey. The mean response in the most recent survey was 4.89 percentage points, and the median 4.5 points for teak investment. Adding these rates to a 4.75% base US rate produces Brazil teak discount rates of 9.64% and 9.25%, respectively. The full range in responses of 4.0 to 7.0 points was similar to the range in

perceptions of many geographies. The range of responses produces a discount rate range of 8.75% to 11.75%, and thereby a midpoint of 10.25%. Comments indicated that price of plantation teak, financial and regulatory uncertainty and natural hazards weighed on required return considerations.

3.   Capital Asset Pricing Model (CAPM)

The advantage of the Investor Survey is that it provides direct input about investor sentiment regarding the subject market. The CAPM offers a quantitative, public equity-based alternative to investor surveys. The risk premium that CAPM derives is not a function of a project's stand-alone risk, but rather its contribution to a well-diversified investment portfolio. In other words, CAPM calculates the risk premium for an asset based on its performance relative to the overall equity market. As with the investor survey, we begin by analyzing US timberland investments in the context of the CAPM and expand our analysis to include risk for the subject geography.

US Investment Performance Measures

US timberland's investment performance dates from 1987 via the NCREIF Timberland Property Index. For starters, total returns of the NCREIF Timberland Property Index and the Standard & Poor's 500 Index since inception of the timberland series show multi-year periods in which timberland has outperformed stocks, and vice-versa (Figure 7.2).

Figure 7.2. NCREIF Timberland Property Index and S&P 500 Total Return Index
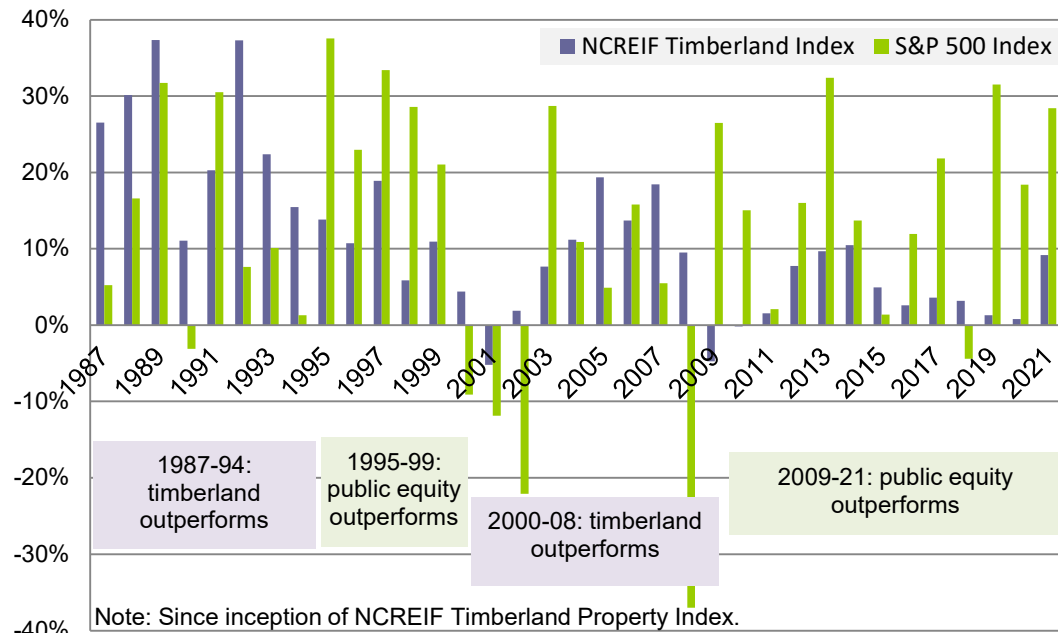
Source: NCREIF, St. Louis Fed, https://dqydj.com/

Subsequent to the market correction in 2008-10, discount rate compression and capital appreciation drove up US timberland and publicly traded equity returns markedly from 2011-2014. Timberland's positive returns look modest as public equities' prices charged higher through 2017. Timberland outperformed when publicly traded share values corrected in 2018, underperformed when public equities soared in 2019-21 and is outperforming so far in 2022's bear market for public stocks.

The correlation between annual returns, one rationale for investor interest in timberland and best measured over long periods covering multiple business cycles, of US timberland and US public equities shown in the figure is just 0.17. Over rolling 20-year periods (appropriate for timberland considering the time it can take, especially in the northern US, for forest management decisions' effects to show), the correlation coefficient ranges from 0.39 (1988-2007) to -0.11 (2002-21). US timberland's correlation with the Bloomberg Aggregate Bond Index is 0.20 over the same period, ranging from 0.17 (1989-2008) to -0.36 (1998-2017) using rolling 20-year periods.

In SFNR's CAPM model (Figure 7.3), the Security Market Line shows how annualized rates of return correspond with volatility (β). The line's positive slope indicates that, as volatility or risk rises, an investor should expect to receive a higher rate of return for accepting that risk. The risk-free rate of 5.8% is the average return on a 10-year government note, to correspond with the typical minimum investment horizon for timberland, since inception of the NCREIF Timberland Property Index in 1987.

Figure 7.3. Capital Asset Pricing Model
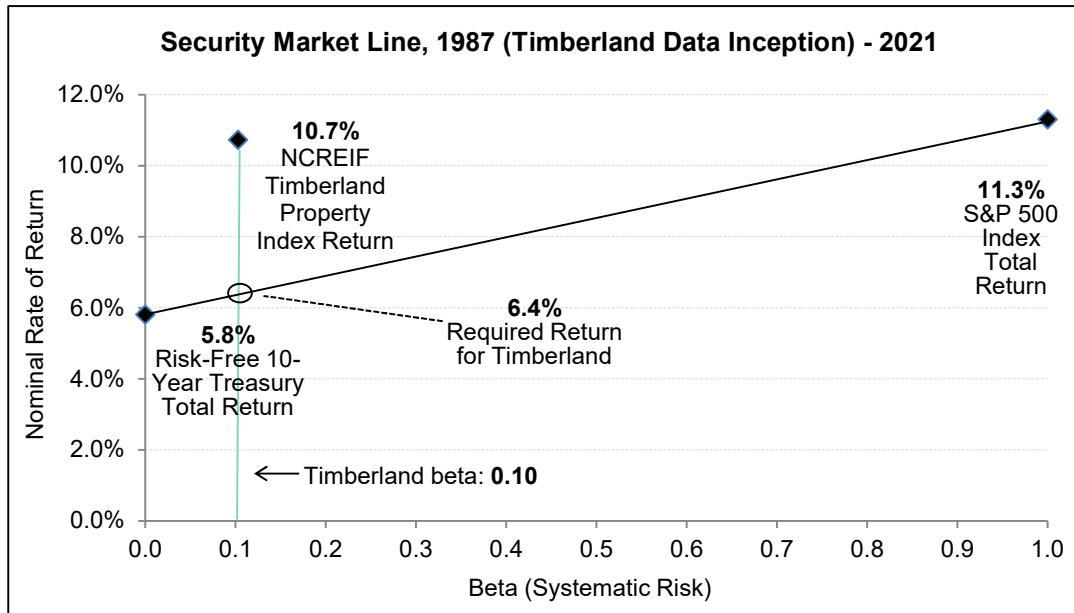
Sources: NCREIF, Yahoo finance, Damodaran online

The security market line indicates that, with β = 0.10, the return for timberland should have averaged 6.4% in nominal terms to fairly compensate for its risk. Actual returns are higher – the 1987 inception-to-date annualized return was 10.7%, suggesting excess return of 4% per year over this time period. Some of the outperformance may be attributed to non-systematic factors (early-mover advantages, fortunate timing relative to events unique to the forest sector), while some outperformance could be more systematic (niche investment in which few investors have dedicated expertise, illiquidity premium, etc.). This risk-return relationship has bolstered timberland's attractiveness for investors.

Below is the CAPM equation that we apply for timberland in general:

$$R_a = R_f + \beta * (R_m - R_f)$$

Elements of this equation are defined below.

R_a = Required rate of return of the asset, or discount rate
R_f = Expected risk-free *real* return rate
β = Timberland beta (adjusted)
R_m = Expected public equity market return rate
$R_m - R_f$ = Equity risk premium

$R_a = R_f + \beta * (R_m - R_f)$
   = 1.0% + 0.3 * 4.24%
   = 1.0% + 1.3%
   = 2.3% real
   + 0-1% for lower liquidity
   + 0-1% for higher transaction costs
   $\sim$ 3-4% total required return for core US timberland

With regard to the specific factors above:

−   The risk-free rate (R_f) applied is the average real yield on long-term US Treasury securities. This rate stepped down when the coronavirus came to the fore, from 0.5-1.2% in 2014-19, to -0.6-0.0% from April 2020 through March 2022. In 2nd quarter 2022, the real long-term yield climbed back to 1.0%[13] We use this in the equation, considering current inflation concerns and the determination to require higher return.

−   The US timberland β is calculated at a relatively low 0.10. In private commercial real estate, rates of return may understate volatility due to a "lag effect" between when actual market conditions are reflected in the appraised values used to calculate rate of return. This theorized lag and smoothing effect on returns remains a subject of debate.[14] Our sense is that if this effect applied to timberland, the increased variability of rates of return would increase β to approximately 0.2-0.4; we apply the mid-point of this range.

[13] St. Louis Fed DLTIIT series
[14] Cheng, P., Z. Lin. and Y. Liu. Heterogeneous Information and Appraisal Smoothing. *Journal of Real Estate Research*, 2011, 33(4), 443-469.

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- The equity risk premium[15] (R_m-R_f) is an updated estimate of 4.24% published as of January 2022. The equity risk premium is in line with the 4-6% range typically cited in academic literature for the historic average equity premium in the US; it has ranged from 2-6.5% since 1961 by this source's methodology.

- At this point, the indicated *real* required return or discount rate is 2.3%, but so far does not account for subjective items such as reduced liquidity and related high transaction costs associated with private markets (actual transaction costs may be higher, but we consider an annualized rate). We judge that each of these factors could add 0-1 percentage point of required return, for a total of 3-4% in real (net of inflation) terms.

Our impression is that CAPM has limited direct application to forward-looking discount rates for timberland assets; it is employed by some investors to confirm that implied or projected internal rates of return are reasonable.

Country-Specific Risk Measures

To quantify the risk associated with non-US investments relative to the US, SFNR's approach is to categorize the offshore risk elements according to: (1) forest-sector risk; (2) country macro-economic risk; and (3) unique, non-diversifiable property-specific risk not captured by 1 and 2. In the context of the CAPM equation expanded below, the corresponding factors that adjust for these three types of risk are as follows: timberland β for forest sector risk; country-specific risk premium (RP_c) for macro-economic risk; and z for unique, non-diversifiable risk. Sewall's goal is to provide as much transparency as possible regarding our logic at arriving at key inputs for the CAPM equation.

The 0.10 β calculated (0.3 adjusted for possible lag effect) using NCREIF return data is quite low and represents a relatively lengthy and accepted performance history, in turn supported by the relatively deep timberland markets available to US investors and lower associated risk. In adjusting beta, a key lever in the CAPM equation, we make adjustments relative to the US timberland market. In the case of the subject property being appraised, the characteristics of its timberland sector and available market information suggests to Sewall an increase in β to reflect increased risk.

Below is the CAPM equation that we apply specifically for the subject property:

$$R_a = R_f + \beta * (R_m - R_f) + RP_c + z$$

Elements of this equation that apply to the subject property in Brazil are defined below:

   R_a = Required rate of return of the asset, or discount rate
   R_f = Expected risk-free *real* return rate

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[15] http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

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β = Timberland beta (adjusted)
R_m = Expected return of S&P 500 Total Return Index
$R_m - R_f$ = Equity risk premium (ERP)
RP_c = Country-specific risk premium
z = Property-specific risk

$R_a = R_f + β * (R_m - R_f) + RP_c + z$
    $= 1.0\% + 1.0 * 4.24\% + RP_{c+z}$
    $= 1.0\% + 4.24\% + RP_{c+z}$
    $= 5.24\% + 2.56\% + z$
    $= 7.8\%$ (rounded) real $+ z$
    $+ 0\text{-}1\%$ for lower liquidity
    $+ 0\text{-}1\%$ for higher transaction costs
    $\simeq 7.8\text{-}9.8\%$ total required real return for Brazil teak timberland

We purposely start with US-based market metrics and then adjust for country-specific factors that would apply to the geography involved. We also reference nearer-term market metrics relative to the effective date of the appraisal as more reflective of the current investment environment and options available to investors.

Regarding the specific factors above:

– As noted above, the risk-free rate (R_f) applied is the real yield on long-term US Treasuries. We use 1.0%, considering conditions in 2022 as inflation rose and interest-rate policy responded, intending to quell inflation.

– Also discussed above, the β is calculated at a relatively low 0.10, and we adjust it to 0.3 for potentially smoothed returns caused by appraisal-based return series. However, this reflects US timberland risk in isolation and US market exposure. We typically increase β to a minimum of 0.5 for a non-US asset to account for the comparatively less robust domestic growth and yield models, timber consumption base, exposure of timber prices to export markets and the volatility of transportation economics, and the limited extent and uncertainty of information regarding timberland transactions and investment performance history.

– In the case of the subject property, we feel it is prudent to increase β to 1.0.

– The indicated equity risk premium is the same 4.24% applied for a US investment; it is an estimate based on both long-term investment performance history and the current price level of public equities.

– We add 2.56% for the country risk premium (RP_c), as indicated by the CDS spread, discussed below.

– As already noted, CAPM analysis does not account for subjective items such as reduced liquidity and related high transaction costs associated with private-market assets, which could each add 0-1 percentage points of required return. Incorporating these leaves our CAPM analysis indicating a total required annualized return rate of 7.8-9.8% in real (net of inflation) terms.

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The country risk premium for Brazil can be estimated by using a couple of established market measures as proxies. One is the credit default swap (CDS) spread, a common proxy for sovereign risk pricing in the debt market. In the swap market, it is effectively an insurance premium paid by the buyer (who holds sovereign debt) to ensure a loan payoff in the event of a default. Although it is limited to risk exposure within the debt market, it is a useful measure of perceived investment risk linked to economic growth and government economic policies. CDS spreads can be thought of as a debt-based risk metric that captures a country's economic risk as a cost of doing business in global capital markets.

Figure 7.4 compares the average CDS spread at the beginning of January 2022 for Brazil and its rated neighbors. Brazil's CDS spread of 2.56 points adjusted in relation to the US and countries of similar credit rating indicates a premium for country risk is warranted for a Brazil investment.

Figure 7.4. Credit Default Swap Spreads
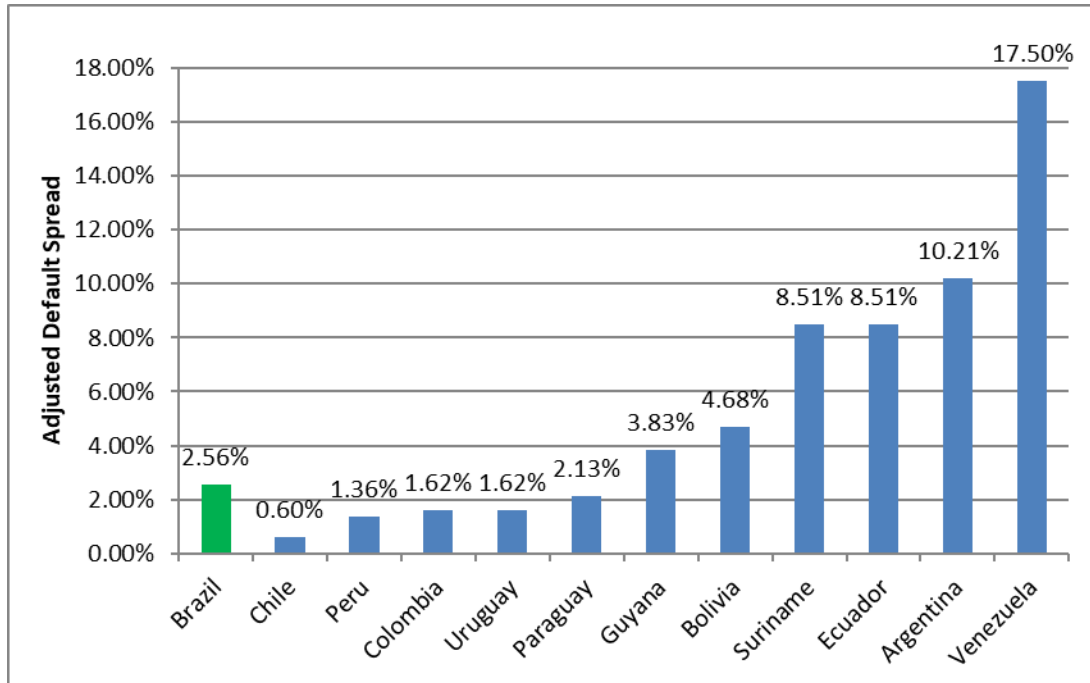
Source: Damodaran Online; http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Sovereign Debt Credit Rating

Another measure of risk is the credit ratings agencies which rate sovereign debt. The three major US ratings agencies each rate Brazil's sovereign debt as non-investment grade, and speculative. Brazil is perceived as presenting a debt investor with uncertainty regarding its ability to meet financial obligations, due to vulnerability to changes in circumstances. All reviews have a neutral outlook on their rating.[16]

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[16] https://countryeconomy.com/ratings/brazil, accessed 25 July 2022.

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−   Moody's   Ba2 (Stable), April 2022
−   Fitch   BB-, May 2020
−   S&P   BB- (Stable), April 2020

Subject Conclusion

The SFNR 2021 investor survey supports a range of generic real Brazil discount rates for teak from 8.75-11.75% and indicates 9.25% using the median result of the survey. The CAPM suggests a real discount rate of 7.8-9.8%, though elements of it are determined subjectively. Based on the foregoing analysis, we conclude a generic rate for the region of 10.25%, the mid-point for the investor survey range. It is not uncommon for experienced investors to couple their choice of discount rate with their assumptions, depending on how aggressive they may or may not be. For example, an investor might adopt aggressive pricing assumptions, while at the same time employing a higher discount rate. This reflects ongoing economic turmoil in the Brazilian economy, as well as India, the destination for virtually all of the property's logs.

Based on the foregoing analysis, we conclude a pre-tax discount rate for the fee simple interest of 10.25% real. It is reasonable to use the generic rate, based on assumptions we have made regarding yields and pricing. The 2022 rate is 0.5 percentage points lower than 2021, with our investors' survey and CAPM analysis partly overlapping.

It should be noted that 10.25% is our generic rate for a fee simple, or freehold, interest. However, the property is a timber right, not a fee simple interest. We regularly ask respondents to our annual investor survey how they treat discount rates in the case of partial interests such as leasehold arrangements or timber rights in relation to fee simple (freehold) interests. Some report no difference in their choice of rate, but most generally add a risk premium. This is not surprising, given the fact that investors under a leasehold agreement have less control over a property than those with a fee simple interest, which affords complete control. Investors in our most recent survey indicate applying a risk premium of 25 to 250 bps to leasehold properties, or in this case, a timber right. The mean response was 93 bps, with a median of 75 bps.

Based on these factors, it is therefore reasonable to assume a risk premium over and above our base Brazilian rate. We therefore conclude a real pre-tax rate for the subject of **11.0%,** by adding a risk premium of 75 basis points to our base Brazilian rate of 10.25%. This is 50 basis points lower than reported for our 2021 appraisal.

STUMPAGE REVENUES

The basis for the roadside prices used in the Income Approach is as described under the Cost Approach chapter (see Table 6.1).

Investors vary in their approach to account for stumpage appreciation. Some investors tend to be conservative, choosing to model little or no real appreciation associated with stumpage prices. Often such investors will do so with a tendency towards lower discount rates. On the other end of the spectrum are investors who tend to be more bullish with regard to stumpage appreciation rates, but typically will offset this by applying higher discount rates.

We are aware of investors in Latin America that use either approach when modeling cash flows for teak. Many investors model zero appreciation, while others we have spoken with in the past have modeled as much as 4.5% per year. Appreciation periods also vary from short periods at the beginning of the cash flow model to lasting the entire investment horizon.

Most teak timberland investors we are aware of are currently assuming flat pricing going forward. This includes successful buyers. Markets have been flat to declining over the last several years and there is much discussion among those familiar with the market, with some suggesting prices will rise, while others are less optimistic. In general, the most common practice of late is to model flat pricing. However, in this case we have chosen to assume a modest amount of appreciation. Starting prices for the DCF model are based on the those reported for the Cost Approach described in Chapter 6. Those prices are based on a three-year average, including recent turmoil resulting from the pandemic. As such, they are likely lower than would otherwise be the case, had the pandemic not occurred. Because of this, we model a "return-to-trend" scenario, whereby prices are assumed to return to the long-term average, as shown in Table 6.1. We assume a 5-year appreciation period, after which prices are assumed to remain flat. This is a departure from last year's assumptions, which assumed a 3-year return period to full pre-pandemic pricing. This year's appreciation assumptions are less bullish. Given the fact that we are now another year removed from the worst of the pandemic and that prices have yet to demonstrate a post-pandemic rebound, a more conservative approach is warranted.

COSTS

We model costs based on information provided by FSA.

Harvest Costs

SBT is responsible for all harvest costs for final harvest activities. FSA reports a current final harvest rate of R$144.70 per cubic meter, or $29 (USD) per cubic meter. We assume this rate per cubic meter for clearcut harvesting, the only type of harvesting for which SBT is explicitly charged under the terms of the agreement. This is a $5.00 per cubic meter increase over last year, producing a downward influence on value. FSA reports the increase is due to recent increases in petroleum-based inputs, which drive much of the cost.

Land Clearing Costs (Stumps)

SBT is responsible for clearing the land of stumps following final harvests, thereby returning the land to pre-forestry condition. FSA reports clearing costs at R$5,331 per hectare, equivalent to $1,054 (USD) per hectare. We model this rate going forward following all final harvests. This rate is 55% higher than reported for our last appraisal. This change negatively impacts value. The nature of the change is similar to that reported for logging costs. Again, driven by increases in petroleum-based inputs.

Silvicultural and Administrative Costs

Normally we would explicitly model silvicultural costs for each stand by year, as well as annual fixed costs (administrative costs). However, due to the terms of the investment, SBT is not required to pay either of these costs at present. Instead, they must pay a one-time management cost fee at the time of final harvest, plus any land-clearing costs. However, this cost is expected to be offset by the fact FSA has not distributed past thinning revenues to SBT.

The full management fee for a 20-year-old stand at final harvest is $4,500 per hectare, plus $600 per hectare for each year a stand is held for harvest from ages 21 to 25. At the same time, outstanding thinning revenues, based on the draft 2021 Harvest Report, owed to SBT total approximately $12.3 million, or $964 per productive hectare.

We model an adjusted management fee in which we begin with the full fee and subtract from it outstanding thinning revenues, on a per-hectare basis, to arrive at a net management fee. For example, if an average stand is harvested at age 22, the full management fee owed to FSA would be $4,500 per hectare (through year 20), plus $1,200 (years 21 and 22 at $600 per hectare per year), less an average of $964, resulting in a net average payment of $4,736 per hectare. In actuality, management fees in the model are applied on a farm-by-farm basis, reflecting varying adjustment factors by farm.

Based on the optimized harvest schedule chosen by Woodstock, the average net management fee for the projection is $5,544 per hectare, driven by an average harvest age greater than 20 years. The DCF model allows for harvest ages past year 20. Because it is an optimization model, it chooses stands to be harvested older than year 20 when the marginal value gain from favorable log product shifts (larger logs) outpaces the marginal $600-per-hectare-per-year management fee.

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Property Taxes

FSA reports that property taxes (ITR) are SBT's responsibility. However, they are incorporated into the one-time management fee described above. Therefore, there is no need to explicitly model them.

FSA Performance Fee

SBT must pay FSA a performance fee of 5% based on the following formula:

5% * (Roadside Harvest Revenues – Harvest Costs – Land Clearing)

We model this fee going forward.

MODEL CONSTRAINTS

Harvest Age Considerations

As described earlier for the yield table assumptions.

Harvest Flow Constraints

The subject is small within the overall context of the larger teak market. Therefore, it would be theoretically possible to cut it as fast as possible. FSA reports that they currently have limited capacity to harvest the property all at once. Expectations are that they will be able to add harvest teams to accommodate future demand as existing stands become eligible for future harvest. Our model assumes sufficient harvesting capacity to harvest no more than 2,500 hectares per year, which is only constraining in one year of the model.

Negative Cash Flow Farms

FSA reports that SBT receives net positive cash flows for all projects with positive cash flows after accounting for all revenues and expected expenses. They are not, however, responsible for making up the difference (paying out) in instances with projects with net negative cash flows. SFNR tested this rule for all projects modeled in the DCF analysis and found that the Bambu 1999 and 2000, Barranquinho 2002, Duas Lagoas 2000 and 2001, Paiolândia 1997, and São Miguel 2001 and 2002 projects have negative overall cash flows, based on the assumptions described earlier. Based on this analysis, these projects were removed from consideration in the DCF analysis. The end-result is that their net-negative cash flow results are excluded from the results of the analysis.

RESULTS AND SENSITIVITY ANALYSIS

The cash flow model results in total undiscounted revenues of $107 million over the investment horizon. Undiscounted costs over the same period total $77 million, for a total undiscounted net income of $30 million.

Figures 7.4 to 7.6 summarize harvest activity by area and volume, as well as projected inventories over the course of the planning horizon. The DCF model is sensitive to several key inputs, the most important being discount rate and pricing. We believe the most likely range is 10.0% to 12.0% real for the base discount rate. Table 7.1 summarizes the results of the DCF analysis and sensitivity analysis. Sensitivity analysis produces present values ranging from $19.0 million at 12.0% to $20.4 million at 10.0%. Sensitivity analysis based on decreasing or increasing the value of products by 5% results in values ranging from $16.7 million to $22.6 million. Appendix B provides additional supporting detail for SFNR's DCF analysis. Table 7.2 provides supplemental analysis of the effects of discount rate on value, showing a range of values corresponding to rates ranging from as low as 5.0% to as high as 14.0%.
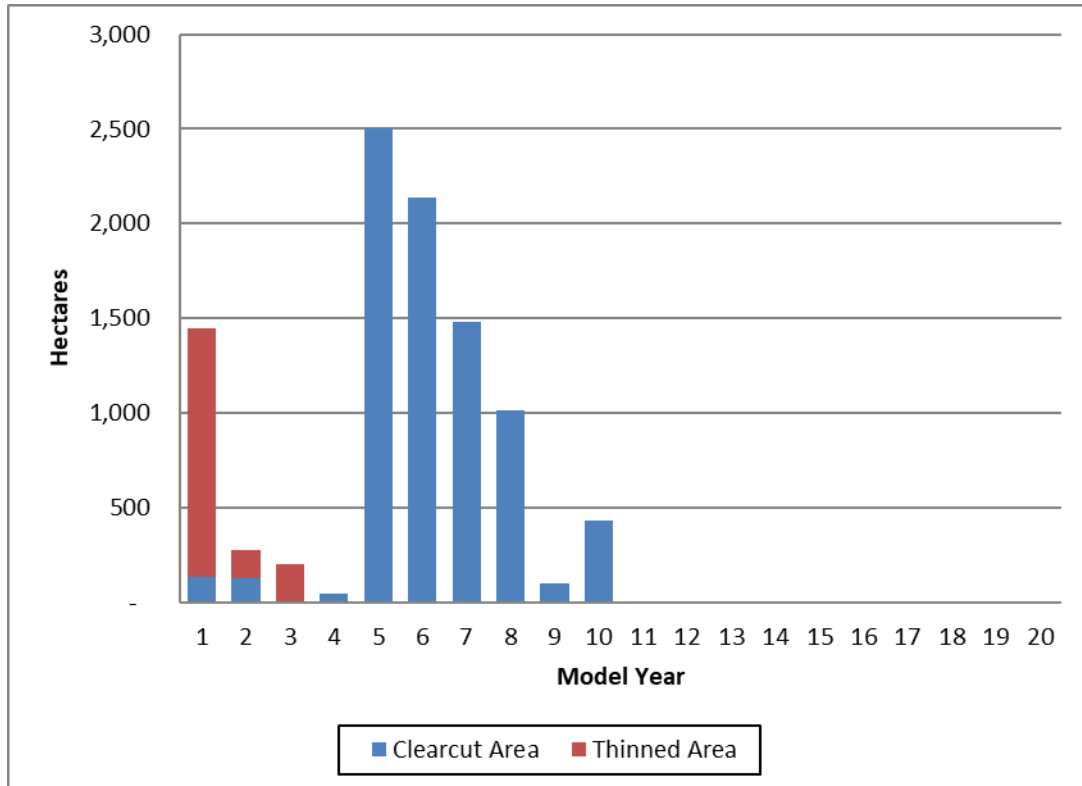
Figure 7.5. Plantation Harvest Area

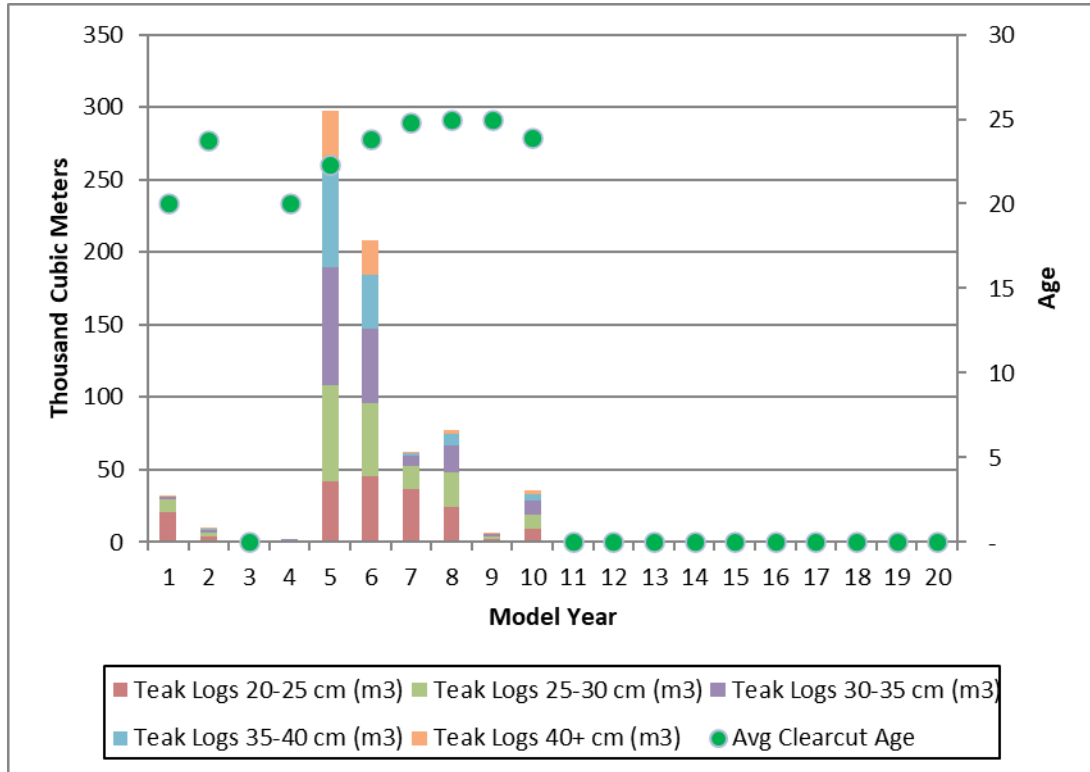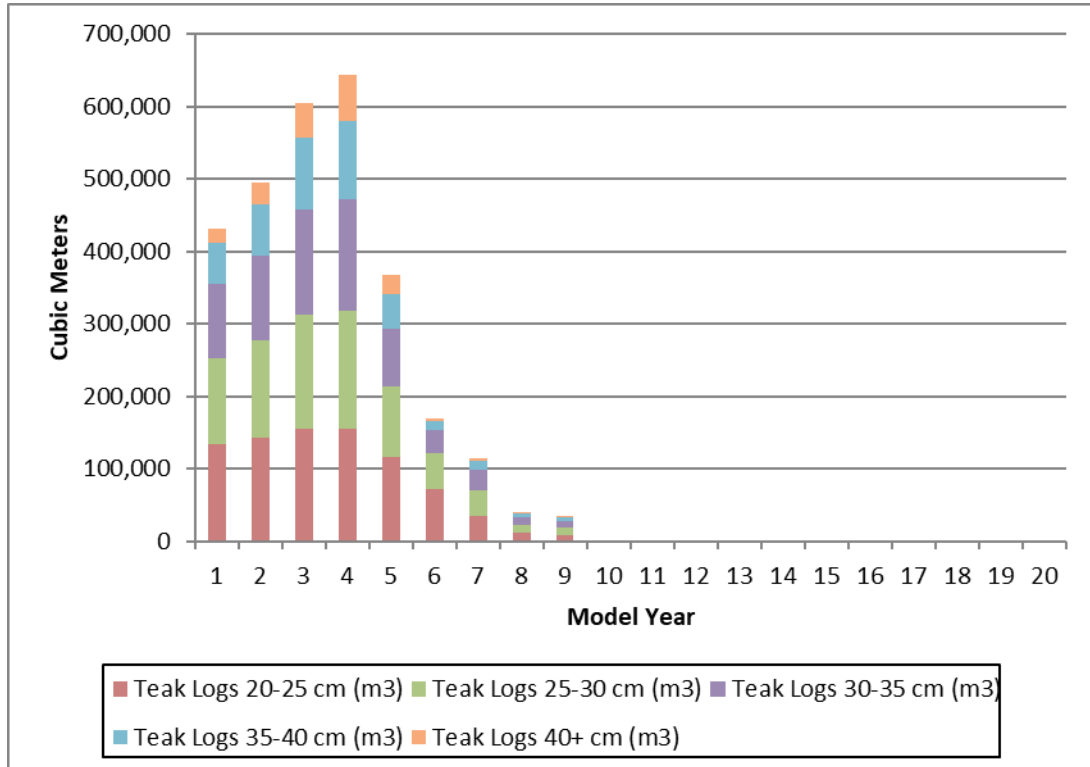**Figure 7.6. Harvest Volume by Product and Average Clearcut Age**

Figure 7.7. Total Merchantable Inventory by Product

INDICATED VALUE BY THE INCOME CAPITALIZATION APPROACH.

The base rate analysis produces a present value of $19,673,306, rounded to $19,700,000, or $1,540 per plantable hectare. This analysis is subjective, requiring many assumptions, but it directly models cash flows anticipated by institutional investors. Therefore, the estimated market value by the income capitalization approach is $19,700,000.

Due to the complexity of the model in regard to pricing changes, future silviculture projections and currency exchange volatility, and other factors, it is entirely appropriate to regard the full range of values shown in Table 7.1 - $16.7 million to $22.6 million - as plausible.

Table 7.1. DCF Summary

SBT - Brazilian Teak - June 30, 2022					
Estimated Value by Income Capitalization Approach:			**$19,673,306**	**Conclusion:**	**$19,700,000**
	Per Total Area:		$2,473		$2,476
	Per Productive Area:		$2,473		$2,476

Sensitivity Analysis				*Capitalization Rate*	
(Assume base data as indicated below unless otherwise indicated)				Years 1-20	Per Planted Hectare
Discount	Present	Mean	Present		
Rate	Value	Price/m3	Value	Revenues	$669.97
10.00%	$20,431,899	95%	$16,720,533	Expenses	-$482.26
11.00%	**$19,673,306**	**$136.84**	**$19,673,306**	NOI	$187.71
12.00%	$19,010,751	105%	$22,625,978	Cap Rate	7.58%

Data and Assumptions				
			Present Value	
Revenues	**Assumption**	**Units**	**of Cash Flows**	
Timber	$136.84	Average	$62,151,154	
Expenses				
Silviculture	Varies by Year	$ per Hectare Planted	$0	
Forest Costs	$5,544	per Productive Area @ CC	($23,923,639)	
Harvest Costs	$29.00	per m3	($11,578,465)	
Land Clearing	$1,054	per hectare	($4,681,168)	
Performance Fee	5%	$ per Hectare	($2,294,576)	

Area:		**Other Assumptions**	
Total Area (ha)	7,955	Discount Rate:	
Productive Area (ha)	7,955	Base Rate:	11.00%

Roadside Prices:		**Current**		**Future**	
Species/Product	**Thin $/m3**	**Clearcut $/m3**		**Thin $/m3**	**Clearcut $/m3**
		Teak			
Logs 18-20 cm	$29.00	$29.00		$29.00	$29.00
Logs 20-25 cm	$56.00	$56.00		$59.35	$59.35
Logs 25-30 cm	$103.00	$103.00		$105.73	$105.73
Logs 30-35 cm	$151.00	$151.00		$161.45	$161.45
Logs 35-40 cm	$194.00	$194.00		$222.87	$222.87
Logs 40+ cm	$249.00	$249.00		$286.99	$286.99

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Table 7.2 expands on the discount rate sensitivity presented in Table 7.1. Discount rates range from a low of 5.0% to 14.0% with values ranging from $17.7 to $24.6 million.

Table 7.2. Supplemental Discount Rate Analysis

Discount Rate	Indicate Value (million USD)
5.00%	$24.6
6.00%	$23.6
7.00%	$22.8
8.00%	$21.9
9.00%	$21.1
10.00%	$20.4
11.00%	**$19.7**
12.00%	$19.0
13.00%	$18.3
14.00%	$17.7

8. RECONCILIATION & FINAL OPINION OF VALUE - FEE SIMPLE INTEREST

The final step of the appraisal process is to reconcile the results of the three valuation approaches. We have conducted a Cost Approach (CA) and an Income Capitalization Approach (ICA) for this appraisal. Because of the unique nature of the interest, we have not used the Sales Comparison Approach (SCA). The values estimated by the two approaches are as follows:

- o   Cost Approach (CA) - -$29,000,000
- o   Income Capitalization Approach (ICA) - $19,700,000

The cost approach indicates a value of -$29.0 million. It enables the appraiser to separately identify and evaluate each of the basic property components, using market-derived sources for each. However, simply adding together each separate component may not accurately reflect the contributory value of each of the assets. In addition, the cost approach does not consider all sources of cost and revenue and does not recognize discounts for liquidity or potential to increase timber value through price appreciation or future yield improvements. Moreover, the cost approach violates the unit rule and is not often used by investors to drive their decision processes. However, where plantations are young and afforestation common, the cost approach may be used by investors as a supplemental check on value, and it models the sort of afforestation efforts that have been applied to teak plantation development. The cost approach result is negative, because of the unique nature of the investment model. It does not in this instance to provide a reliable indication of value for reasons described in more detail in Chapter 6; it therefore deserves no weight.

The Income Capitalization Approach indicates a value of $19.7 million and a supportable range between $16.7 million and $22.6 million. The range of likely values set by the income approach is determined by sensitivity analysis of important assumptions: pricing and discount rate. The approach is the primary method employed by investors to determine bid prices. As such, it serves as a good indication of the investor thought process. Its primary weakness lies in how sensitive it is to many assumptions. Teak markets in Latin America are developing but far from mature; silviculture and growth and yield science is developing; and present value remains highly sensitive to such assumptions. Because of the manner in which the income approach allows us to directly model individual assumptions about the subject property and the markets affecting its value, and because it is the method of choice for acquisition analysis, we allocate 100% weight to this approach.

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Therefore, the estimated market value of the SBT interest in the Mato Grosso timber rights, as of June 30, 2022 is:

*** USD NINETEEN MILLION SEVEN HUNDRED THOUSAND ***
*** $19,700,000***
($1,540 per gross planted hectare)
Market Value Range: $16.7 to $22.6 Million

Overall value is down 38% from 2021 (Table 8.1). Property area is down 3% as a result of harvesting, accounting for a portion of the decrease. The largest contributor to the decrease is from log price changes, followed closely by cost changes (logging and land clearing). Changes to yield predictions also negatively impact value. Negative changes are offset modestly by a lower discount rate (down 50 basis points).

Table 8.1. Stepwise Change Analysis

June 30, 2021 Indicated Value	$	31,600,000	% Change	Cumulative Change
Area (Harvest Reductions)	$	**30,588,800**	-3.2%	-3.2%
Ages, Inventory, & Yields	$	27,546,866	-9.9%	-12.8%
Cost Assumptions	$	23,296,612	-15.4%	-26.3%
Log Price Assumptions	$	19,334,765	-17.0%	-38.8%
Discount Rate Changes	$	19,673,306	1.8%	-37.7%
June 30, 2022 Indicated Value	$	**19,700,000**		**-37.7%**

EXPOSURE PERIOD

Exposure period is the estimated length of time the property being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal; a retrospective estimate based on an analysis of past events assuming a competitive and open market. Exposure time is always presumed to occur prior to the effective date of the appraisal.

Figure 8.1 shows the activities that comprise "exposure time" for a real property sale. The first major segment of that timeline is the period between listing and contract. In auctions of large forest properties, which would be the most expeditious way to sell a property such as the subject, that period is typically 90-120 days. Following the contract, there can be a significant time period for due diligence. Although the due diligence period can vary, a range of 60-90 days is typical, which means a Reasonable Exposure Time for typical properties such as the subject is 150-210 days, or 5-7 months. However, given the unique financial arrangements surrounding the subject, it is reasonable to expect a longer-than-normal exposure period. We estimate a longer period on the order of 9 to 12 months.

For this appraisal, Market Value is estimated as of June 30, 2022, so the hypothetical sale of the subject is assumed to have been listed during Q2 2021.

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Figure 8.1. Conceptual Timeline of Activities Comprising "Exposure Time"[17]
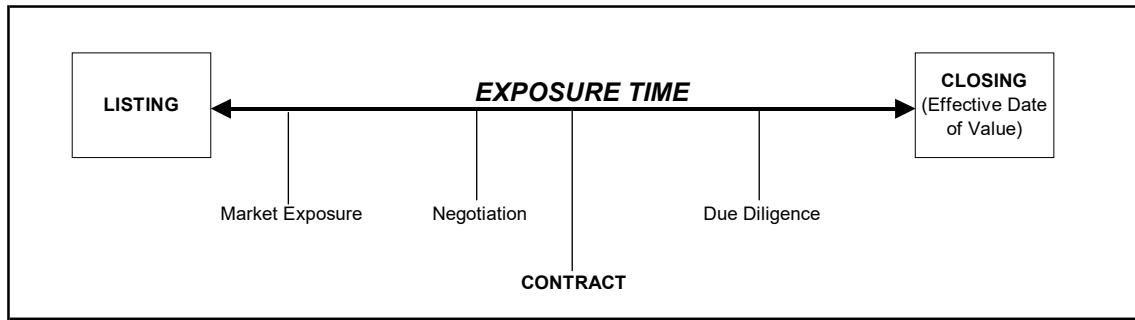
ALLOCATION OF VALUE

The interests are organized by farm and planting year. Each unique farm/year combination is considered a project within the investment scheme. Table 8.2 presents an allocation of value by project, based on the income approach. Farms with zero-values have negative future cash flows. The condition of the trees for these projects are such that they are unlikely to produce positive cash flows over time. They are therefore not allocated any value, as shown in the table.

Table 8.2. Value Allocation by Project

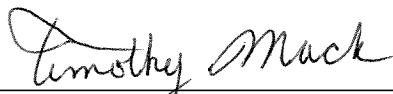| Project			Discounted Value		Undiscounted Cash Flows	
Farm	Year	Hectares	Value	$ / Hectare	Cash Flow	$ / Hectare
Bambu	1999	495.37	$0	$0	$0	$0
	2000	567.53	$0	$0	$0	$0
Barranquinho	2002	960.13	$0	$0	$0	$0
	2003	12.78	$113,766	$8,902	$181,710	$14,218
	2004	1,002.89	$1,612,892	$1,608	$1,501,187	$1,497
Cacimba	2002	565.75	$3,288,288	$5,812	$5,283,329	$9,339
	2003	10.19	$95,532	$9,375	$152,586	$14,974
Duas Lagoas	2000	919.89	$0	$0	$0	$0
	2001	1,515.03	$0	$0	$0	$0
	2005	202.93	$10,389	$51	$30,927	$152
	2006	215.84	$538,730	$2,496	$860,469	$3,987
Mutum	2007	511.32	$1,649,084	$3,225	$2,825,750	$5,526
Paiolândia	1997	278.38	$0	$0	$0	$0
	1998	93.89	$79,029	$842	$92,296	$983
São José	2007	301.22	$2,776,443	$9,217	$4,922,393	$16,342
São Miguel	2001	97.52	$0	$0	$0	$0
	2002	5.71	$0	$0	$0	$0
Santa Maria do Jauru	2002	1,059.97	$10,263	$10	$18,195	$17
	2003	206.72	$1,135,654	$5,494	$1,843,387	$8,917
Santa Maria do Jauru II	2008	94.42	$116,484	$1,234	$228,570	$2,421
Santa Fé	2003	2,550.47	$215,406	$84	-$605,007	-$237
Terra Santa	2004	1,127.10	$8,058,040	$7,149	$12,530,360	$11,117
		12,795.05	$19,700,000	$1,540	$29,866,154	$2,334

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[17] After J. Parks Roundtree and Robert W. Taylor, 1993, "Marketing/Exposure Time and Market Value Estimates". The Appraisal Journal LXI(4):489-493.

Appendix A
Certification &
Qualifications of Appraisers

CERTIFICATION

I certify that, to the best of my knowledge and belief:

1. The statements of fact contained in this report are true and correct.

2. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions.

3. I have no present or prospective interest in the subject property, nor do I have a personal interest or bias with respect to parties involved.

4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.

5. My engagement in this assignment was not contingent upon developing or reporting predetermined results.

6. My compensation is not contingent upon: (a) the development or reporting of a predetermined value or direction in value that favors the cause of the client, (b) the amount of the value estimate, (c) the attainment of a stipulated result, or (d) the occurrence of a subsequent event directly related to the intended use of this appraisal.

7. I personally inspected the subject property on July 16 to 19, 2019, but have not done so in support of the current assignment.

8. SFNR has appraised the subject property in the past 3 years prior to accepting this appraisal assignment.

9. My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice

10. No one outside SFNR has provided significant professional assistance in preparing this report.

_____   ___October 17, 2022_____
              Timothy J. Mack   Date

QUALIFICATIONS OF APPRAISER

TIMOTHY MACK

APPRAISER / BIOMETRICIAN

Tim Mack specializes in timberland appraisal, forest inventory, growth and yield modeling, harvest scheduling, and acquisition due diligence for SFNR out of its Lakes States office. Mr. Mack has appraised timberland all over the world, including properties in North America, Hawai'i, Central & South America, Australasia, Europe, and Africa. Species for which Mr. Mack has had experience range include aspen/spruce/pine in the north, to northern hardwoods in the Lake States and New England region. International experience includes eucalyptus in Australia, Uganda, Uruguay and Brazil. Mr. Mack has done pine work in Uganda, New Zealand, Argentina, Uruguay, and Brazil. Mr. Mack's international specialty is teak, having cruised, appraised, or modeled it in Panama, Costa Rica, Nicaragua, Guatemala, Colombia, and Brazil.

During his career, Mr. Mack has developed expertise with various growth and yield models throughout the Eastern United States and has designed and built forest-level harvest schedule models, implementing their results on the ground. This expertise includes the use of the US Forest Service's Forest Vegetation Simulator (FVS) and linear programming (Woodstock and FORPLAN). He has designed and supervised forest inventories and implemented forest information systems at small and large scales. In addition, Mr. Mack has experience with forest information system design and discounted cash flow analysis, and financial analysis for silvicultural alternatives. He is also a regular contributor to wood supply studies conducted by Sewall.

Education

M.S., Forestry--Biometrics and Business, University of Minnesota
B.S., Forest Resources, University of Minnesota

Professional Affiliations/Designations

Licensed & Certified General Appraiser, Minnesota, Michigan, Wisconsin
Licensed Professional Forester, Michigan
Association of Consulting Foresters of America

Relevant Experience

2006 - Present, Forestry & Natural Resource Consulting, International Falls, Minnesota
Appraiser/Biometrician: Timberland appraisal, due diligence assistance, timber inventory, and resource study support.

2005 - 2006
Independent Forestry Consultant: Oversaw a large inventory project in Pennsylvania. Assisted with due diligence work for timberland investors. Conducted financial analysis for forestry properties.

2004 - 2005, James W. Sewall Company, Old Town, Maine
Biometrician: Supervised forest inventory design and implementation, performed due diligence analysis for land acquisitions, appraised timberlands, and developed mill resource studies. Also performed forest modeling.

2002 - 2003, MeadWestvaco, New England Region
Inventory and Analysis Forester: Designed, implemented, and oversaw new inventory systems for MeadWestvaco timberlands in Western Maine. Advised field staff regarding forest inventory needs. Assisted with the maintenance of the region's forest information systems.

2000 - 2003, College of Natural Resources, University of Minnesota
Research Assistant/Pawek Fellowship: Developed a model-based approach for the development of a density management diagram for red pine in the Lake States (RESINOSA model).

1991 - 2000, Boise Cascade, Northern Minnesota Region
Planning Forester: Performed forest planning and allowable cut determination for 308,000 acres, including extensive use of linear programming (FORPLAN) and growth and yield modeling (FVS). Coordinated with the operational foresters to achieve the region's planning goals in the field. Performed financial analyses for silvicultural alternatives. Responsible for the region's forest information systems including two year experience managing the GIS (ArcInfo). Oversaw the design, upkeep and implementation of various forest inventory systems including an operational stand inventory and a continuous permanent plot inventory. Analyzed and executed land deals involving company property. Participated in wood supply analyses for the company's International Falls paper mill.

Appendix B
Base DCF Harvest Schedule
and Projected Cash Flows

Cash Flow Summary, Years 1-10

SATT - Brazilian Teak	Period									
	1	2	3	4	5	6	7	8	9	10
Revenues:										
Timber	$2,745,483	$1,104,804	$123,503	$87,635	$49,548,898	$31,806,207	$6,133,402	$9,586,553	$667,512	$4,794,004
Total Revenues	$2,745,483	$1,104,804	$123,503	$87,635	$49,548,898	$31,806,207	$6,133,402	$9,586,553	$667,512	$4,794,004
Expenses:										
Silviculture	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Management Cost	$245,881	$584,029	$0	$146,290	$10,946,980	$12,077,501	$9,852,565	$7,136,207	$589,987	$2,524,234
Harvest Costs	$172,207	$240,031	$0	$30,194	$8,636,396	$6,048,236	$1,794,922	$2,234,095	$170,404	$1,023,453
Land Clearing	$137,558	$131,487	$0	$48,579	$2,635,000	$2,249,816	$1,561,469	$1,064,161	$100,720	$456,298
Performance Fee	$121,786	$36,664	$6,175	$443	$1,913,875	$1,175,408	$138,851	$314,415	$19,819	$165,713
Total Expenses	$677,431	$992,211	$6,175	$225,506	$24,132,251	$21,550,961	$13,347,807	$10,748,877	$880,931	$4,169,698
Net Income:	$2,068,051	$112,593	$117,328	-$137,871	$25,416,647	$10,255,247	-$7,214,405	-$1,162,325	-$213,419	$624,307

Merchantable Timber Inventory (Merchantable Stands), Years 1-10

SATT - Brazilian Teak	Period									
	1	2	3	4	5	6	7	8	9	10
Merchantable Timber										
Teak Logs 20-25 cm (m3)	133,444	143,535	155,863	156,175	115,644	71,972	35,504	11,290	9,106	0
Teak Logs 25-30 cm (m3)	119,628	133,418	156,496	161,146	98,347	50,183	35,090	11,832	10,106	0
Teak Logs 30-35 cm (m3)	101,562	116,562	146,282	155,084	79,160	31,883	27,660	9,984	9,100	0
Teak Logs 35-40 cm (m3)	57,886	71,424	97,571	108,159	47,815	12,525	12,498	4,722	5,037	0
Teak Logs 40+ cm (m3)	19,517	30,615	48,620	62,577	25,863	2,828	3,291	1,457	1,942	0
Total Teak (m3)	*469,671*	*534,288*	*643,160*	*681,104*	*401,163*	*194,171*	*119,951*	*40,916*	*36,527*	*0*
Total Merchantable Timber (m	469,671	534,288	643,160	681,104	401,163	194,171	119,951	40,916	36,527	0

Total Timber Inventory (All Stands), Years 1-10

SATT - Brazilian Teak	Period									
	1	2	3	4	5	6	7	8	9	10
Merchantable Timber										
Teak Logs 20-25 cm (m3)	133,444	143,535	155,863	156,175	115,644	71,972	35,504	11,290	9,106	0
Teak Logs 25-30 cm (m3)	119,628	133,418	156,496	161,146	98,347	50,183	35,090	11,832	10,106	0
Teak Logs 30-35 cm (m3)	101,562	116,562	146,282	155,084	79,160	31,883	27,660	9,984	9,100	0
Teak Logs 35-40 cm (m3)	57,886	71,424	97,571	108,159	47,815	12,525	12,498	4,722	5,037	0
Teak Logs 40+ cm (m3)	19,517	30,615	48,620	62,577	25,863	2,828	3,291	1,457	1,942	0
Total Teak (m3)	*469,671*	*534,288*	*643,160*	*681,104*	*401,163*	*194,171*	*119,951*	*40,916*	*36,527*	*0*
Total Merchantable Timber (m	469,671	534,288	643,160	681,104	401,163	194,171	119,951	40,916	36,527	0

Sewall Forestry
363.22.01
Appendix B
DCG Cash Flows and Harvest Schedule
363.22.01_SATT_Brazil_2022.xlsx
Inventories

Harvest Schedule, Years 1-10

SATT - Brazilian Teak	Period									
	1	2	3	4	5	6	7	8	9	10
Species/Product										
Thinnings										
Teak Logs 18-20 cm (m3)	9,492	602	624	0	0	0	0	0	0	0
Teak Logs 20-25 cm (m3)	17,462	1,057	1,118	0	0	0	0	0	0	0
Teak Logs 25-30 cm (m3)	6,250	250	364	0	0	0	0	0	0	0
Teak Logs 30-35 cm (m3)	1,684	11	16	0	0	0	0	0	0	0
Teak Logs 35-40 cm (m3)	323	0	0	0	0	0	0	0	0	0
Teak Logs 40+ cm (m3)	26	0	0	0	0	0	0	0	0	0
Thinning Volumes	**35,236**	**1,921**	**2,122**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Final Harvests										
Teak Logs 18-20 cm (m3)	1,178	789	0	253	2,900	8,884	18,379	4,127	277	1,235
Teak Logs 20-25 cm (m3)	3,456	2,836	0	659	41,851	45,038	36,144	24,089	2,010	9,106
Teak Logs 25-30 cm (m3)	2,120	2,291	0	355	66,713	51,141	16,242	23,627	1,955	10,106
Teak Logs 30-35 cm (m3)	355	1,799	0	27	81,104	50,724	6,761	18,527	1,519	9,100
Teak Logs 35-40 cm (m3)	6	1,026	0	0	65,529	37,679	2,214	8,580	378	5,037
Teak Logs 40+ cm (m3)	0	325	0	0	42,611	23,979	533	2,215	13	1,942
Final Harvest Volumes	**7,117**	**9,066**	**0**	**1,294**	**300,707**	**217,444**	**80,273**	**81,165**	**6,153**	**36,527**
Total Teak (m3)	*42,352*	*10,986*	*2,122*	*1,294*	*300,707*	*217,444*	*80,273*	*81,165*	*6,153*	*36,527*
Total Merchantable Timber	***42,352***	***10,986***	***2,122***	***1,294***	***300,707***	***217,444***	***80,273***	***81,165***	***6,153***	***36,527***

Sewall Forestry
363.22.01

Appendix B
DCG Cash Flows and Harvest Schedule

363.22.01_SATT_Brazil_2022.xlsx
Harvest Schedule