Financial Research Associates proudly presents:

Special $595 Rate Available for Plan Sponsors

Timberland Investors' Forum

For public and private pension funds, private equity groups, endowments and foundations

July 30, 2009
Atlanta, GA

"Timberland is an alternative asset class with a proven record of dependable returns, and which possesses unique qualities that offer an inflation hedge and a stable alternative for many portfolios. This is especially attractive in today's volatile economy."
(Fox Business News, 3/25/09)

Join institutional investors, industry leaders and forestry experts for this comprehensive one day conference designed solely for investors to provide them with the latest market insight on an asset class that has held its value and brought higher returns than other real estate, equity, and bond markets during the economic downturn.

Summit Highlights Include:

- Surviving the perfect storm: How did the financial meltdown affect timberland assets and what will influence prices in the months ahead?
- Current trends in timberland investments: Maximizing the returns of every acre
- Valuation of timberland assets: Understanding the due diligence process and analyzing common risk factors
- Exploring innovative ways to capitalize on timberland: Conservation easements, ecosystems and carbon credits
- Profit opportunities from timberland investments in Latin America and other parts of the world
- Hear directly from Mercer and the Jacksonville Police & Fire Pension Fund

Silver Sponsor

Morris, Manning & Martin, LLP

Register today! Call 800-280-8440 or visit us at www.frallc.com

Thank you for attending the conference!

Financial Research Associates is an accredited institution and we pride ourselves on the cutting edge presentations delivered at our conferences. We make every effort to secure advance copies of these presentations for your continued review following the close of the conference.

From time to time due to proprietary concerns or internal legal constraints, speakers are unable to submit presentations for duplication and distribution. In this rare case, we encourage you to utilize the contact details provided in their biography to request a single copy of the presentation.

Financial Research Associates, LLC

Timberland Investors' Forum

Atlanta, GA
July 30, 2009

DAY ONE: Thursday, July 30, 2009

8:15 – 9:00 *Registration and continental breakfast*

9:00 – 9:15 Chair's welcome & opening remarks

Chairman:
Stephen B. Schrock, *Partner-Real Estate and Timberland Investments & Forest Products Group*
MORRIS, MANNING & MARTIN, LLP

9:15 – 10:00 The global macroeconomic and capital market environment – a look forward

Speaker:
Rob Brown, *Managing Director of Investment Strategy and Research*
BENCHMARK PLUS MANAGEMENT LLC

10:00 – 11:00 Investors' Roundtable: Current trends in timberland investments: How can you profit?

Speaker:
John Keane, *Executive Director*
JACKSONVILLE POLICE & FIRE PENSION FUND

Sheryl Schwartz, *Managing Director, Alternative Investments*
TIAA-CREF

11:00 – 11:15 *Refreshment & Networking Break*

11:15 – 11:45 How did the financial meltdown affect timberland assets and what will influence prices in months ahead?

Speaker:
Mike Cerchiaro, *Manager*
FOREST INVESTMENTS ASSOCIATES

11:45 – 12:30 Valuation of timberland assets:
Understanding the due diligence process and analyzing common risk factors

Speaker:
Douglas Donnell, *Senior Vice President, National Manager, Timberland Services, Specialty Asset Management, U.S. Trust*
BANK OF AMERICA PRIVATE WEALTH MANAGEMENT

Howard Kaplan, *President*
ORG NATURAL RESOURCES

12:30 – 1:30 Luncheon

1:30 – 2:00 Regulatory and tax aspects of timberland ownership and transactions

Speaker:
Scott Jones, *Executive Vice President*
FOREST LANDOWNERS ASSOCIATION

2:00 – 3:00 Exploring the opportunities of timberland investments in Latin America and other parts of the world

Speakers:
Professor Fred Cubbage, *Forest Policy, Economics & Certification Co-Director, Southern Forest Resource Assessment Consortium, Department of Forestry & Environmental Resources*
NORTH CAROLINA STATE UNIVERSITY

Glenn Dunaway, *Partner*
MORRIS, MANNING & MARTIN LLP

Aldo de Cresci Neto, *Founding Partner and responsible for forestry area*
FLEURY MALHEIROS, GASPARINI, DE CRESCI E NOGUEIRA DE LIMA ADVGADOS

3:00-3:15 Refreshment & Networking Break

3:15 – 4:00 Monetizing carbon credits for timberland: Assess the impact of sequestered carbon on forest values and returns

Speaker:
Deborah Spalding, *Managing Partner*
WORKING LANDS INVESTMENT PARTNERS LLC

4:00 – 5:00 Exploring innovative ways to capitalize on timberland: Can investments in conservation easements, ecosystems and recreational land uses be profitable?

Speakers:
James Hubbard, *Forest Service, Deputy Chief,*
STATE AND PRIVATE FORESTRY

Peter Stein, *Manager*
LYME TIMBER

Scott Mooney, *Vice President Acquisitions***,**
CONSERVATION FORESTRY LLC

5:00 *Conference Adjourns*

Dear Conference Participant:

On behalf of Financial Research Associates, LLC, I would like to cordially welcome you to this industry event.

We have developed this event based on extensive industry research, structuring the topics and gathering together the speaker faculty based on feedback from numerous industry participants. Our goal is to provide you with the most up to date industry information possible, along with top-notch networking opportunities. Every effort has been made on our part to obtain the speakers presentations to be included in the PDF link that you have received via email. If a speaker's presentation is not included in the PDF link, we would ask that you contact the speaker directly. If we have failed to meet your expectations in any way, please let us know by completing the evaluation form provided at this event. Of course, we would like to hear positive feedback as well!

We appreciate that you have chosen to spend your time and training dollars with us, and we're committed to satisfying your informational needs. Again, welcome to this event and thank you for your participation – we truly value your business.

Sincerely,

Lori Medlen, President
Financial Research Associates, LLC

If you have any additional questions or requests for information beyond what is in this document book, please feel free to contact us at any time.

A link with final speaker presentations will be forwarded via email approximately
1 – 2 weeks after the conference.

Lori Boothe
Financial Research Associates, LLC
11121 Carmel Commons Boulevard, Suite 300
Charlotte NC 28226

704-341-2376 Office
704-341-2640 Fax
lboothe@frallc.com
www.frallc.com

A Special Thanks to Our Sponsor

Morris, Manning & Martin, LLP

Timberland Investments

www.mmmlaw.com

MORRIS, MANNING & MARTIN, LLP

one firm.
your firm.
one step ahead, across the globe.

At this crucial time in the market, choosing the best legal counsel for your company is more important than ever. Morris, Manning & Martin's Timberland Investments & Forests Products team understands that creativity and a results-oriented approach distinguish leading lawyers from all the others. Many lawyers know the law and the mechanics of getting things done, but the lawyers who can solve complex problems and approach situations in a creative, resourceful manner are the ones that produce value.

Our integrated team of experienced lawyers focuses on the legal needs of businesses, financial institutions, individuals and investors around the world in the timber and forest products industries. We know that a thorough understanding of our clients' operations and long-term business strategy is essential to effective representation. Our industry background, knowledge, and global experience and contacts are invaluable in keeping our clients one step ahead of the rest, wherever their business takes place.

Atlanta • Beijing • Raleigh-Durham • Savannah • Taipei • Washington, DC

1600 Atlanta Financial Center | 3343 Peachtree Road, NE, Atlanta, Georgia 30326 | Phone: 404.233.7000

Financial Research Associates, LLC
Proudly Presents

Timberland Investors' Forum

July 30, 2009
Atlanta, GA

Chair's Welcome and Opening Remarks

Chairman:
Stephen B. Schrock, *Partner-Real Estate and Timberland Investments & Forest Product Group*
MORRIS, MANNING & MARTIN, LLP

Stephen B. Schrock

Partner
Phone: (404) 504-7678 • Fax: (404) 365-9532 • E-mail: sschrock@mmmlaw.com

PRACTICE AREAS:

Commercial Real Estate

Hospitality

Timberland Investments & Forest Products

BAR ADMISSION:

State Bar of Georgia, Admitted 1984

Stephen B. Schrock is a Partner in the firm's Commercial Real Estate, Hospitality and Timberland Investments & Forest Products practices. The principal focus of his practice includes representing investors, owners and managers in timber transactions involving millions of acres of timberland throughout the U.S. and South America and representing companies and institutions nationwide in the ownership, operation and finance of corporate-owned real estate. He routinely advises timberland clients on real estate and other matters related to the domestic acquisition and sale of underlying timberland real estate and the various operational and managerial issues that arise as a result of the ownership of the timberland asset.

Mr. Schrock also has significant experience representing tenants and landlords in negotiating commercial leases, counseling owners and operators of hotels and leisure projects, representing lenders and borrowers in secured loan and workout transactions and providing legal counsel to developers of office, industrial, retail and mixed-use facilities. Additional areas of expertise include representing institutions in the acquisition and operation of health care facilities and representing companies in the purchase and sale of mining properties.

Mr. Schrock has long been recognized by his peers as a leading real estate attorney and was selected as a *Georgia Super Lawyer* from 2006-2009, as published by *Law & Politics* and *Atlanta* magazines.

Honors & Affiliations

Selected in 2006-2009 as a "Georgia Super Lawyer"

Named in the Legal 500 U.S. (Real Estate, 2007)

State Bar of Georgia - Real Property Section

Atlanta Bar Association - Real Property Section

Cobb County Bar Association

Cobb County Chamber of Commerce - Leadership Cobb Class of 2002

German America Chamber of Commerce of the Southern U.S.

Georgia Forestry Association

Georgia Hospitality and Travel Association

Lawyers Club of Atlanta

Mercer Law Review

Mercer University School of Law Moot Court Board

Mercer University School of Law Dean's List

Brainerd Currie Honor Society

Education

University of South Florida, B.A., 1980

Mercer University School of Law, J.D., *cum laude*, 1984

The global macroeconomic and capital market environment – a look forward

Speaker:
Rob Brown, *Managing Director of Investment Strategy and Research*
BENCHMARK PLUS MANAGEMENT LLC

ROB BROWN, PHD, CFA

Rob serves as the Managing Director of Investment Strategy and Research for the $1.9 billion hedge fund fund-of-fund manager Benchmark Plus Management, LLC located in Tacoma, Washington. He brings 25 years of institutional asset consulting, asset management, manager selection, and product design experience to the oversight and direction of Benchmark's research department, portfolio management, and product development efforts.

Prior to this position, Rob served as the Chief Investment Officer for the $7.4 billion defined benefit Public Safety Personnel Retirement System (PSPRS) located in Phoenix, Arizona. During Rob's tenure at PSPRS he:

- Completed $1.08 billion in new limited partnership commitments (alternatives and real estate),
- Designed and structured a transportable alpha program spanning $5.6 billion of global public securities,
- Established a well-resourced process for the sourcing and selection of alternative investment and real estate LPs,
- Built a thoughtful, value-added process for the selection, monitoring, and replacement of global public securities managers,
- Restructured, motivated, and grew a team of nine investment professionals,
- Established automated quantitative risk-control metrics and reports spanning global public securities and derivatives exposures at the plan, asset class, and manager levels, and
- Introduced new research tools (Bank Credit Analyst, Grants, Bianco, Strategic Economic Decisions, etc.).

Before Arizona Public Safety, Rob served for over nine years as Chairman for the Investment Management Executive Committee and Chief Investment Officer for Genworth Financial Asset Management, Inc. (a unit of Genworth Financial, Inc.) where he directed $6.1 billion of domestic and international equity, alternative, and derivative assets. Before joining Genworth, Rob served as Executive Vice President and Senior Managing Director for Portfolio Management Consultants (PMC International) where he directed all investment management and research operations for the firm. Prior to PMC, Rob held the position of Managing Director of the Research Department for SEI Capital Resources where he conducted competitive market intelligence studies, product positioning research proposals and reports, and new product development initiatives. Rob has an in-depth background covering institutional and high-net-worth product design and positioning, hedge funds, investment policy, strategic and tactical asset allocation, manager selection and optimal combination, currency risk management, derivatives overlay, and asset/liability modeling.

Rob also served as the Director of Asset Allocation and Equity Strategy with Ameritech's Investment Management Department where he was responsible for policy, strategic, and tactical asset allocation decisions across the firm's $17 billion pool of retirement assets. He also had responsibility for the strategic design and management of Ameritech's $8 billion domestic and international equity and global derivative investment programs. During this period, he made extensive use of option, future, and forward derivative instruments to deliver highly effective risk management, portable alpha, and optimized positive-alpha rebalancing strategies.

Prior to Ameritech, Rob worked as a senior consultant with Cambridge Associates in Boston, William M. Mercer in Chicago, and Ibbotson Associates in Chicago. He also held positions as a Strategic Consultant with United Asset Management in Denver where he designed and implemented a domestic equity mutual fund and as Professor of Finance at the University of Colorado in Boulder where he instructed PhD and MBA students in investment theory and practice.

Rob has a PhD in Finance from Northwestern University and MA degrees in Economics from both Northwestern University and the University of Maryland at College Park. He is a Chartered Financial Analyst and a member of the CFA Institute, CFA Society of Los Angeles, CFA Society of Colorado, and the Financial Management Association. Rob has completed Six Sigma Quality Control training with General Electric and holds GE's Green Belt process management designation. He also maintains his NASAA Series 65 license.

His publications have appeared in the following journals: Pensions & Investments, The Journal of Financial Planning, On Wall Street, Investment News., and Sourcebook. Rob is a recognized and highly sought-after public speaker across a range of investment issues.

Office 253.573.0657 Ext #125 **Email rbrown@bpfunds.com**

Investors' Roundtable: Current trends in timberland investments: How can you profit?

Speaker:
John Keane, *Executive Director*
JACKSONVILLE POLICE & FIRE PENSION FUND

Sheryl Schwartz, *Managing Director, Alternative Investments*
TIAA-CREF

JOHN KEANE, EXECUTIVE DIRECTOR-ADMINISTRATOR

POLICE AND FIRE PENSION FUND

One West Adams Street, Suite 100
Jacksonville, FL 32202

John Keane has served as the Executive Director-Administrator of the Fund since 1990. Joining the Sheriff's Office in 1962 and transferred to the re-organized Fire Rescue Department on February 1, 1969, Mr. Keane also earned AA and AS degrees from FCCJ and a BS degree from Southern Illinois University majoring in Workforce Education and Training. He was an active member of the Fraternal Order of Police (Lodge 30), an elected Board Member of the Jacksonville Association of Firefighters, the Pension Advisory Committee, and the Pension Board of Trustees. John was elected to the first independent Police and Fire Pension Fund Board of Trustees.

John has served on both the Public Employee and Administrators Committee for the International Foundation of Employee Benefits Plans, served five years on the Executive Board of National Conference on Public Employee Retirement Systems, and four terms as a Member of the Board of Directors of the Coalition to Preserve Retirement Security. He also is a member of the Government Finance Officers Association Focal Group, the Florida Government Finance Officers Association, and the American Legion Post 137. John is the Chairman of the Fire Science Advisory Committee at Florida Community College, Vice Chairman of the Jacksonville Fire Credit Union Executive Board, and the former Executive Director of the Badge of Honor Foundation.

Certified as a Chartered Pension Professional and Certified Retirement Administrator through INFRE.

Sheryl Schwartz

Managing Director

TIAA-CREF

Sheryl Schwartz is Managing Director, Alternative Investments at TIAA-CREF and since 1997 has built a diversified Alternatives portfolio for TIAA with over $10 billion in commitments that includes growth capital and buyout funds, emerging market and international funds, venture capital funds, distressed debt and distressed equity funds, energy and infrastructure funds, private equity and mezzanine debt co-investments, and timber investments.

Ms. Schwartz played a key role in developing TIAA-CREF's Alternative Investments strategy in 1997. Sheryl joined TIAA in 1988 and spent three years in corporate private placements, two years trading secondary private placements and four years in mortgage-backed and asset-backed securities prior to her current position. In the private ABS group she made investments in mutual fund fee securitizations, future receivables in emerging market countries, franchise loan receivables, variable annuity fee securitization, time share receivables, CBO's, CLO's, credit card company receivable "C" tranches, and private label credit card receivables.

Prior to joining TIAA, Sheryl worked at Irving Trust Company. She holds a BS in Finance (1985) and an MBA in Finance (1988) from New York University.

TIAA-CREF is a national financial services organization and the leading provider of retirement services in the academic, research, medical and cultural fields with more than $398 billion in combined assets under management (9/30/08).

How did the financial meltdown affect timberland assets and what will influence prices in months ahead?

Speaker:
Mike Cerchiaro, *Manager*
FOREST INVESTMENTS ASSOCIATES

Michael P. Cerchiaro

Unit Leader, International Investment Unit
Manager, Broad Arrow Timber Company

Mike joined Forest Investment Associates in 2004 and has two primary roles within the FIA organization serving as both the Unit Leader of the International Investment Unit and Manager of Broad Arrow Timber Company. Prior to his current roles, he was a Regional Investment Forester with FIA and responsible for timber and alternative land use management on approximately 245,000 acres in Georgia and Florida. Before joining the FIA team, he was employed by Rayonier Inc. in Fernandina Beach, Florida as a Research Forester.

Mike holds a B.S. and M.S. in Forestry from Virginia Tech and an M.B.A. with a finance concentration from the J. Mack Robinson College of Business at Georgia State University. He is a member of the Virginia Tech Department of Forestry Advisory Board, serves on the board of the Robinson Council of Young Business Leaders, serves on the Operating Committee of the National Alliance of Forest Owners and is an Executive Committee member of the Wood Supply Research Institute. He is also a member of the Society of American Foresters and various state forestry associations.

Timberland Investing in the "New Normal"

Mike Cerchiaro

Timberland Investors' Forum
July 30, 2009
Atlanta, GA

FOREST INVESTMENT ASSOCIATES

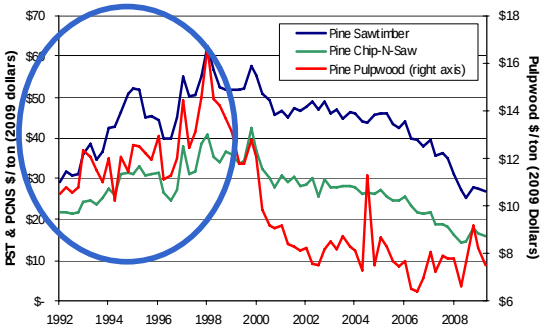
Agenda

- Current State of the U.S. Timber and Timberland Markets
  - Timber markets
  - End use markets
- Historical Timberland Performance
  - Performance relative to other asset classes
  - Vintage effects (timing)
  - Inflation impacts on timberland returns
- Important Investment Considerations in the New Normal
  - Demand drivers
  - Supply side dynamics

U.S. State of Play - Fundamentals

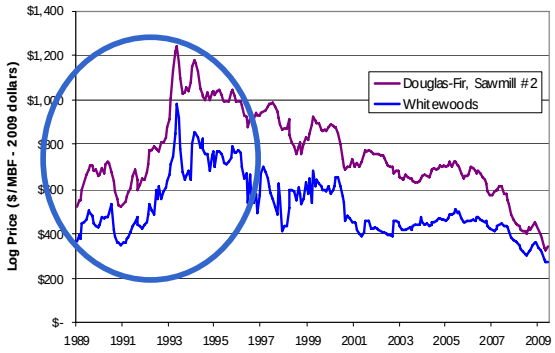
- Cyclical troughs across major market indices
  - Bottom?
- U.S. forest products sector industrial capacity
  - Printing and writing – operating rates in the mid 60s
  - Pulp – operating rates in the low 90s
  - Lumber – operating rates in the mid 50s
- Timberland operators – "reduced sawtimber production"

U.S. South Real Timber Prices 1992-2009



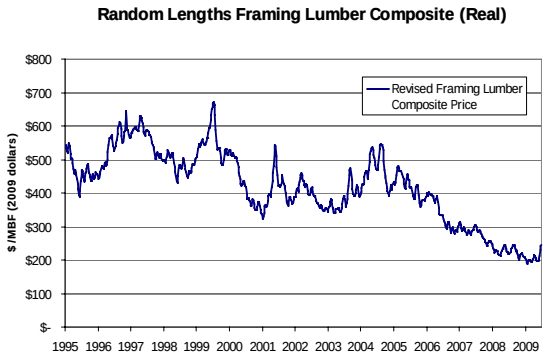
Source: TimberMart South

U.S. Pacific Northwest Real Timber Prices (1989-2009)



Source: Log Lines

End Use Markets – Real Lumber Prices (1995-2009)



Source: Random Lengths

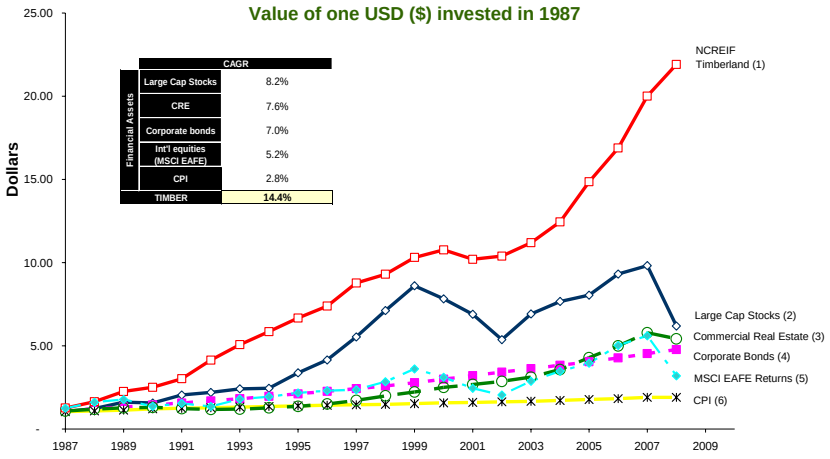
U.S. Timberland Summary Points

- Lack of leverage provides flexibility in asset management
  - Result – yield compression
  - Lack of distressed sales
- Whispers of denominator effect
- Deal environment 'feels' like it has shifted to a buyer's market
  - Preference for negotiated deals
  - Lack of success in recent timberland auctions
- Current NCREIF returns not reflective of real time timberland market
  - Expect softness 4Q 2009

Historical Precedent of Timberland Performance

- Relative Timberland Returns
- Vintage effects
  - Timing
- Inflation effects

Attractive Returns (1987 – 2008)

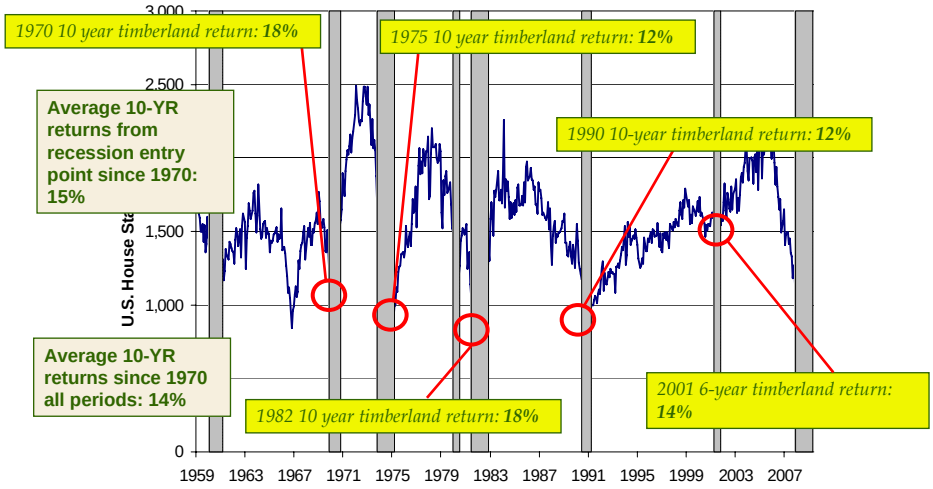


Source: Ibbotson, NCREIF, FIA internal calculations.

(1) NCREIF timberland index; (2) S&P 500 Composite with dividends reinvested; (3) NCREIF real estate index; (4) Salomon Brothers Long-Term High Grade Corporate Bond Index, 20-year maturity; (5) Morgan Stanley; (6) CPI-All Urban Consumers, not seasonally adjusted.

Vintage Effects

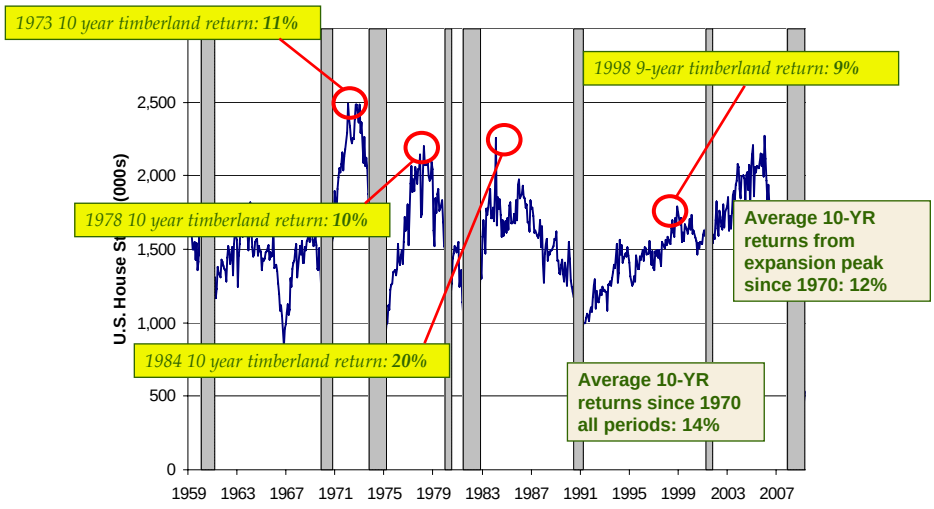
Returns from investing in timber during recessions



Sources: U.S. Department of Commerce: Census Bureau
NCREIF and Wilson Timberland Indices

Vintage Effects

Returns from investing in timber during expansions



Sources: U.S. Department of Commerce: Census Bureau
NCREIF and Wilson Timberland Indices

Timberland Returns in Different Inflationary Environments

Inflationary Environment	Time Period	CPI	Timberland Returns [1]
High	1973-1981	9.2%	21.8%
Medium	1982-1996	3.6%	14.4%
Low	1960-1965	1.7%	4.7%

[1] From analysis by Dr. Jack Lutz, PhD, based on NCREIF and Wilson timberland indices

Timberland Returns in Different Inflationary Environments
(Continued)

Highest returning assets for time periods in red:

Second highest returning assets for time periods in blue:

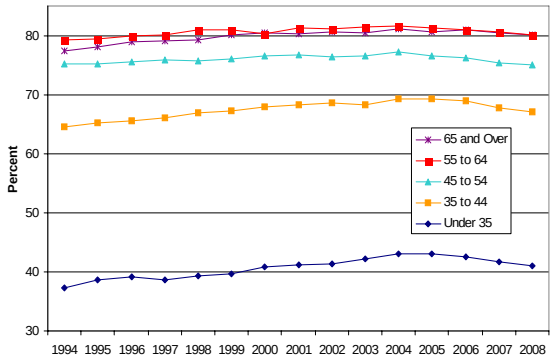
Time Period	Inflation Environment	CPI	S&P 500	Long-Term Govt Bonds	T-Bills	Gold	Commercial Real Estate (Since 1969)	US Timberland[1]	Timberland Rank vs. Other Assets
1973-1981	High	9.2%	5.2%	2.5%	8.2%	**23.3%**	13.6%	**21.8%**	**# 2**
1982-1996	Medium	3.6%	**16.8%**	13.3%	6.5%	-1.0%	6.5%	**14.4%**	**# 2**
1956-1965	Low	1.4%	**11.0%**	4.4%	3.0%	0.1%		**4.7%**	**# 2**
Since 1960		4.1%	**9.1%**	7.7%	5.4%	6.8%		**12.8%**	**# 1**
Since 1969		4.5%	**9.0%**	8.9%	5.9%	7.8%	9.6%	**14.0%**	**# 1**

[1] From analysis by Dr. Jack Lutz, PhD, based on NCREIF and Wilson timberland indices

Important Investment Considerations in the New Normal

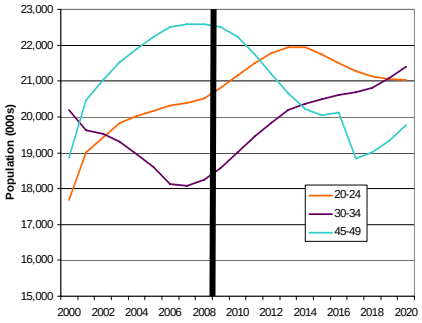
- Demographics
- Meaningful Supply Side Shocks

Home Ownership Percentage by Age Cohort



Source: Joint Center for Housing Studies of Harvard University

Population by Age Cohort

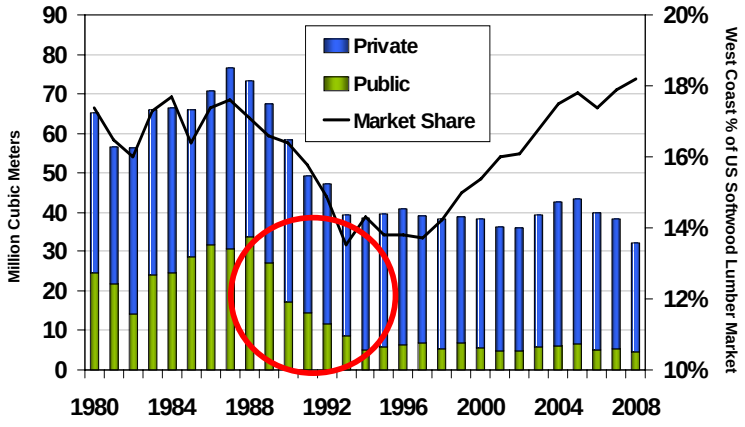


Source: U.S. Department of Commerce: Census Bureau

Meaningful Supply Side Shocks

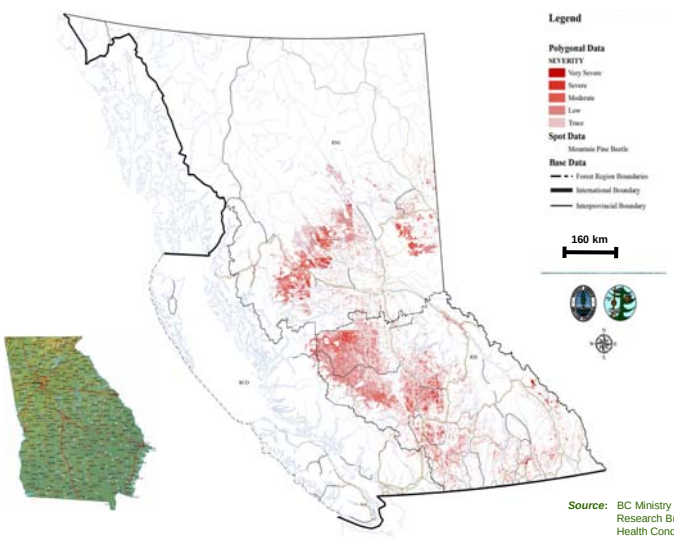
- Potential shocks exist such as international trade constraints and urban expansion
  - Will focus on mountain pine beetle – potentially the largest impact on U.S. timber and timberland markets
- Canadian imports consistently meet 1/3 of US lumber demand
- Scale and magnitude of British Columbia's pine mortality due to the mountain pine beetle is unprecedented
  - Projected 71% of pine in BC by 2019
- Some uncertainty of timing
  - Ability to salvage trees
    - Canadian government suggests less than four years; others argue around seven
- Supply shock of reduced public harvest in the PNW may provide a glimpse into a potential market response

Previous Supply Shocks



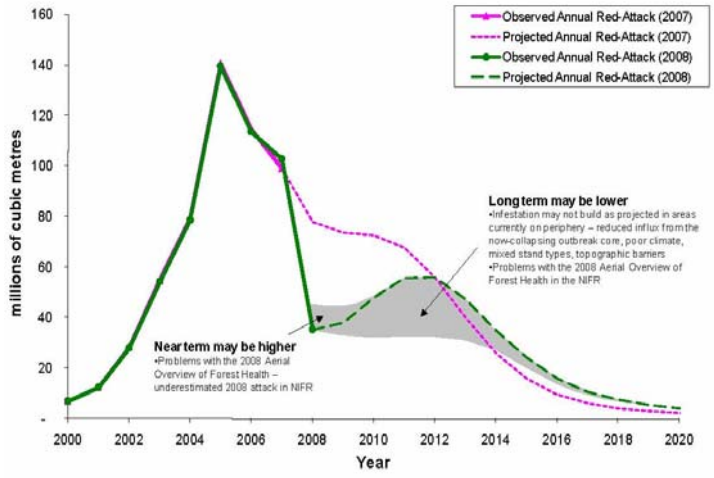
Source: RISI

Scale of British Columbia's Mountain Pine Beetle Infestation



Source: BC Ministry of Forest and Range, Research Branch Summary of Forest Health Conditions in British Columbia

Temporal Aspect of Beetle Kill in British Columbia



Source: BC Ministry of Forest and Range, Research Branch

Conclusions and Summary Points

- Cyclical lows in most major market indicators
- Timberland has historically performed well in a diversity macroeconomic environments
- Demographic trends support medium term demand for housing
- Supply side dynamics should be monitored
- New normal of forest products sector is yet to reveal itself
  - Housing has been in downtrend since 2006
  - Recovery will likely look different than historical precedent

Disclosures

- Information presented is based on general market observations and past performance is not indicative of future performance. Investment advisory fees would apply and are described in Part II of our Form ADV on file with the Securities and Exchange Commission. We will provide without charge a copy of Part II upon request.
- Investment advisory fees, compounded over time, could have a material impact on the client's or fund's investment returns.
- Timberland is not traded on an exchange or other public market and there is no widely recognized or accepted index that measures changes in timberland value over time.
- Results portrayed do not reflect the reinvestment of earnings.
- Please visit www.forestinvest.com for a description of our timberland investment objectives and strategy.

Contact Information

Mike Cerchiaro
+1 (404) 495-8591
mcerchiaro@forestinvest.com

Valuation of timberland assets:
Understanding the due diligence process and analyzing common risk factors

---

Speaker:
Douglas Donnell, *Senior Vice President, National Manager, Timberland Services, Specialty Asset Management, U.S. Trust*
BANK OF AMERICA PRIVATE WEALTH MANAGEMENT

Howard Kaplan, *President*
ORG NATURAL RESOURCES

Roy D. (Doug) Donnell
Senior Vice President
Timberland Services Executive

Roy D. (Doug) Donnell is the Timberland Services executive for Timberland Services within the Specialty Asset Management Group at U.S. Trust, Bank of America Private Wealth Management. His role includes the responsibility for the management of Timberland assets, investment acquisition and advisory services, and business development.

Mr. Donnell was named national manager for the Timberland Services group in February 2000. Prior to joining U.S. Trust in 1995, Mr. Donnell was an Analyst and Administrative Forester for Wachovia Bank's Timberland Investment Management Unit.

Mr. Donnell has a B.S. Forestry, Magna Cum Laude, from the University of Arkansas at Monticello and a M.S. Forestry Management Economics, from the Virginia Tech University. He is a Registered Forester and Former Secretary/Treasurer and Board Member of the Forest Resources Systems Institute.

Timberland Investors Forum – Investment Due Diligence

Doug Donnell
U.S. Trust, National Executive Timberland Services
July 30, 2009

U.S. TRUST
Bank of America Private Wealth Management

Table of Contents

U.S. TRUST
Bank of America Private Wealth Management

Disclosure

While Bank of America believes the information presented herein to be accurate, the Bank can make no claim or warranty as to the accuracy of any indices or calculation presented. This material is presented for information only; the reader is encouraged to determine the suitability of the information for their own purposes. It is for discussion purposes only since the availability and effectiveness of any strategy is dependant upon your individual facts and circumstances. Before proceeding with an investment, further due diligence is required. Always consult with your independent attorney, tax advisor, investment manager, and insurance agent for final recommendations and before changing or implementing any financial, tax, or estate planning strategy.

Risk: The investments described herein are not bank guaranteed nor are they FDIC insured. The investments described herein may lose value. Farmland, timberland and other real estate investments carry biologic as well as investment risks. Specific risks may include:

- Fluctuations in the price of land, timber and other commodities;
- Unique market conditions in local and regional real estate markets;
- Macro-economic factors including economic growth, interest rates and inflation;
- Changes in the supply and demand of timber and other commodities;
- Risks associated with natural disasters;
- Risks associated with ecological conditions and pests;
- Changes in the regulatory environment;
- Lack of liquidity; and
- Complex tax considerations.

Investments Are Not FDIC Insured	Investments May Lose Value	Investments Are Not Bank Guaranteed

U.S. TRUST
Bank of America Private Wealth Management

Comparing tactical and strategic investment levels

Tactical Attributes	Strategic Attributes
• Smaller transactions	• Larger transactions that may offer capital placement efficiency
• Customized portfolios in separate accounts, most often targeting ultra-affluent private investors, small to mid-sized foundations and single/multi-family offices	• Typically commingled or large separate accounts, often targeting institutional and pension investors
• Laddered age classes	• Potentially greater physical risk diversification
• Yield Bias, Appreciation Bias or Balanced strategies	• Potentially smoother cash flows
• Maximum ownership flexibility in strategy and management	• Possible “efficiency premium” issue
• Access to middle market timberland transactions	• Limited ownership flexibility in strategy or management
• Limited impact of “efficiency premium”	

U.S. TRUST
Bank of America Private Wealth Management

Timber inventory

Seller-supplied data	Methodology	Wood flow forecast and discounted cash flow (DCF) analysis
• The better the data, the lower the due diligence costs, risk and buyer's "risk discount." • Audit or check "cruise" – Confirms level of accuracy – Is best if seller-supplied inventory has auditable attributes (marked sample points, etc) – Identifies potential gaps in seller knowledge, useful in negotiations • Seller inventory standards can be reconciled against broader market inventory standards.	• A variety of methods are used, most employing sample measurements, extrapolated for the entire property. • Smaller acreages can be inventoried at higher sample intensity, providing stand level accuracy. • Larger acreages usually must be inventoried at lower sample intensity, accurate at property level but possibly not at the stand level. • Goal is to have the "biologic picture" including species, age and size distribution, locations, etc.	• Timber inventory is the foundation for harvest schedule modeling, optimizing biology and cash flow. • Careful consideration must be given to the investor's discount rate, and expectations are key.

Environmental considerations

	Contamination	Fire	Weather-related	Pathogen or Pest	Terrain
Types of Risk	Dumping, spills, past use, offsite migration	Fuel control abilities, access infrastructure	Hurricane damage, ice storm damage, rainfall/drought history	Tree diseases and local insect infestations	Harvest operability and fire suppression
Levels of Review and Management	Environmental opinion letter or Phase I Environmental Site Assessment (ESA), depending on risk, contract contingencies	Part of "boots on the ground" inspection, assess ability to control fuel or access property for suppression	GIS* analysis to include expected regional freeze line, coastal buffer, and historic rainfall patterns	Investment impacts (both positive and negative) of the proximity to known outbreaks or regional infestations, that uses market knowledge and GIS analysis	GIS and local inspection to assess the affect of terrain on harvesting costs, silvicultural activities and fire suppression

*Geographic Information Systems

Land Stratification

Land types	Value Factors
• **Core timberland:** – Land likely to remain core timberland in 10 years – No alternative pricing pressures • **Early transition:** – Timberland potentially having alternative use pressures within 10 years – No or limited current alternative use pricing pressure • **Late transition:** – Timberland likely to have alternative use pressures within five years – Likely to already have current alternative use pricing pressure – Cannot be justified economically for timber production (though standing timber may have some contributory value) • **Higher and Better Use (HBU):** – HBU price fully recognized by market, – Development or alternative use potential immediate – Standing timber typically has no or low contributory value	• Existing local development and use (comparables) • Ancillary timber values • Proximity to population centers and paths of historic encroachment, GIS proximity analysis • Proximity to major and secondary road networks and intersections, GIS proximity analysis • Road frontage, road type, secondary access • Aquatic features: Ponds, lakes, stream and river frontage • Vista values • Complementary recreational values

Market Demand

Timber Markets	Land Markets	Recreation	Mulch harvest and recovery	Biomass Energy	Climate Regulation-Related Markets
• Driven by both construction and paper markets and may not track together • GIS radius analysis around candidate assets to determine mill numbers and types within an economic transportation radius	• "Optionality" means transaction volume may drop with downward price pressure, potentially slowing downward pressure. • Comparables can become unreliable value indicators in this environment; true fair market value lies between buyer and seller expectations.	• Based on local demand	• Regional in nature—pine straw sales, cypress mulch chips, etc.	• Significant history of waste biomass utilization to produce power, long a proven technology • Stumpage now being considered for biomass power, not yet significantly affecting values	•Potential benefits for timberland owners, standards not yet consistent, land values not yet impacted • Concerns over mutually exclusive uses (climate versus harvests)

Questions?

Howard Kaplan, CFA

Mr. Kaplan has been providing services to ORG Portfolio Management since July 2007 and assumed the position of President of ORG Natural Resources, a subsidiary of ORG Portfolio Management. During 2007 and 2008, he provided due diligence services on nearly $3.5 billion of timber and agriculture transactions.

Previously, as founder of AGVEST/Farmvest, Inc., Mr. Kaplan provided management, consulting and brokerage of natural resource real estate for over 25 years. These services included valuation, acquisition, management, monitoring and disposition of agricultural properties, portfolios and real estate securities. Natural resource consulting projects have covered a broad range of domestic and international topics including: economic research, crop feasibility and asset allocation studies. Farmvest successfully marketed a $30 million timber commingled fund interest and was a participant on a farm privatization project in Russia. In 1998, Farmvest was retained by the State of Nebraska to provide strategic advice on their extensive land portfolio.

Mr. Kaplan has been published in the Journal of Portfolio Management and Pensions and Investment on the subject of farmland investment. He graduated from Michigan State University College of Agriculture and Natural Resources with a BS and from the University of California at Berkeley with an MBA. He is a licensed real estate broker and a Chartered Financial Analyst.

ORG Natural Resources

Presents to:

Timberland Investors Forum

July 30, 2009

ORG Natural Resources LLC
www.orgrealproperty.com

Introduction

- About ORG Portfolio Management
  - $6 Billion under advisement
  - Clients are State Funds, Corporate Plans, Endowments, Insurance Cos., etc.
  - Services range from Discretionary and Non-discretionary portfolio management to project consulting and transaction due diligence
- About ORG Natural Resources
  - Global farm land
  - Global timber land
  - Domestic Mitigation Banking
  - Due Diligence Topics I will cover:
  - Appraisals
  - Title
  - Ancillary topics:
    - i) Supply Agreements
    - ii) Hunting leases
    - iii) Mitigation banking and conservation values
    - iv) Large sized transactions

Appraisals

- Cost assumptions
  - Harvest
  - Transport
  - Road maintenance and improvements
  - Fertilization
  - Silvicultural activities
- Price / Revenue Assumptions
  - Mill demand
  - Competitive markets i.e. multiple uses
  - Flexible markets
  - Long-term real prices
  - Discount rate – determined by comps

- Wood flow forecasts – More detail by Doug
- Growth rates
- Age class distribution
- Species mix

Title

- Access
  - Leases
  - Easements
  - Operability
  - Road condition
- Chain-of-title
  - Quit claims
  - Sometimes incomplete

Ancillary Topics

- Supply Agreements
  - Price discovery
  - Variable volumes
- Hunting Leases
  - Enhances net income
  - Security
  - Mitigation Banking
  - Next Slide

Mitigation Banks and Conservation Easements

Mitigation banks are created, restored, or improved wetlands or natural habitats that if contractually maintained to site specific standards in perpetuity are granted "credits" from state and federal regulatory authorities. Mitigation bank credits are sold to developers and others to offset impacts to similar wetlands or natural habitats within a defined area surrounding the mitigation bank.

- Conservation Easements
- Wetlands
  - Species Habitat

Fund Structure

- Alignment of Interests
  - Co-investment
  - Management fees –what is in and what is out
  - Carried Interest
- Leverage
  - Reduces operating flexibility
  - Can impact carried interest

ORG Natural Resources

ORG

- Fully integrated real assets investment firm
- Thirteen client portfolios with allocations over $6 billion to real estate and natural resources managed by ORG on a discretionary and non-discretionary basis
- Former ORG clients had over $500 million of equity invested in timberlands, agriculture, rural land and mitigation land-banks
- ORG is 100% owned by its principals with over 100 years of real estate and real asset investment experience
- ORG is an investment fiduciary to our clients and is a registered investment adviser under the Investment Adviser Act of 1940

ORG Natural Resources

- Howard Kaplan is the President of ORG Natural Resources
- He brings over 25 years of hands on experience with institutional investors, agriculture, timber and global renewable resource investments
- Howard has provided transaction consulting on over $3 billion in timberland and $200 million in farmland
- As President of ORG Natural Resources, Howard is implementing a $135 million mandate in global timber, global agriculture, and domestic mitigation banking

Biographies of Key Professionals

Howard Kaplan, CFA, President, ORG Natural Resources

Mr. Kaplan, has been providing services to ORG Portfolio Management since July 2007 and recently assumed the position of President for the newly created ORG Natural Resources, a subsidiary of ORG Portfolio Management LLC. During 2007 and 2008, he provided due diligence services on nearly $3.5 billion of timber and agriculture transactions. Previously, as founder of AGVEST/Farmvest, Inc., Mr. Kaplan provided management, consulting and brokerage of natural resource real estate for over 25 years. These services included valuation, acquisition, management, monitoring and disposition of agricultural properties, portfolios and real estate securities. Natural resource consulting projects have covered a broad range of domestic and international topics including: economic research, crop feasibility and asset allocation studies. Farmvest successfully marketed a $30 million timber commingled fund interest and was a participant on a farm privatization project in Russia. In 1998, Farmvest was retained by the State of Nebraska to provide strategic advice on their extensive land portfolio. Mr. Kaplan has been published in the Journal of Portfolio Management and Pensions and Investment on the subject of farmland investment. He graduated from Michigan State University College of Agriculture and Natural Resources with a BS and from the University of California at Berkeley with an MBA. He is a licensed real estate broker and a Chartered Financial Analyst.

Steve Gruber, Principal

Mr. Gruber, a co-founder of ORG Portfolio Management LLC, has over 20 years of real estate experience. Mr. Gruber's responsibilities include client services, advisory firm review, portfolio strategy and manager oversight. Mr. Gruber was the Real Estate Portfolio Manager for the Oregon Public Employees' Retirement Fund ("OPERF") from 1998 - 2005. Under Mr. Gruber's leadership, OPERF's performance was repeatedly rated first among the 50 public pension funds in the country. His principal responsibilities included global strategy development and implementation, structuring and monitoring real estate partnerships, and overseeing REIT and opportunistic strategies for over $3 billion of equity. From 1990 to 1998, Mr. Gruber worked at Liquidity Financial Advisors, Inc. buying and trading interests in partnerships owning US real estate. He also worked from 1988-1989 for Woodmont Capital, an owner and manager of California multifamily communities. Mr. Gruber has been a member of *The Institutional Real Estate Letter, High Return Quarterly* Editorial Advisory Board and the Pension Real Estate Association. Mr. Gruber received a BS from California State University at Chico and a MBA from the University of Oregon. Mr. Gruber is a member of the ORG Investment Committee.

About ORG

ORG Portfolio Management LLC

ORG Portfolio Management LLC was established in 2005 to provide global real estate and global renewable natural resources portfolio management services to sophisticated institutional clients. We believe that thoughtful and conservative underwriting, rigorous asset-level research, opportunistic tactical allocations to markets and managers, and portfolio diversification are critical to successful investment performance.

ORG specializes in strategy development, discretionary and non-discretionary portfolio management, manager due diligence, manager selection and monitoring, and performance measurement. ORG professionals have approximately 100 years of institutional real estate and natural resource experience exclusively representing investors in the development and implementation of investment strategy.

ORG Portfolio Management LLC is a Registered Investment Adviser under the Investment Adviser Act of 1940. ORG has offices in Cleveland, Ohio, Portland, Oregon and San Francisco, California.

Cleveland

3733 Park East Drive
Suite 210
Cleveland, OH 44122
Tel. 216-468-0055
Fax 216-468-0054

Portland

15350 SW Sequoia Parkway
Suite 195
Portland, OR 97224
Tel. 503-624-9910
Fax 503-968-9840

San Francisco Bay Area
Natural Resources
1194 Easley Drive
Clayton, CA 94517
Tel. 925-672-8843
Fax 925-672-8843

www.orgrealproperty.com

Regulatory and tax aspects of timberland ownership and transactions

Speaker:
Scott Jones, *Executive Vice President*
FOREST LANDOWNERS ASSOCIATION

Scott P. Jones

Scott is the Executive Vice President of the Forest Landowners Association, a national landowner advocacy organization which strives to support through advocacy, education and information, forest landowner's responsible management of their private property. Scott has a BSFR from the Warnell School of Forestry and Natural Resources at the University of Georgia, is a SAF certified forester and GA registered forester. He spent five years in land management and procurement with a paper company in North Florida and has worked on Government Affairs issues dealing with forestry for the Georgia Forestry Association and the Southeastern Lumber Manufacturers Association.

Scott P. Jones
Executive Vice President
Forest Landowners Association
900 Circle 75 Parkway, Suite 205
Atlanta, GA 30339
800-325-2954
sjones@forestlandowners.com
www.forestlandowners.com

Crossing the Void:
Will private forestland be represented in Washington, DC?

Timberland Investors' Forum
Atlanta, GA

Scott Jones
Executive Vice President
Forest Landowners Association
July 30, 2009

Forest Landowners Association

- Founded in 1941 to support through advocacy, education, and information, forest landowners' responsible management of private property.
- 5,400 members
- 48 states
- 37 million acres

FOREST LANDOWNERS ASSOCIATION, INC.
Protecting America's Private Forest Landowners

Creating the Void

Industry lobbyist do not have forest lands on their agenda any longer.

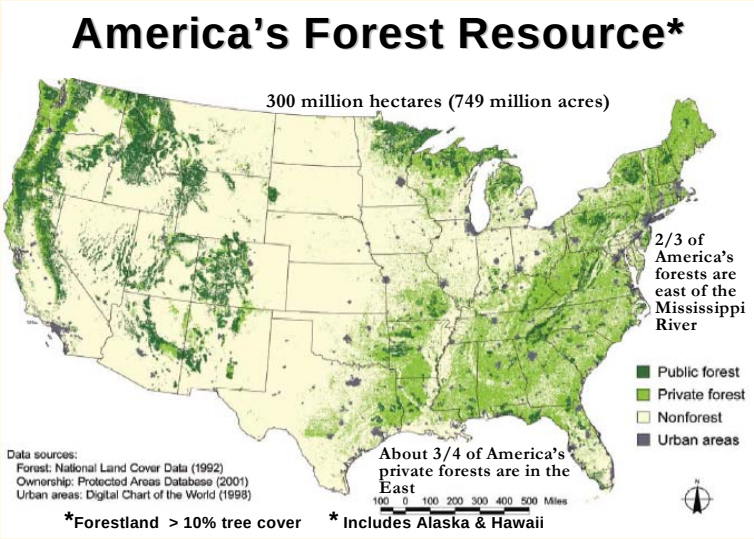
How does this effect my investment?

1) Increased pressures on land use will continue to increase the risk of adverse legislation and regulation affecting forest land investments.

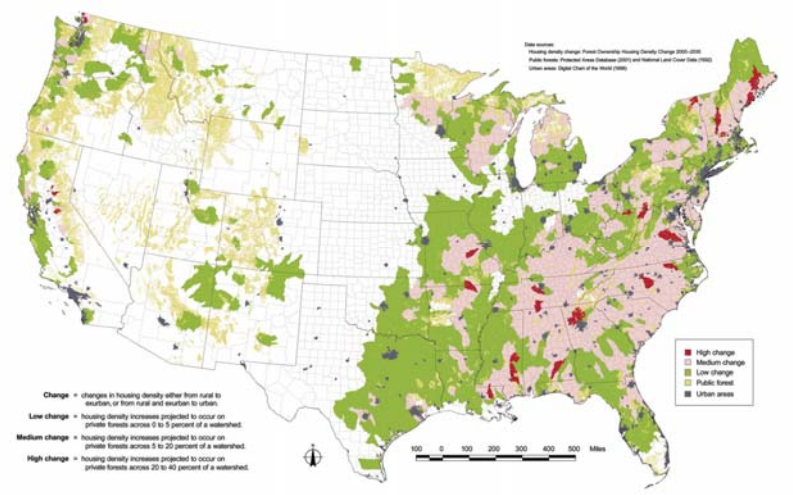
2) Congress picking winners and losers for new market opportunities

3) Associations have to activate their landowner members to advocate on policy issues. "Trees Don't Vote."

60% private 11 million owners



Forest Ownership Housing Density Change 2000–2030



Source: Susan Stein, et. al., USDA Forest Service, Forest on the Edge

How will Growth Affect Land Use?

- 19 million acres of forest converted to developed uses from 1992–2020 in the southeast.[1]
- The need for services will cause fragmentation which will have its greatest impact in the Southeast.[2]
- Private, family, forest landowners managing smaller tracts of land that have greater potential for development.[3]

1 Source: David Wear, USDA Forest Service, Southern Forest Resource Assessment
2 Source : Susan Stein, et. al. USDA Forest Service, Forests on the Edge
3 Source: Butlerand Leatherberry, 2004. America's family forest owners. Journal of Forestry 102 (7): 4-9

Population Growth Forecast

- Urbanization will have the "most direct, immediate and permanent" effects on southern forests—of all forces of change.[1]
- Population Growth Projections 2000–2030[2]

	New People	%Growth
United States	82.1 million	29.2 %
Georgia	3.8 million	46.8%
Florida	12.7 million	79.5%
North Carolina	4.2 million	51.9%

1 Source: Wear and Greis, USDA Forest Service, Southern Forest Resource Assessment.
2 Source: US Census Bureau Interim Projections Released April 2005

U.S. Mill Closures

For over a century, this has represented opportunity…

Resource Utilization has been the driving force behind innovation and new wood products uses and industries

Renewable Energy

Opportunity if……

- Definition issue in Renewable Fuel Standard (*2007 EISA*)
- Renewable Electricity Standard not yet determined
- State Renewable Portfolio Standards (*27 states*)
- Environmentalist fear of biomass (*Conversion*)

Wood for Energy Legislation

Energy Independence Security Act '07: (EISA)
Ambiguous language, undefined by statute -

- "cleared before the passage of this sentence"; "planted"; "pre-commercial thinning"
- Most restrictive interpretation excludes 88% of private forests
- Bottom Line: Adversely impacts the siting of new facilities
- Solution = 2008 Farm Bill: "…other plants and trees"

Working Forests in National Energy Policy

Eligible Georgia Timberland with RFS Definition:

7.3 Million Acres

Source: USDA Forest Service - Forest Inventory and Analysis National Program

Working Forests in National Energy Policy

Eligible Georgia Timberland
Without RFS Definition:

23 Million Acres

Source: USDA Forest Service - Forest Inventory and Analysis National Program

Working Forests in National Energy Policy

Eligible Maine
Forest Land with
RFS Definition
360,000 Acres

Source: USDA Forest Service - Forest Inventory and Analysis National Program

www.forestlandowners.com (800) 325-2954

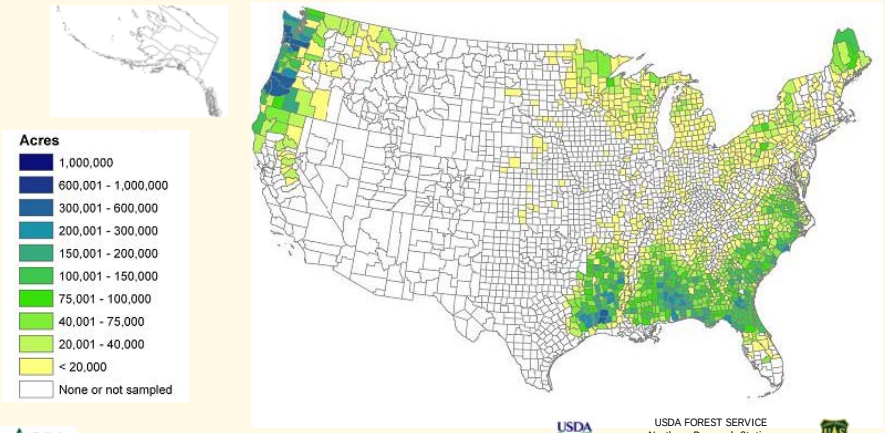
Working Forests in National Energy Policy

Eligible Maine
Forest Land without
RFS Definition
17 Million Acres

Source: USDA Forest Service - Forest Inventory and Analysis National Program

www.forestlandowners.com (800) 325-2954

Area of Timberland
Qualifying Under the 2007 EISA

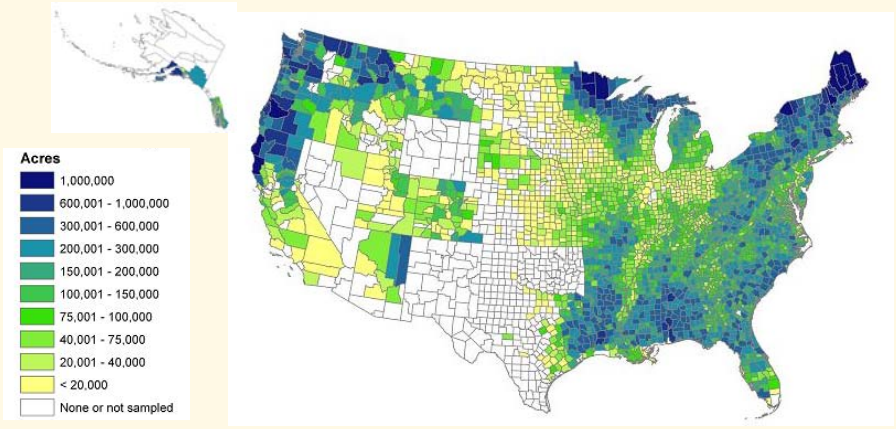


Forest Inventory and Analysis

USDA FOREST SERVICE
Northern Research Station
Forest Inventory and Analysis
Sources: USDA Forest Service, 2009
Visit: http://www.ncrs.fs.fed.us/4801/fiadb/
Produced April 9, 2009, Author: Barry Wilson

www.forestlandowners.com (800) 325-2954

Area of Timberland Qualifying Under the 2008 Farm Bill



Forest Inventory and Analysis

USDA FOREST SERVICE
Northern Research Station
Forest Inventory and Analysis
Sources: USDA Forest Service, 2009
Visit: http://www.nrs.fs.fed.us/pubs/rmap/
Produced April 9, 2009, Author: Barry Wilson

Renewable Electricity Standard

American Clean Energy & Security Act *(Waxman-Markey)*

- Passed House 219-212 on June 26, 2009
- Included a Renewable Electricity Standard (RES) with a broad definition of biomass. “other plants and trees” and “residues or byproducts from wood, pulp, or paper products facilities”
- Senate – E&NR passed bill in June that did not include climate change provisions. (action this fall, Sept 28)

Clean Water Restoration Act

- June 18 – Senate E&PW passed S.787
- Low profile issue at times
  - "Navigable waters changed" to "Waters of the United States"
  - Dilutes silvicultural exemption for forestry operations

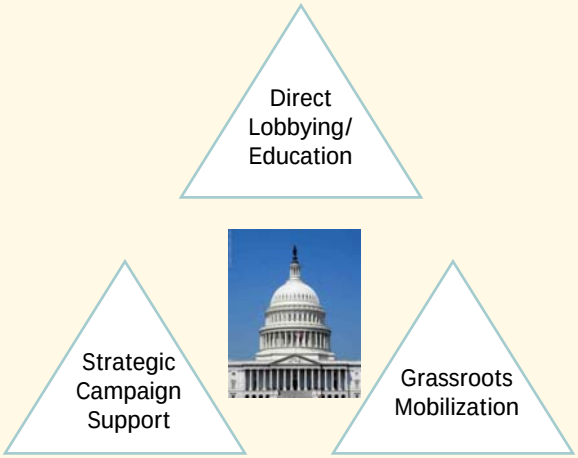
Proposed TMDL Regulation

Opportunity Realized

IRC Tax code 631(b)

- Changed by FLA & FLTC in the 2004 JOBS Bill.
- Changed to allow capitol gains treatment on lump sum sales.
- A WIN for all forest landowners.

How do Associations Represent Landowners?



FLA Political Action Committee

2007-2008 FLA-PAC Contributions
$71,139
2005-2006 FLA-PAC Contributions
$74,280

- 15, 276 Registered Federal Lobbyist
- 2008: $3.27 Billion 2009: $800 million
- Environmental Lobby 2008: $18 million
- Paper Co. Lobbying 2008: Over $15 million

FLA Grassroots

Associations put Faces on the Issues

Softwood Lumber Protest at Home Depot

Macon, GA

Meeting with members of Congress

Congressman Mike Ross (D-AR)

Keeping Forest Investments Profitable

- Traditional markets – *solid wood, pulp and paper*
- Emerging markets - *energy*
- Non-traditional uses – *easements, mitigation, ESA*
- Strong representation- *Ensure a voice in legislation and regulation*

Questions?

Contact:

Scott Jones
Forest Landowners Association
(800) 325-2954
sjones@forestlandowners.com
www.forestlandowners.com

Exploring the opportunities of timberland investments in Latin America and other parts of the world

---

Speakers:

Professor Fred Cubbage, *Forest Policy, Economics & Certification Co-Director, Southern Forest Resource Assessment Consortium, Department of Forestry & Environmental Resources*
NORTH CAROLINA STATE UNIVERSITY

Glenn Dunaway, *Partner*
MORRIS, MANNING & MARTIN LLP

Aldo de Cresci Neto, *Founding Partner and responsible for forestry area*
FLEURY MALHEIROS, GASPARINI, DE CRESCI E NOGUEIRA DE LIMA ADVGADOS

Frederick W. Cubbage

Professor
Department of Forestry and Environmental Resources
College of Natural Resources
North Carolina State University
Raleigh, North Carolina 27695-8008
fredcubbage@yahoo.com

Brief Biographical Sketch

Fred Cubbage is Professor, Department of Forestry and Environmental Resources, North Carolina State University. He has a B.S degree in forestry from Iowa State University and M.S. and Ph.D. degrees from the University of Minnesota. Fred served as head of the NCSU Department of Forestry from 1994 to 2004, spent five years as a research forester and project leader with the Southern Forest Experiment Station, in New Orleans and in Research Triangle Park. He was employed almost 10 years as a professor at the University of Georgia and two years as a state forester in Kentucky. Fred has taught natural resource policy, forest economics, and sustainable forestry and certification courses.

Fred has authored or co-authored several hundred publications on forest policy, production economics, forest certification, nonindustrial private forest landowners, and timber supply, including 100 peer-reviewed journal articles. Cubbage was a Fulbright Teaching and Research Scholar in Argentina and Uruguay in 2004, and has traveled and conducted projects frequently in the Southern Cone countries since. His research has addressed global timber investments, forest policy, forest certification, and agroforestry systems in the last five years. Fred is a registered forester in North Carolina, and owns forest land in Georgia. He is the NC State University Alumni Association Distinguished Graduate Professor for 2009-2011.

C. Glenn Dunaway

Partner
Phone: (404) 504-7676 • Fax: (404) 365-9532 • E-mail: gdunaway@mmmlaw.com

PRACTICE AREAS:

Corporate

Fund Formation

Tax

Timberland Investments & Forest Products

BAR ADMISSION:

State Bar of Georgia, Admitted 1981

C. Glenn Dunaway's practice is transactional in nature and often concentrated in the field of timber and timberlands investments. He also has substantial experience in private equity, venture capital and commercial real estate investment, representing fund sponsors, institutional investors (particularly pension funds and other tax-exempt investors), and high net worth individuals. Mr. Dunaway has significant experience with UBTI planning and the formation of real estate opportunity investment funds.

In the timber area, Mr. Dunaway provides structural and tax advice on both domestic and international transactions and has been involved with all phases of the capital formation process for large timberland transactions. He regularly represents financial institutions providing structured finance and other financial solutions to the forest products industry. He also identifies and introduces equity and debt financing sources necessary for a particular transaction, both domestically and internationally.

Mr. Dunaway advises timberland clients on a wide variety of corporate matters related to taxation (including international and timber tax issues and installment note and other financial structuring techniques), securities, partnership, fund formation, investment management agreements, wood and fiber supply agreements, and basic timber law. Mr. Dunaway pioneered installment note tax planning for large timberland divestitures.

Representative Transactions

- Counsel to structure advisor for US $228 million timberland installment sale by Bowater Incorporated to investment clients of Hancock Timber Resources Group
- Purchaser counsel in US $400 million timberland installment sale by MeadWestvaco Corporation to an affiliate of Wells Timberland REIT, Inc.
- Counsel to structure advisor for US $1,650,000,000 timberland installment sale by Boise Cascade Corporation
- Purchaser counsel in numerous timberland transactions on behalf of investment clients of RMK Timberland Group in the U.S., South America and Europe

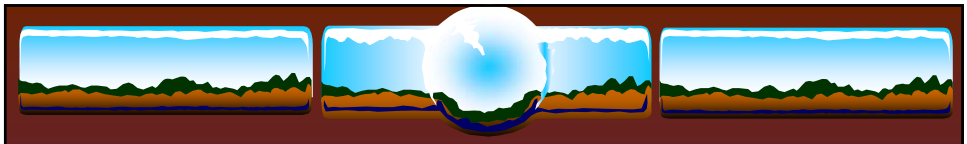
Education

University of Georgia, A.B., *(Phi Beta Kappa)*, 1978

University of Georgia, J.D., *(Order of the Coif)*, 1981

ALDO DE CRESCI NETO, founding partner of **Fleury Malheiros, Gasparini, De Cresci e Nogueira de Lima Advogados** (Attorney at Law). Mr. De Cresci is the leading lawyer of the forestry investments team and member of the Council of the Interamerican Development Bank for Forestry matters in Brazil (Creation of a ranking of the Brazilian States for forestry investments) and has participated as speaker in several conferences in Brazil and abroad. Mr. De Cresci represents the major foreign investors in Brazil regarding forestry area.

Mr. De Cresci was born in São Paulo in 1972 and graduated Law School from Pontifícia Universidade Católica de São Paulo in 1995, specialized in contracts with a graduate degree in Civil Procedure Law from the Universidade de São Paulo, Member of the Association for International Affairs of the Brazilian Bar, Member of the Brazilian Bar Association since 1996 and Member of the São Paulo´s Lawyer Association (AASP).



Global Forest Plantation Investment Returns in 2008

Speech Presented at the:
Timberland Investors Forum
30 July 2009
Atlanta, GA

Authors and Affiliations

Fred Cubbage, NC State U, USA	Sadharga Koesbanda, NCSU, USA
Patricio Mac Donagh, UNAM, Argentina	Rafael Rublar, U Concepcion, Chile
Gustavo Balmelli, INIA, Uruguay	Virginia Morales Olmos, Weyco, Uruguay
Rafael de la Torre, CellFor,	Heyns Kotze, Komatiland For, S Africa
Mauro Murara, U Contestado, Brazil	Vitor Hoeflich, UF Paraná
Ronalds Gonzalez, NCSU/Venezuela	Omar Carrero, NCSU/Venezuela
Greg Frey, World Bank/Paraguay	James Turner, Scion, New Zealand
Roger Lord, Mason, Bruce, Girard, USA	Jin Huang, Abt Associates, USA/China
Charles MacIntrye, NCSU/L Am Laws	Kathleen McGinley, IITF, USA/Laws
Robert Abt, NCSU, USA	Richard Phillips, NCSU, USA

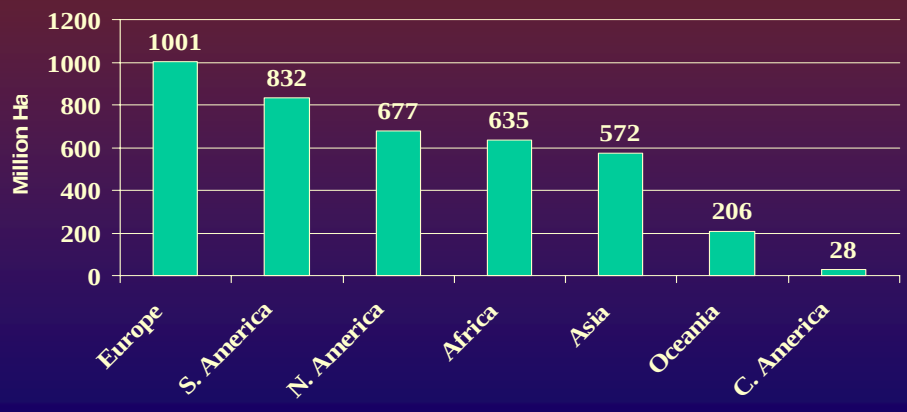
Acknowledgments

Southern Forest Resource Assessment Consortium:		
American Forest Management	Hancock Natural Resources	Progress Energy
American Forest & Paper Association	Huber Engineered Wood Products	Rayonier
Arborgen, LLC	International Paper	Resource Management Service
Bowater	Lanworth	Smurfit-Stone
CellFor	Larson & McGowin	Timberland Investment Resources
Forestland Group	Plum Creek	Timbervest
Georgia-Pacific		

National Council for Air and Stream Improvement (NCASI)
NC State University, Forestry and Environmental Resources
Authors' Organizations

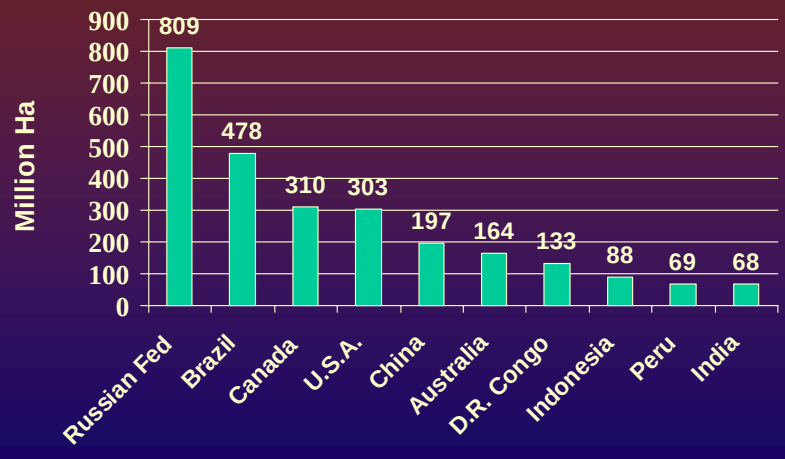
Forests and Plantations

Total World Forest Area By Region, 2005



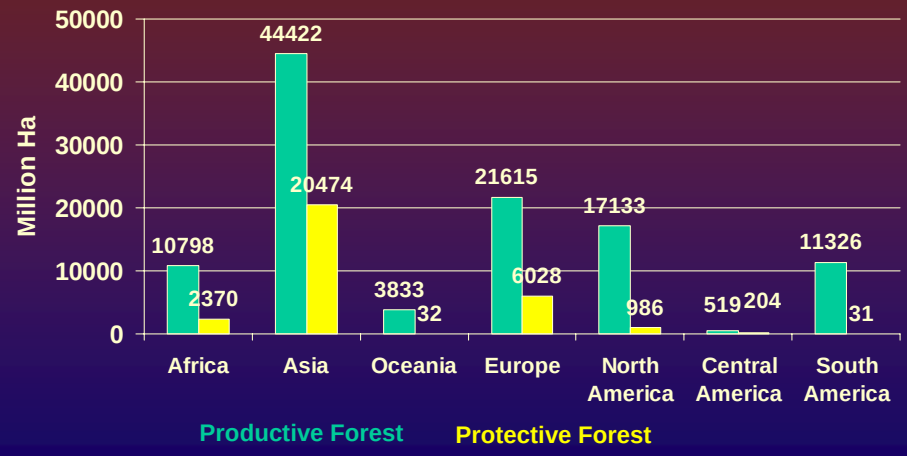
FAO 2005; 3.952 billion ha total

Total Forest Area For Major Countries, 2005



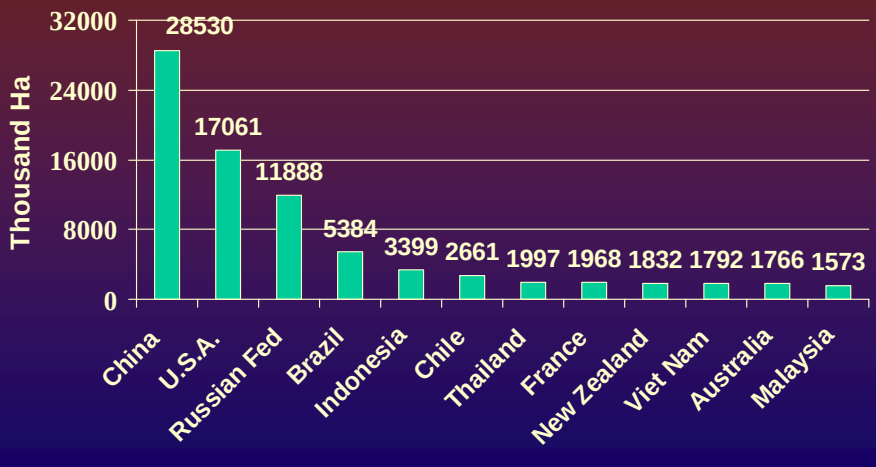
FAO 2007

Area of Planted Forests by Function, 2005



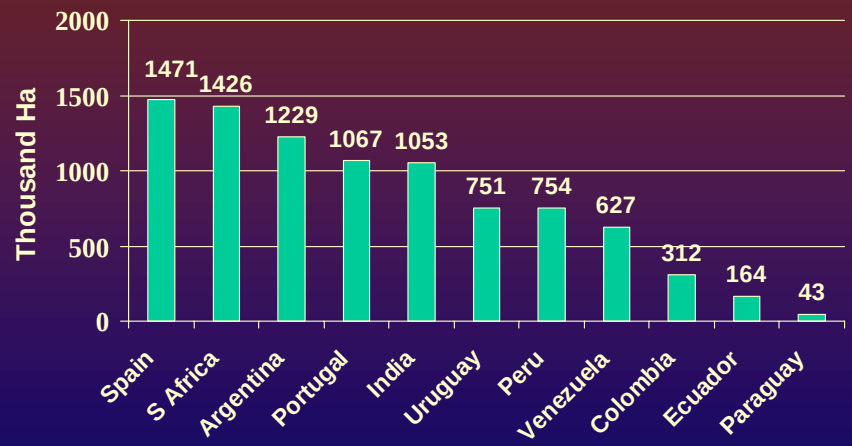
FAO 2005; 109.6 million ha productive (78%); 30.1 million ha protective (22%); 140.1 million ha total

Total Productive Plantation Area For Major Countries in the World, 2005



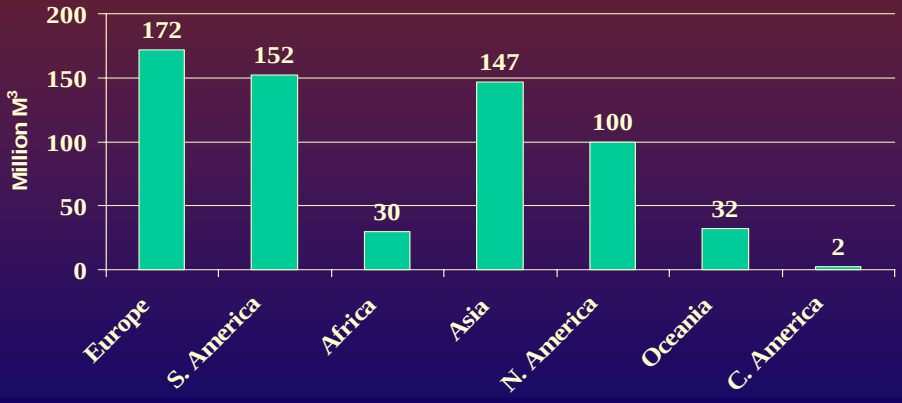
FAO 2007

Total Productive Plantation Area For Major Countries in the World, 2005



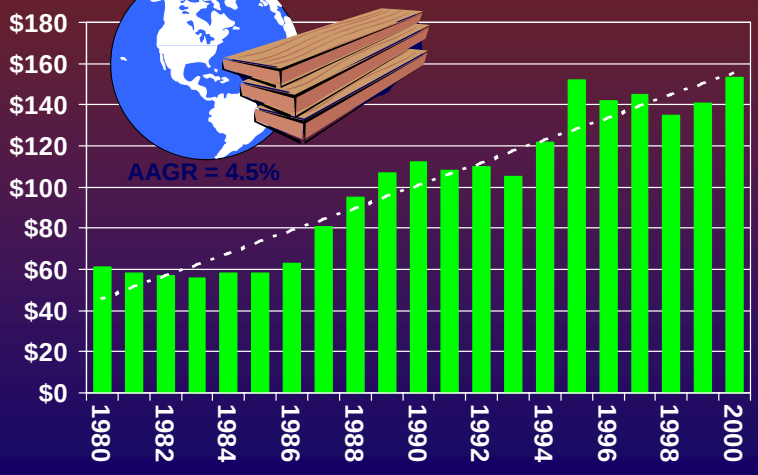
FAO 2007, Asoplant 2007 for Venezuela

Industrial Roundwood Harvest from Plantations



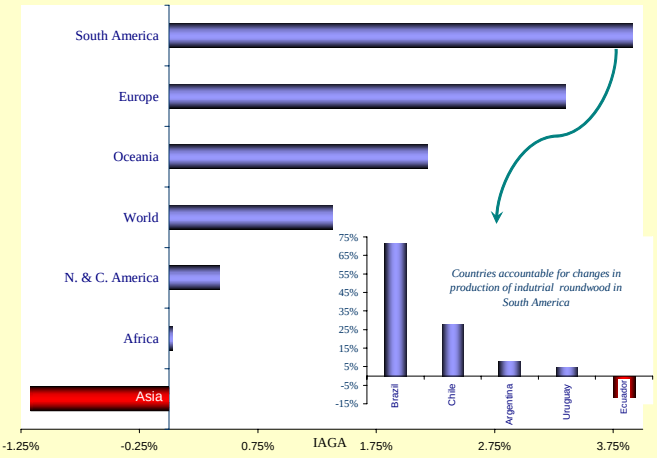
FAO 2006; country reports; Brown (1999); DANA; SOUTHEM, Siry et al. 2005

Global Trade in Forest Products expanded since 1980, at about 4.5% per year . . .



Schuler and Ince 2005

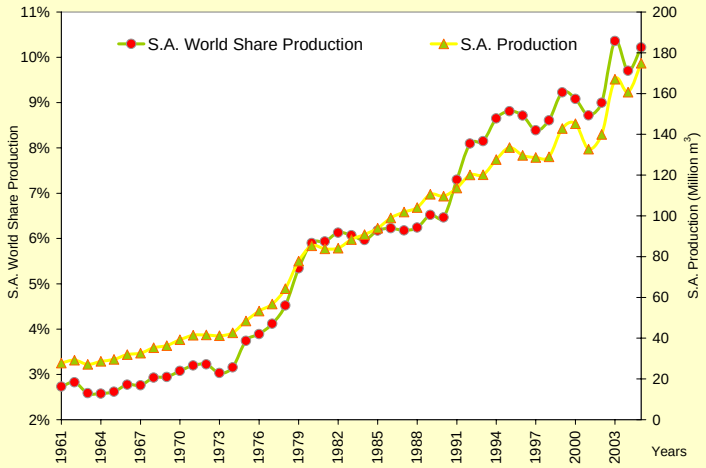
Annual Increase in Production by Region (%)



FAO 2007, Gonzalez et al. 2008

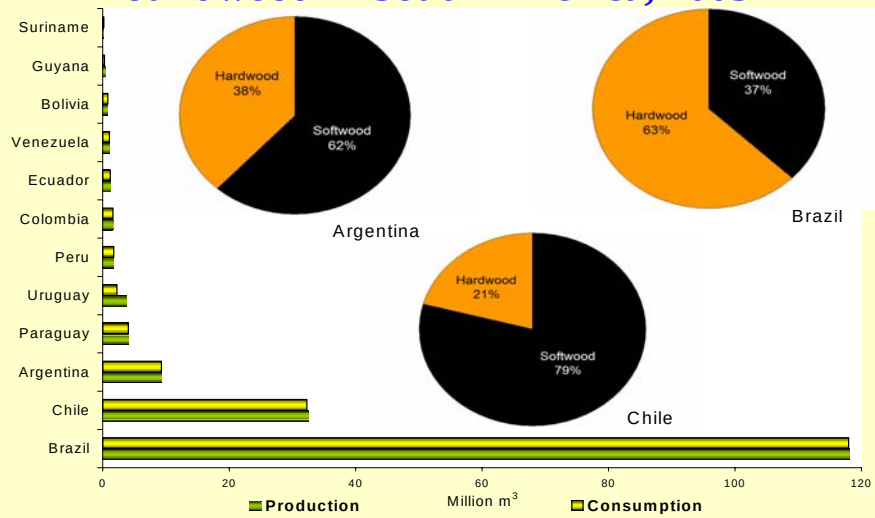
Production and Consumption of Wood

South America, 1961-2005

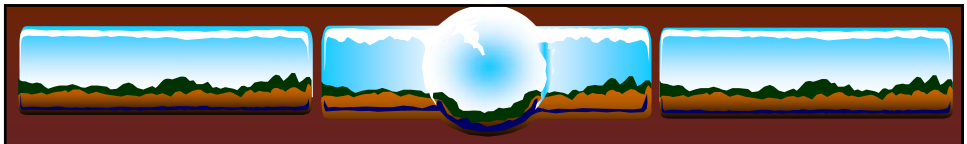


FAO 2007,Gonzalez et al. 2008

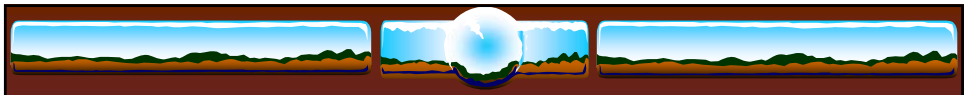
Production and Consumption of Industrial Roundwood in South America, 2003



FAO 2007, Gonzalez et al. 2008



Timber Investment Returns, 2008



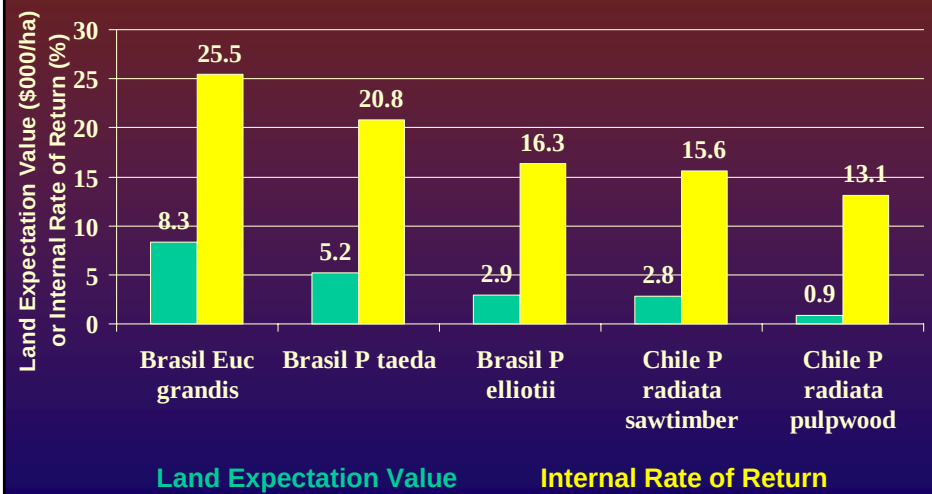
Methods

- Select countries
  - Major world plantation timber producers
  - Argentina, Brazil, Uruguay, Chile, US South/West
  - New Zealand, S Africa, Indonesia, China
  - Colombia, Paraguay, Venezuela
- Select principal commercial timber species or prospects
- Authors' estimates of:
  - Growth rates, typical current practices, genetics
  - Factor costs and output prices
- Develop cash flow analyses / spreadsheets
- Capital budgeting analyses
- Iterative review by authors and foresters in each country

Assumptions

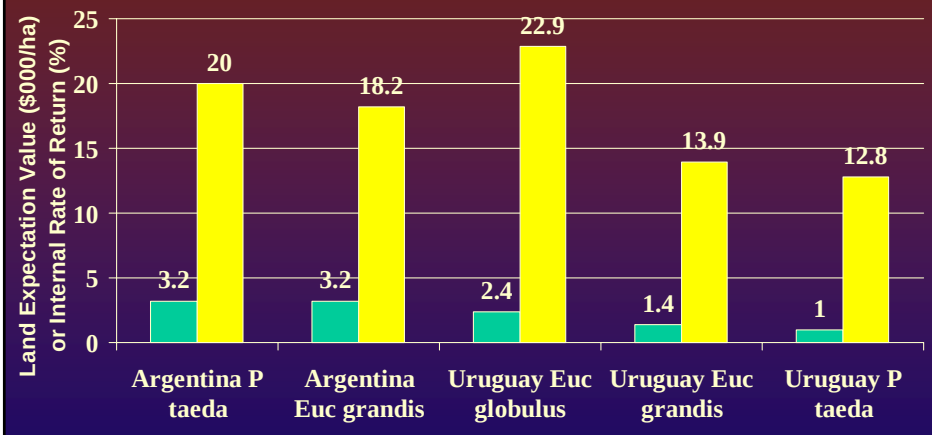
- Discounted cash flow analysis
- Real (constant) input costs and timber prices
  - No inflation
  - Real discount rate of 8%
- No land costs in base case
- Before tax
- Representative sites
- Good plantation and natural stand practices
- LEV becomes proxy for land value

Returns of Plantations, Brazil and Chile, 2008



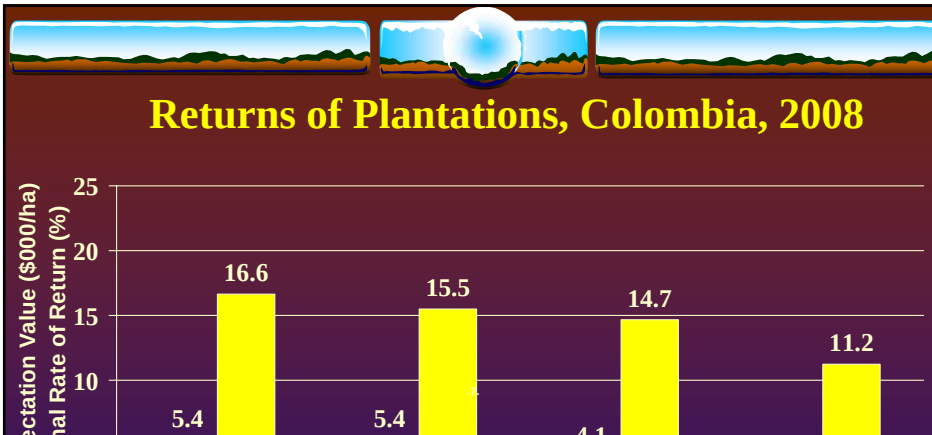
8% discount rate; no land cost

Returns of Plantations, Argentina & Uruguay, 2008

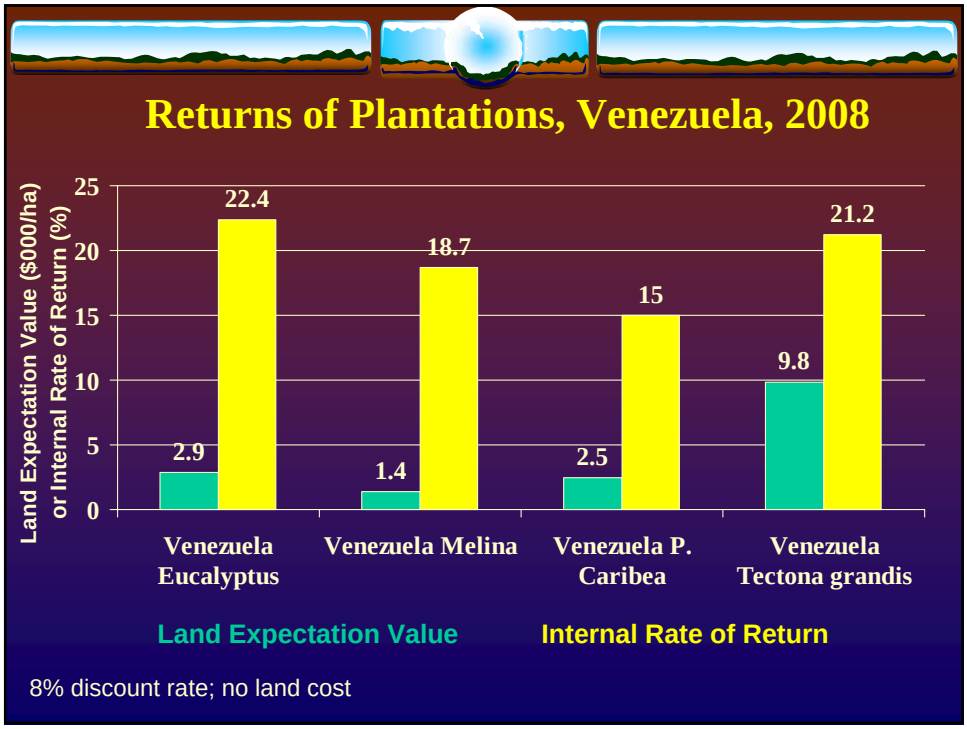


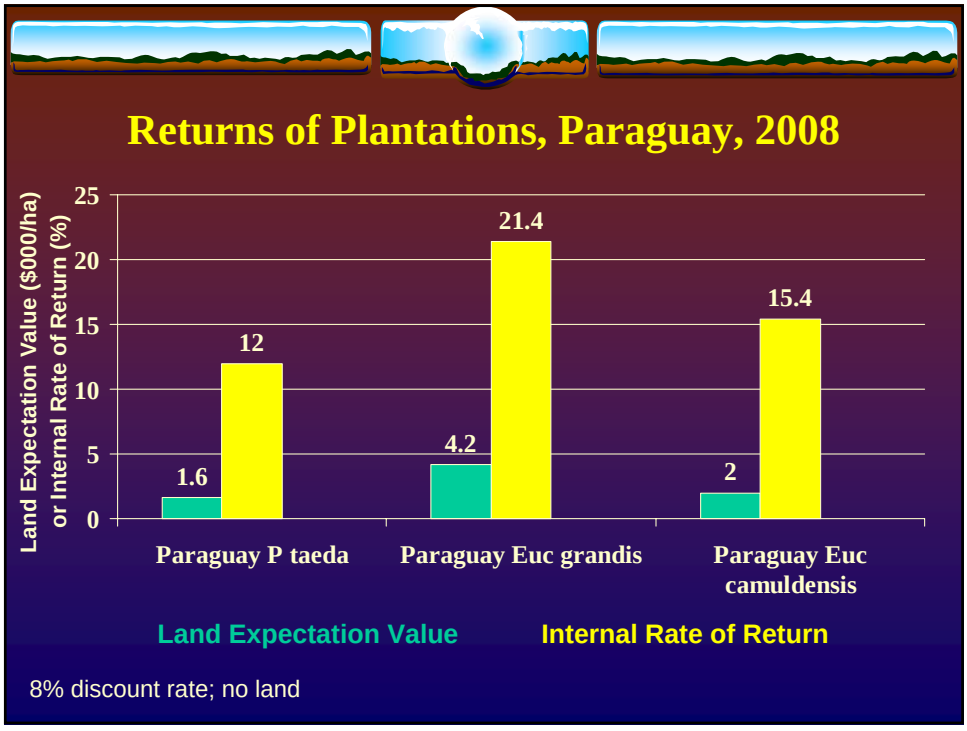
8% discount rate; no land cost

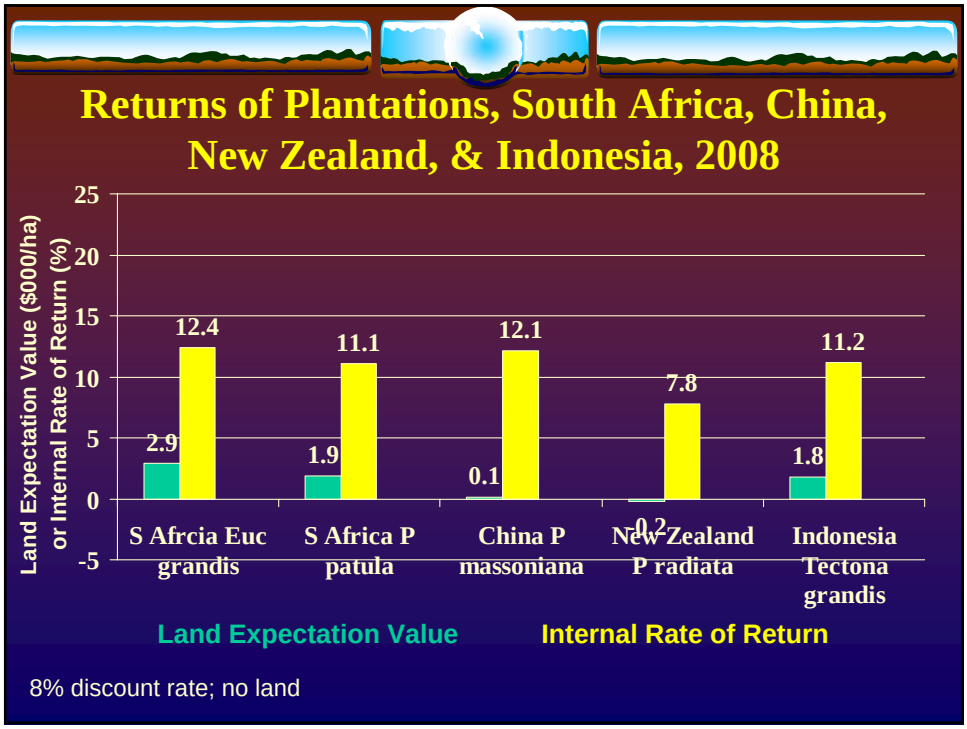
Returns of Plantations, Colombia, 2008

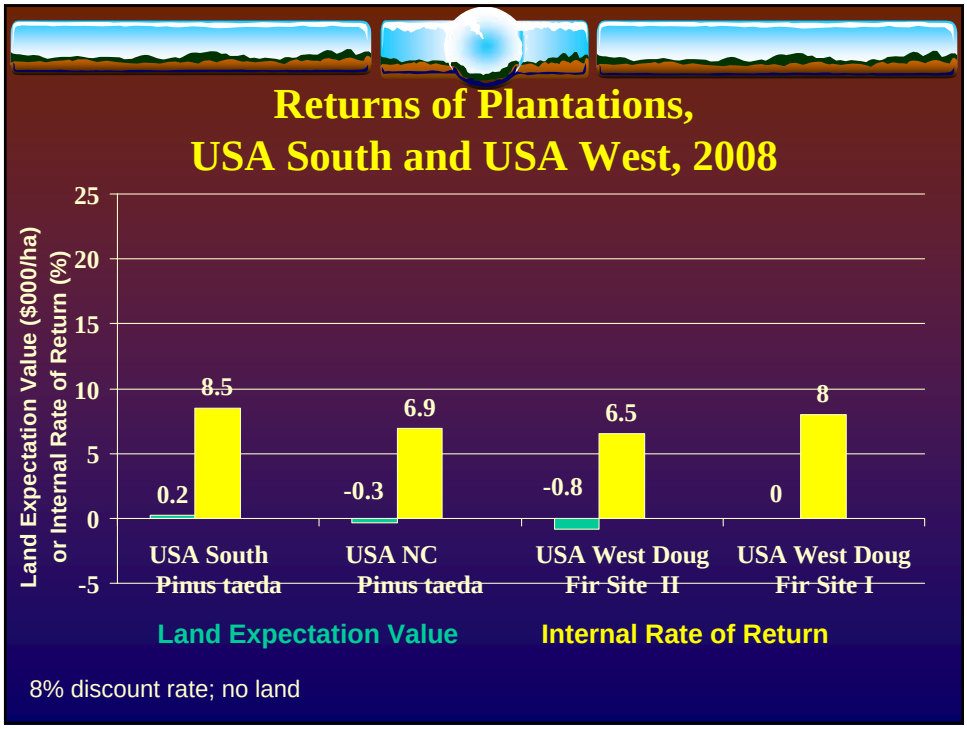


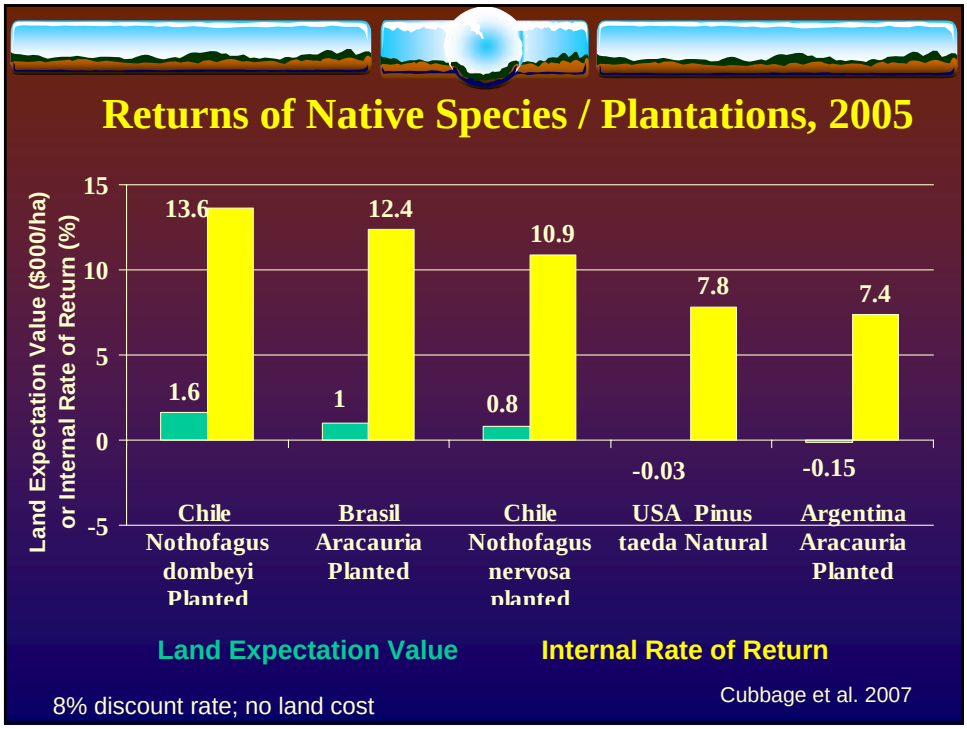
8% discount rate; no land cost

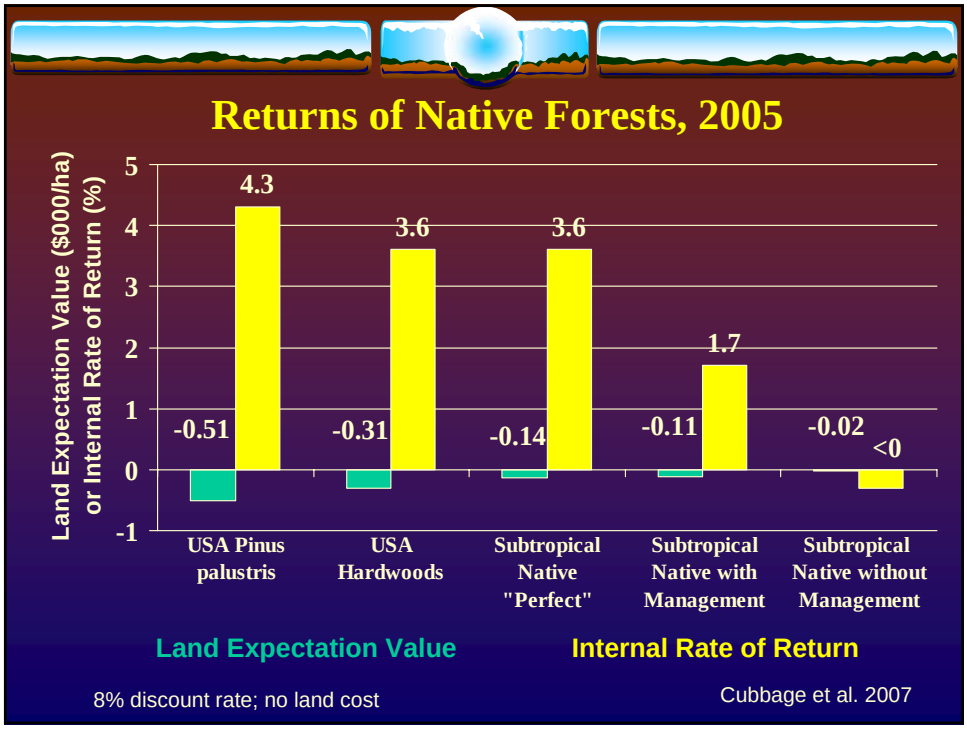

Returns of Plantations, Venezuela, 2008
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
25
20
15
10
5
0
22.4
18.7
15
21.2
2.9
1.4
2.5
9.8
Venezuela Eucalyptus
Venezuela Melina
Venezuela P. Caribea
Venezuela Tectona grandis
Land Expectation Value
Internal Rate of Return
8% discount rate; no land cost


Returns of Plantations, Paraguay, 2008
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
25
20
15
10
5
0
12
21.4
15.4
1.6
4.2
2
Paraguay P taeda
Paraguay Euc grandis
Paraguay Euc camuldensis
Land Expectation Value
Internal Rate of Return
8% discount rate; no land


Returns of Plantations, South Africa, China, New Zealand, & Indonesia, 2008
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
25
20
15
10
5
0
-5
12.4
2.9
11.1
1.9
12.1
0.1
7.8
-0.2
11.2
1.8
S Afrcia Euc grandis
S Africa P patula
China P massoniana
New Zealand P radiata
Indonesia Tectona grandis
Land Expectation Value
Internal Rate of Return
8% discount rate; no land


Returns of Plantations, USA South and USA West, 2008
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
25
20
15
10
5
0
-5
8.5
0.2
6.9
-0.3
6.5
-0.8
8
0
USA South Pinus taeda
USA NC Pinus taeda
USA West Doug Fir Site II
USA West Doug Fir Site I
Land Expectation Value
Internal Rate of Return
8% discount rate; no land


Returns of Native Species / Plantations, 2005
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
15
10
5
0
-5
13.6
1.6
12.4
1
10.9
0.8
7.8
-0.03
7.4
-0.15
Chile Nothofagus dombeyi Planted
Brasil Aracauria Planted
Chile Nothofagus nervosa planted
USA Pinus taeda Natural
Argentina Aracauria Planted
Land Expectation Value
Internal Rate of Return
8% discount rate; no land cost
Cubbage et al. 2007


Returns of Native Forests, 2005
Land Expectation Value ($000/ha) or Internal Rate of Return (%)
5
4
3
2
1
0
-1
-0.51
4.3
-0.31
3.6
-0.14
3.6
-0.11
1.7
-0.02
<0
USA Pinus palustris
USA Hardwoods
Subtropical Native "Perfect"
Subtropical Native with Management
Subtropical Native without Management
Land Expectation Value
Internal Rate of Return
8% discount rate; no land cost
Cubbage et al. 2007

Sensitivity Analyses Assumptions, 2005

Country/ Species	Planted Area (%)	Land Costs ($/ha)	Subsidy (%)	Higher MAI (m^3/ha/yr)	Higher Sawtimber Price (%)
BR taeda	60	2500	Na	40	10
BR grandis	60	2500	Na	50	10
UR taeda	70	1000	39	30	25
AR taeda	70	1500	50	40	50
CH radiata	70	2000	50	30	10
US taeda	70	1500	50	18	10

Cubbage et al. 2007

Sensitivity Analyses – Summary Results, IRR

Country/ Species	Base w/o Land Costs	Base, Less Planted	Base with Land Costs	Base, Less Planted w/Land	Base with Subsidy Payment	Base with Higher Yields
BR taeda	17.0	16.1	8.8	6.4	Na	23.7
BR grandis	22.7	21.7	11.7	7.7	Na	27.5
UR taeda	15.1	14.5	10.2	8.9	17.3	18.8
AR taeda	12.9	11.7	9.9	8.3	15.9	19.8
CH radiata	16.9	16.1	9.8	8.4	23.5	38.0
US taeda	9.5	9.2	5.9	5.0	11.0	12.3

Cubbage et al. 2007

Wood Costs at Rotation, Selected Countries, 2008

Country/Species	At 8% Discount Rate ($/m3)	At Stumpage Prices ($/m3)
Argentina – Pinus taeda	4.43	20.18
Argentina – Euc grandis	6.48	24.25
Brazil – Pinus taeda	8.90	34.21
Brazil – Euc grandis	6.60	36.69
Chile – Pinus radiata sawtimber	10.91	30.91
China – Pinus massoniana	23.64	30.92
Colombia – Eucalyptus	39.75	56.32
Colombia – Pinus tecunumanii	29.74	53.14
Indonesia – Tectona grandis	8.22	19.82
New Zealand – Pinus radiata	36.87	33.20

Wood Costs at Rotation, Selected Countries, 2008

Country/Species	At 8% Discount Rate ($/m3)	At Stumpage Prices ($/m3)
Paraguay – Pinus taeda	22.45	31.87
Paraguay – Eucalyptus camuldensis	21.41	30.46
South Africa – Pinus patula	60.36	92.44
South Africa – Eucalyptus grandis	21.86	38.36
Uruguay – Eucalyptus globulus	6.10	18.00
Uruguay – Pinus taeda	12.85	25.02
USA – South – Pinus taeda	31.05	34.16
USA – West – Douglas fir, Site I	52.98	52.13
Venezuela – Eucalyptus	14.23	20.00
Venezuela – Melina arborea	12.20	20.00

Qualitative Investment Factors

Risk, Political,
Export, Regulatory

Export and Direct Investment Risk, 2009

Country	Exports – Political Risk		Direct Investments Risk		
	Short Term	Long Term	War	Expropriation & Govt. Action	Transfer Risk
Argentina	4	7	3	4	6
Brazil	2	3	2	2	3
Chile	2	2	1	1	2
China	1	2	2	4	2
Colombia	2	4	5	3	4
Indonesia	2	5	2	5	3
N Zealand	1	1	1	1	1
Paraguay	3	5	3	4	5
South Africa	3	3	2	2	3
U.S.A.	1	1	1	1	1
Uruguay	3	4	2	2	4
Venezuela	4	6	4	7	5

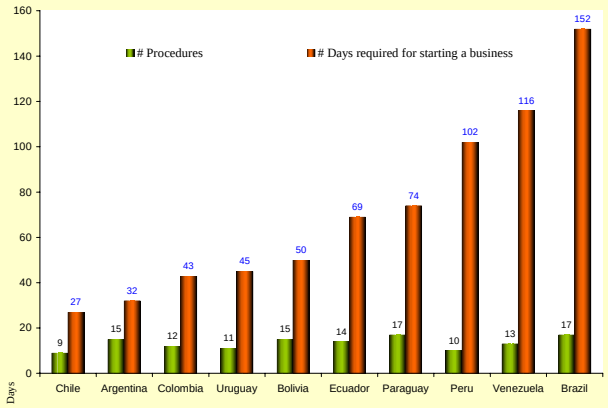
ONDD 2009 Belgium Export Credit Agency; Range of 1-7; Lowest number is least risky

Ease of Doing Business, 2009

Country	Rank in World by Factor Out of 181 Countries					
	Overall	Start Business	Register Property	Protect Investors	Paying Taxes	Trade w Borders
Argentina	113	135	95	104	134	106
Brazil	125	127	111	70	145	92
Chile	40	55	39	5	41	53
China	83	151	30	38	132	48
Colombia	53	79	78	88	141	96
Indonesia	129	171	107	53	116	37
N Zealand	2	1	3	1	12	23
Paraguay	115	82	70	53	102	138
South Africa	32	47	87	9	23	147
United States	3	6	12	5	46	15
Uruguay	109	120	149	88	167	127
Venezuela	174	142	92	170	177	164

World Bank 2009. 1 is best, most easy.

Number of Days and Procedures Required to Start a Business in South America, 2006



Gonzalez et al. 2008, NCSU, from World Bank 2007

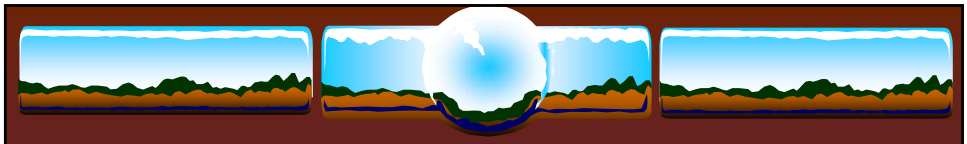
Amount of Regulations for SFM by Country in the Americas, 2008

SFM Category (Regs Examined)	Number of Required Regulations by Country for Category					
	Argen-tina Misiones	Brazil Minais Gerais	Chile	Uruguay	USA North Carolina	USA Oregon
National Laws (3)	3	3	3	2	2	2
Planning & AAC (5)	4	3	5	1	0	1
BMPS & Regen (4)	3	4	4	3	1	5
Environment (4)	4	4	4	3	3	4
Social (3)	3	3	1	1	0	0
Economic (3)	1	1	1	1	1	2

MacIntyre, Cubbage, McGinley, and Crawford, NC State University, USA, 2009

Social & Environmental Responsibility in L.A.C.

- Leal – 2008 IQPC Timber Conference, Brazil
  - Social responsibility passport to success in Brazil
  - Local community support enabler of regulatory licenses
  - Prevents problems; accelerates licenses; reduces theft, strike, labor claims
  - Poorer the region, more important social responsibility
- Daniels and Caulfield – 2008 IQPC
  - Forest certification a key in Latin America
  - If laws or enforcement are weak, certification assures investors that forest are managed to high standards
  - Has costs, but provides access to international funds and bank loans for developing countries
  - Sometimes wood can only be sold if certified



Conclusions

Plantation Investments

- World forest plantations
  - increasing in acreage and production
  - Offsetting decline in natural forest extraction?
- Attractive investment opportunities
  - High rates of return in Latin America
  - With more risk and challenges to do business
  - Moderate returns in U.S., New Zealand, S. Africa, Indonesia
- Less risk, better business climate w/ development
- Substantial regulations everywhere except U.S. S

Plantation Trends

- All countries - 8% to 23% base IRRs w/o land costs
  - Possibility for much greater returns in S America
  - And good returns in other Southern Hemisphere countries
  - Early investors with cheap land costs have profited most; more difficult now
  - U.S. returns have dropped, S Hemisphere increased since 2005
- Latin America major increase in forest production
  - 3% to 10% of world production from 1960-2005
  - 20 million m^3 → 80 million m^3 in same period
  - Based on exotic timber plantations
  - Aggressively seeking new investments

Wood Costs versus Investment Returns

- Wood costs often low at cost of capital of 8%, but much higher at stumpage market prices
- Wood costs inversely proportional to investment returns
- So high investment returns in open markets will mean high purchased wood costs
- *However:*
  - Vertically integrated forest products firms capture profits from high priced wood
  - Lower investment returns (less than cost of capital) encourage market purchases, not vertical integration
  - A major advantage for vertical integration in Latin America
  - And better for processors not to own timberland in U.S., maybe New Zealand, other medium return areas

Investment s, Market Structure, Risks

- Timber investments all look good on paper
  - But LAC often based on very thin and local markets
  - Mills plant & own plantations usually; not vice versa
  - Probably less than 25% open market purchases
  - Temperate forests – better open market investments
- Risk and regulation
  - Still inverse risk-return relationships
  - Significant economic and political risks in new markets
  - As much environmental and social regulation in Latin America, and maybe more capricious enforcement
  - Ease of doing business (low costs) far better in developed countries – U.S., N.Z., S Africa
  - Perhaps lower returns, but much more assured
  - Chile, Uruguay, Brazil, China, Argentina safest
  - Then Colombia, Indonesia, Paraguay, Venezuela

Conclusions

Investment Analysis - Approach and Caveats

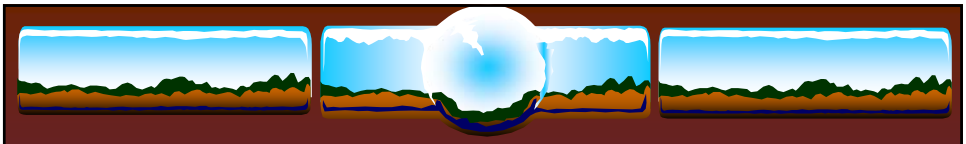
- Robust cooperative research estimate
  - Best available data – common practice
  - Knowledgeable local experts, extensive review
- Assumptions
  - Real rates of return, 2008 prices
  - Without land costs, taxes
  - LEVs suggest land values, but probably high
  - Input & timber prices vary by area, change with time
  - Taxes, costs of business, regulations would have large affects on investments – future study!
- Technology
  - Better sites / growth possible → better returns
  - Better management possible → better returns
  - And vice versa

Conclusions
Forestry Sector Prospects

- Economic development opportunity
- Forest sector GDP
  - 2-4% Brazil, Chile
  - 1.2% USA
  - 1% Argentina, Uruguay
- New pulp mills each in Chile and in Uruguay, Indonesia, China
- Many new mills or pulp lines in Brazil
- More opportunities on other Southern Hemisphere countries
- Many sawmills and panel mills
- Rapidly developing forest clusters

Conclusions
Forestry Sector Prospects

- Modest expansion everywhere
  - Most timber need and greatest prices – Chile & Brazil
  - Larger supply, increasing prices – Argentina
  - New supply, establishing markets – Uruguay, Indonesia
  - Status Quo – U.S. South, New Zealand, S. Africa
  - Emerging opportunities – China, Colombia, others
- Least risk in most developed markets/countries
  - Longer term less certain
  - Biological risks may emerge
  - But with short rotations
  - And strong GDP and export growth



Global Forest Plantation Investment Returns in 2008

Speech Presented at the:
Timberland Investors Forum
30 July 2009
Atlanta, GA

File: Atlanta_Timber_Forum_2009_V2

GLOBAL FOREST PLANTATION INVESTMENT RETURNS IN 2008

Frederick Cubbage[1], NC State University, Raleigh, NC, USA; Patricio Mac Donagh, Universidad Nacional de Misiones (UNAM), Eldorado, Misiones, Argentina; Gustavo Balmelli, Instituto Nacional de Investigación Agropecuaria (INIA), Tacuarembó, Uruguay; Rafael Rubilar, Universidad de Concepción, Concepción, Chile; Rafael de la Torre, CellFor, Atlanta, Georgia, USA; Vitor Afonso Hoeflich, Universidade Federal do Paraná (UFPR), Curitiba, Brasil; Mauro Murara, Universidade do Contestado, Santa Catarina, Brasil; Heynz Kotze, Komatiland Forests (Pty) Ltd, South Africa; Ronalds Gonzalez, Omar Carrero, Gregory Frey, and Sadharga Koesbandana, NC State University, Raleigh, NC, USA; Virginia Morales Olmos, Weyerhaeuser Company, Melo, Uruguay; Thomas Adams and James Turner, Scion Research, New Zealand Roger Lord, Mason, Bruce, & Girard, Portland, Oregon, USA; Jin Huang; Abt Associates, U.S.A., Robert Abt, NC State University, Raleigh, NC, USA

Abstract

Industrial timber plantations have formed the basis for an increasing forest-based manufacturing and export sector in many countries. We estimated financial returns in 2008 for timber investments in the primary timber plantation species in Argentina, Uruguay, Colombia, Venezuela, Paraguay, Chile, Brazil, China, South Africa, New Zealand, Indonesia, and the United States. Excluding land costs, returns for exotic plantations in almost all of South America—Brazil, Argentina, Uruguay, Chile, Colombia, Venezuela, and Paraguay—were substantial, with an internal rate of return (IRR) of more than 15%. *Eucalyptus* species returns were generally greater than those for *Pinus* species, with most having IRRs of 20% or more, as did teak. *Pinus* species in South America were generally closer to 15%, except in Argentina, where they were 20%. The land expectation values (LEVs) varied more, and they are the best criterion for capital budgeting given a known discount rate. Using LEV and a 8% discount rate, *eucalypts* and teak in South America still had the best returns, but with more variation. Internal rates of return were less, but still attractive for plantations of coniferous or deciduous species in China, South Africa, New Zealand, Indonesia, and the United States, ranging from 7% to 12%. New Zealand, the United States, and Chile had the best rankings regarding risk from political, commercial, war, or government actions. Conversely, Venezuela, Indonesia, Colombia, and Argentina have high risk ratings. Brazil, South Africa, and Uruguay had intermediate risk ratings. New Zealand was ranked as the easiest country in the world to do business in, and the U.S. was second, and Chile and Colombia ranked well. Brazil, Indonesia, and Venezuela were ranked as among the more difficult countries in the world for ease of business. Investors must consider tradeoffs of greater potential returns, forest regulations, risk, and business security in making capital allocation decisions.

Keywords: timber, plantations, investment returns, world, capital budgeting

[1] North Carolina State University, Raleigh, NC, 27695-8008, (706) 515-7789, fredcubbage@yahoo.com or fred_cubbage@ncsu.edu

Introduction

Forest plantations in the world have increased in area and provide the principal source of timber for sawtimber and panels, as well as the production of pulp and paper in many countries. Plantations for industrial wood are projected to provide as much as two-thirds to 80 percent of the world's industrial wood supply by 2030 (Carle and Holmgren 2008). This increase in forest plantations is based on many factors, including timber investment returns, government policies, and investment risks. We analyzed these factors to assess the comparative advantage among many of the principal countries in the world that produce industrial forest plantations.

Methods

In this research, we developed new analyses of timber plantation investment returns for the principal plantation countries and reviewed selected country risk and business climate estimates. Estimates of returns to forest plantation investments were made for typical forest species and average forest productivity rates were determined based on the knowledge of the authors in interviews and consultations with other experts in each country. This approach drew from prior research by Cubbage et al. (2007) and Sedjo (1983, 1999), which estimated plantation and natural stand investment returns based on representative stands and management regimes for important timber producing countries in the world. We used 2008 as a base year for comparison—before the recent global financial recession.

Investment returns were calculated assuming typical forest management practices with good sites and good management. Better sites and management could yield significantly higher growth rates than those that we used as our base case, and vice versa. The base case timber investment returns were made without any land costs—simply assuming that landowners already had purchased forest land and needed to make reinvestment decisions. Nor were taxes or other government policy interventions included in the base case. The calculations reported here only include the base factor costs, production rates, and timber stumpage prices. This then provided a base investment return calculation per hectare of planted land. We did not use land prices to make sure that the timber investment returns were as comparable as possible among countries based on timber productivity and factor costs and prices.

We analyzed the returns to these timber investments using standard capital budgeting techniques and criteria, including net present value (NPV), land or soil expectation value (LEV, SEV, or the Faustman formula), and internal rate of return (IRR), with an 8% discount rate as a common metric for analyses.

Various sources provide estimates of country risk from political or economic hazards. For consistency, this study used data from the Belgium Export Credit Agency (ONDD 2009), which is clear and concise. This source rates countries for their political risk related to export transactions and for direct investment, on a scale ranging from 1 (very safe) to 7 (very dangerous). We also collected data from the World Bank on the ease of doing business, which ranked all the major countries in the world from 1 to 181 in order for several factors. These provide measures of business climate and security, which may be more important than potential high rates of return in some countries.

Results

Timber Plantation Investment Returns.— Timber growth and yield, forest establishment and management costs, and timber prices determined the rates of return for investments in the countries we examined. Table 1 summarizes capital budgeting criteria for the principal plantation species in the southern hemisphere and in the United States and China in 2008. Establishment costs excluding the price of land among countries varied moderately, averaging about $957 per ha, with a standard deviation of $373. Establishment costs ranged from $500 per ha at the least—for *Eucalyptus globulus* in Uruguay, *Gmelina arborea* in Venezuela, *Pinus radiata* pulpwood in Chile—to $1300 per ha for Douglas fir in the United States and $1800 per ha for *Pinus tecunumanii* and *Eucalyptus* in Colombia. Timber prices varied more by species and country, with stumpage prices for pulpwood varying from about $5 to $20 per m^3 in most cases, chip-n-saw ranging from $25 to $50 per m^3, and small sawtimber ranging from $22 to $55 per m^3. Teak (*Tectona grandis*) prices were much greater than this, at up to $220 per m^3 in Venezuela (with a 21 year rotation) or $900 per m^3 (with a 60 year rotation) in Indonesia—with the difference due to better quality of wood in Indonesia.

Excluding land costs, exotic plantations in almost all of South America—Brazil, Argentina, Uruguay, Chile, Colombia, Venezuela, and Paraguay—were quite attractive, with an internal rate of return (IRR) of more than 15%. *Eucalyptus* species returns were generally greater than those for *Pinus* species, with most having IRRs of 20% or more, as did teak. *Pinus* species in South America were generally closer to 15%, except in Argentina, where they were 20%. Almost all of these IRRs were greater than found by Cubbage et al. (2007) based on costs and prices in 2005.

The land expectation values (LEVs) varied more, and they are the best criterion for capital budgeting given a known discount rate. Using LEV, *eucalyptus* and teak in South America still had the best returns, but with more variation. Internal rates of return were less, but still attractive for plantations of coniferous or deciduous species in China, South Africa, New Zealand, Indonesia, and the United States, ranging from 7% to 12%. These IRRs are less than the excellent ones calculated for South America, but are still attractive compared with other asset classes, especially compared with returns in late 2008 through mid-2009. Timber prices decreased in 2008 and 2009 as well, but total land and timber market values remained at historically high levels, at least in the United States.

Net present values (NPV) and land expectation values (LEV) at the 8% discount rate tracked these results. Brazil generally had the greatest LEVs—an indicator of what one could pay for bare land and make a return equal to or better than the discount rate. *Eucalyptus grandis* sawtimber had an LEV approximately $8300 per ha; *Pinus taeda* $5000/ha; *Pinus eliottii* $2900/ha. Colombia had the next highest LEVs, at $5300 for *Eucalyptus* and *Pinus tecunumanii* and $4100 for *Pinus maximinoi*. Argentina had the next highest LEVs as a whole for the country, at about $3200 per ha for *Pinus taeda* and *Eucalyptus grandis*. Chile had high LEVs for the best sites and valuable *Pinus radiata*, at $2700 per ha, but poorer sites with pulpwood had lesser LEVs, at $600 per ha. Venezuela and Paraguay also had quite large LEVs, ranging from $1500 to $4000 per ha, except for teak, at $9800 per ha. Uruguay and South Africa had LEVs ranging from about $1000 per ha to $3000 per ha. Meanwhile, China, New Zealand, and the two

U.S. regions barely met or were less than the 8% rate of return for timber investments, without any land costs, so they had small or slightly negative LEVs.

Table 1. Financial Returns to Selected Forest Plantations in the World, 8% Discount Rate, 2008

Country	**Species**	**Net Present Value ($/ha)**	**Land Expectation Value ($/ha)**	**Internal Rate of Return (%)**
Argentina	*Pinus taeda* – Misiones	2401	3202	20.0
	Eucalyptus grandis	2176	3178	18.2
Brazil	*Pinus taeda*	3590	5242	20.8
	Pinus eliottii	2389	2928	16.3
	Eucalyptus grandis	5690	8311	25.5
Chile	*Pinus radiata* – sawtimber, good sites	2270	2782	15.6
	Pinus radiata – pulpwood, poor sites	633	894	13.1
China	*Pinus massoniana*	73	92	12.1
Colombia	*Pinus maximinoi*	3189	4125	14.7
	Pinus tecunumanii	4133	5353	15.5
	Pinus patula	1225	1594	11.2
	Eucalyptus grandis or *E. saligna*	4133	5380	16.6
Indonesia	*Tectona grandis* – government prices	-95	-96	7.8
	Tectona grandis – market price	1833	1851	11.2
New Zealand	*Pinus radiate*	-204	-230	7.6
Paraguay	*Pinus taeda* – Parana Basin	1294	1648	12.0
	Eucalyptus grandis – Parana Basin	2552	4233	21.4
	Euc.camaldulensis – Parana Basin	1207	2002	15.4
S Africa	*Pinus patula*	1677	1862	11.1
	Eucalyptus grandis	2256	2872	12.4
Uruguay	*Eucalyptus grandis*	984	1389	13.9
	Eucalyptus globules	1179	2358	22.9
	Pinus taeda	883	1048	12.8
U.S.A.	*Pinus taeda* – U.S. South	151	171	8.5
	Pseudotsuga menziesii – Pacific NW	-28	-29	8.0
Venezuela	*Eucalyptus grandis* x *urophylla*	1075	2095	22.4
	Gmelina arborea	460	1439	18.8
	Pinus caribaea – western Venezuela	1510	2504	15.0
	Tectona grandis	7693	9600	21.2

The results are interesting, because they indicate large potential returns are possible in countries that have not had much external timber plantation investments to date, such as Colombia, Venezuela, and Paraguay, compared to countries with large plantation areas such as the U.S., New Zealand, South Africa, and Uruguay that appear to have slightly lower, albeit attractive

rates of return. This suggests that factors such as low risks and good business climates still are the most important factors in extended, enduring industrial wood plantation programs. This makes sense given the long term nature of forestry investments. Brazil seems to combine the best timber investment rates of return with the strongest markets throughout the country for an extended period of time. In all countries, proximity to markets also remains important, since forest products still have relatively low value to weight ratios, and land transport and ocean shipping costs are significant. Other challenges influence timber investments, as noted below.

Political and Economic Risk.—Perceived and actual financial and political risks are perhaps some of the most important factors affecting timber and forest products investments. Two data sources used to estimate financial and political risk (financial, regulatory or political events that contribute to a company's operational risks) by country are summarized below.

Export Transactions and Direct Investments.—The Belgium Export Credit Agency (ONDD 2009) provides a clear rating of countries for their political risk related to export transactions and for direct investment, on a scale ranging from 1 (very safe) to 7 (very dangerous), or A (best) to C (worst). Six criteria for risk are summarized in Table 2 for each country in our sample.

Table 2. Country Risk Ratings for Selected Countries, 2009

	Export Transactions				Direct Investments		
Country	Political Risk – Short Term	Political Risk – Long Term	Commercial Risk		War Risk	Risk of Expropriation/ Government Action	Transfer Risk
Argentina	4	7	C		3	4	6
Brazil	2	3	C		2	2	3
Chile	2	2	A		1	1	2
China	1	2	C		2	4	2
Colombia	2	4	C		5	3	4
Indonesia	2	5	C		2	5	3
New Zealand	1	1	B		1	1	1
Paraguay	3	5	C		3	4	5
South Africa	3	3	C		2	2	3
United States	1	1	C		1	1	1
Uruguay	3	4	B		2	2	4
Venezuela	4	6	C		4	7	5

Source: ONDD 2009

For export transactions (ONDD 2009), the short term political risk in each country was small to medium, with developed countries in the northern hemisphere having the least risk (1), and Argentina and Venezuela having the greatest (4). Long term political risk, which is important for forestry investments, was generally greater for each non-northern developed country except Chile, which remained low (2). In fact, Argentina (7) and Venezuela (6) had the greatest political risks, perhaps due to fears of more export bans or large export taxes such as occurred in

Argentina in 2008. Chile had the best commercial risk ratings of all countries selected, with an A grade. The United States, New Zealand, and Uruguay had a commercial risk rating of B, and the rest had a C rating.

For direct investments, war risk was rated highest in Colombia (5) and Venezuela (4). Venezuela was the most risky for risk of expropriation and government action (7), and in fact just expropriated 1500 ha of forest industry land in March, 2009. Venezuela is followed by Indonesia (5), and Argentina, Paraguay, and Russia (4). The United States, Chile, and New Zealand had the least risk of expropriation (1), and South Africa and Brazil were ranked with a 2. The transfer risk was greatest in Argentina, Venezuela, and Paraguay.

Ease of Doing Business.—The World Bank (2009) rated the ease of doing business in the same countries. Out of 181 countries, New Zealand is ranked as the second best country in the world in terms of ease of doing business, and the United States is ranked third. South Africa (32), Chile (40), and Colombia (53) also are ranked highly, followed by China (83) in the selected forest plantation countries. Conversely, Venezuela (174), Indonesia (129), and Brazil (125) are among the lower third of the ranked countries in the world.

Starting a business was ranked as very difficult in Indonesia, China, Venezuela, Argentina, and perhaps Brazil. Registering property was actually better in most countries, although Uruguay Brazil, and Indonesia were in the bottom half of the rankings. Venezuela was ranked the worst by far at protecting investors, and most of the developing countries except Chile were ranked as difficult in terms of paying taxes. Trading across borders was easier in developed countries, and ranked as difficult in most developing countries. Enforcing contracts was ranked best in the United States and New Zealand and worst in Colombia and Indonesia. Last, a little known problem with businesses is the ability to close them legally, which was ranked as very hard in Venezuela, Indonesia, and Brazil, and best in the developed countries.

Experience indicates that these deceivingly neutral rankings imply a large amount of difficulty in the countries that have large numbers. Not to single out any country, but ranks above 100 generally imply considerable difficulty and expense and time in their category, and ranks in the upper quartile of 135 or more infer large difficulties and perhaps high risks of failure to perform the desired business activity. Conversely of course, small numerical ranks in the lower quartile of less than 45 indicate countries and business activities with relative security and confidence that can be performed at comparatively modest effort and cost. While many of the developed northern hemisphere countries, as well as New Zealand and South Africa, timber investment returns are less, the costs of doing business may make net returns much closer, and the exposure to risk of loss much less.

Discussion and Conclusions

The results indicate that based on large biological productivities, reasonable input costs, good timber prices, and strong timber and product markets, Brazil usually maintains comparative financial advantages in the forest products sector, at least without considering land costs and the other business investment factors. Three other Latin American countries have expanded timber production capacity substantially in the last four decades, including Chile, Argentina, and

Uruguay, in that order of timber plantation area. In fact, since 1960, Latin America has increased its share from 3% to 10% of the world industrial wood production (Gonzalez et al. 2008). The rates of return are high for vertically integrated forest products firms; domestic markets have increased moderately; and production is often close to export markets while infrastructure is improving. Carle and Holmgren (2008) also concluded that South America and Asia have the most promise for increased plantation area in their analysis of future plantation scenarios.

However, Brazil and Chile at least have substantial environmental rules and regulations affecting forest operations, and substantial enforcement agencies, albeit not always consistent implementation. Furthermore, Brazil is ranked as the hardest country in the Americas to start a business in terms of number of days and number of procedures (World Bank 2007), and has a challenging system of business, environmental, tax, and other laws, which require high transaction costs and close attention to details.

As an excellent example, Leal (2008) noted that the type of legal vehicle—real estate fund, investment fund, or company/corporation—determined the best tax treatments in Brazil, with the best system depending on the size of the investment. Brazil has a dual tax regime for corporations; the effective tax rate depends not only on profits but also on revenues; and the stability of tax law depends on the organizational model; which in turn affects whether it is better to sell stumpage or delivered wood. The effective tax rate may vary between as little as 5% to 34% depending on how an investment deal is structured, and the tax regime and legal set up should be defined for each investment.

Leal (2008) also noted that social responsibility is a passport to success in Brazil. Local community support is an enabler of regulatory licenses, helping prevent problems, accelerate licenses, and reducing possibility of theft, strike, and labor claims. The poorer the region, the more important social responsibility becomes to the return on investment. Similarly, Daniels and Caulfield (2008) stressed the advantages of forest certification for timberland investors in Latin America. In the countries where the laws or the enforcement are weak, certification provides investors certainty that their timberlands are managed to high standards. Forest certification does have costs, but can provide access to international financing and bank loans for developing countries. And in some cases, wood can be sold only if it is certified.

Chile and perhaps Uruguay seem to have more stable, efficient, and transparent business laws, particularly for foreign investors. Argentina has excellent land and growth rates and moderate environmental laws, but has a populist government that defaulted on the national debt in 2001; instituted large taxes on exports of agricultural products in 2008; and forbade timber exports to Uruguay from the bordering Entre Rios province, which have contributed to a higher political risk rating. On the other hand, Argentina has some of the most competitive free markets for timber in Latin America, with hundreds of small sawmills and many small landowners in its Northeastern wood basket provinces of Misiones and Corrientes. Chile lacks much available land for new forest investments, and has some of the strictest forest laws in Latin America. Uruguay has land purchase opportunities, but they are becoming scarcer and land prices have increased considerably. Uruguay has a smaller market for sawlogs to date, but like many other countries, has increasing potential for biomass facilities.

Smaller countries such as Colombia, Paraguay, and Venezuela all seem to have potentially attractive financial returns, and their opportunities will be defined mostly by political and safety considerations. The ascension of Hugo Chavez and no term limits in Venezuela will deter most external and even internal investors. Paraguay could attract more foreign direct investment if the government follows the centrist socialist path such as Uruguay. And Colombia appears quite attractive if the government can continue to maintain and enhance security of investments and investors in the country. Higher political risk factors in these countries must decrease to attract foreign direct investment, but Colombia at least also has some internal capacity to generate capital.

In the more developed countries in other parts of the Southern Hemisphere—South Africa and New Zealand, and perhaps Australia—the rates of timber investment returns are moderate, and industrial wood costs should be slightly greater than in South America, but still attractive. New Zealand had the second best business climate in the world, which has attracted a large amount of capital to their forest sector. Each country does have moderate environmental regulations, and a large amount of certified forests as a share of the area. But they have less land available for new investments as well. Temperate timber plantation investments on existing forest land, such as in New Zealand, the United States, and China, achieve about a 8% real internal rate of return, which still look quite attractive compared to other sector's investments as of 2009. The business climate in the U.S. was ranked highly, as is China's.

Other government interventions and infrastructure may affect investments as well, which we did not examine here. Some countries still have subsidies for forest plantations, at least for small landowners, such as Chile and Argentina. Infrastructure such as roads, phytosanitary regulations, and fire control may have large effects on security as well as market access. Government support for education, research, exports, and business development differ as well. These factors also affect forest investment returns and risk, which should be considered.

The results provide new insights about planted timber investment returns for a wide range of major countries in the world. They are limited by reasonable assumptions, most notably not including land as a factor cost. Land prices were considered too variable within countries, and good data also are lacking. At the every least, land costs would reduce the high internal rates of return and land expectation values, unless it appreciated at rates greater than the IRR or discount rate, respectively. Cubbage et al. (2007) performed some sensitivity on land prices and environmental regulations on a similar 2005 data set, and found that they did tend to reduce returns in Brazil most, and in Uruguay and the U.S. the least, making net returns more comparable. On the other hand, increases in factor costs or stumpage prices also could change returns, with Brazil and Chile having the most "upside" potential. In fact, returns in Brazil in this study increased the most since 2005 based on higher stumpage prices.

The market structure among different countries also will influence timber investment returns greatly. The U.S. has relatively competitive open markets for stumpage, and indeed vertically integrated forest product firms no longer exist. With one exception, major wood manufacturers now rely almost completely on market wood, although they often do have long term timber purchase agreements. Thus stumpage and delivered prices in the U.S. reflect reasonable

interaction among supply and demand from many competitors. Conversely, in Latin America, New Zealand, and South Africa, almost all of the plantations were initially planted just to provide wood for integrated timber lands and manufacturing facilities, at a minimum cost. The open markets have developed slowly afterwards and are often still quite thin. Open market stumpage or delivered to mill prices reflect probably only 25% or so on most areas in Latin America and Indonesia, so the prices are less reliable, except for Argentina, which has very competitive markets. Thus good locations for plantations, careful business arrangements, and perhaps some optimism, are required for an investor to actually achieve the high rates of return found in our research. This situation may change as more investors buy and plant timberland in these countries, such as Uruguay and Argentina, but still requires some faith that good markets and favorable public policies will occur in the future at time of harvest.

The results help explain why secure investments with seemingly moderate rates of return remain attractive, such as in the U.S. South, New Zealand, and South Africa. Simply put, low risk and good business climate appear to be at least as important as potential returns for attracting long term investments for large plantation areas in these countries. They suggest that the same can be true for developing countries, as has occurred in the four major Southern Cone countries to some extent, and is in process in China. Achieving such stability will be the key for other countries to attract foreign and domestic capital. The recent economic turmoil in late 2008 surely will affect relative comparative advantages among countries in the future, but the results of this research should be relatively robust and relevant at least until a return to global economic prosperity occurs.

Acknowledgments

Partial funding for this research was provided by the Southern Forest Resources Assessment Consortium (SOFAC); U.S. McIntire-Stennis funds; as well time provided by the organizations that each co-author is employed by.

Literature Cited

Carle, Jim and Peter Holmgren. 2008. Wood from planted forests: A global outlook 2005-2030. Forest Products Journal 58(12):6-18.

Cubbage, Frederick, Patricio Mac Donagh, José Sawinski Júnior, Rafael Rubilar, Pablo Donoso, Arnaldo Ferreira, Vitor Hoeflich, Virginia Morales Olmos, Gustavo Ferreira, Gustavo Balmelli, Jacek Siry, Mirta Noemi Báez, and José Alvarez. 2007. Timber investment returns for selected plantation and native forests in South America and the Southern United States. New Forests 33(3):237-255.

Daniels, C. and J. Caulfield. 2008. Timberland investing in South America. Presented at: Timberland Investing Latin America Summit. São Paulo, Brazil. March 3-4.

Gonzalez, Ronalds W., Daniel Saloni, Sudipta Dasmohapatra, and Frederick Cubbage. 2008. South America: industrial roundwood supply potential. BioResources 3(1):255-269.

Leal, Jose. 2008. How to maximize gains and diversify risks in forest investments in Brazil. Presented at: Timberland Investing Latin America Summit. São Paulo, Brazil. March 3-4.

ONDD. 2009. OND/ NDD – Country risks synthesizing chart. The Belgian Export Credit Agency. Accessed at: http://www.ondd.be/webondd/Website.nsf/HomePageEn(Visitor)?OpenForm. 26 February 2009.

Sedjo, R.A. 1983. The Comparative Economics of Plantation Forestry: A Global Assessment. Resources for the Future/Johns Hopkins Press. Baltimore. 161 p.

Sedjo, R.A. 1999. The potential of high-yield forestry for meeting timber needs. New Forests 17:339-359.

World Bank. 2007. World Development Indicator. Accessed at: www.devdata.worldbank.org. 27 July 2007.

World Bank. 2009. Ease of Doing Business – Spreadsheet. Accessed at: http://www.doingbusiness.org/economyrankings/?direction=Asc&sort=0. 26 February 2009.

Paper for the proceedings of Southern Forest Economics Workers Meeting (SOFEW); March 9-10, 2009, Chapel Hill, North Carolina; To be posted at: http://sofew.cfr.msstate.edu/, and for presentation at the World Forestry Congress, Buenos Aires, Argentina, October 24-30, 2009.

SOFEW_2009_Plantation_Investment_Returns_V9

Monetizing carbon credits for timberland:
Assess the impact of sequestered carbon on forest values and returns

---

Speaker:
Deborah Spalding, *Managing Partner*
WORKING LANDS INVESTMENT PARTNERS LLC

Deborah Spalding, CFA

Deborah is a founder and Managing Partner at Working Lands Investment Partners, LLC which specializes in the investment and long term stewardship of sustainably managed working lands. She has worked in the financial industry for more than 16 years serving in senior executive positions in the US and overseas. Until 2007, Deborah was a Partner at Chaplin Global, LLC, an alternative asset management organization based in New York. Previously, she was Executive Director and Head of International Investments for Schroder Investment Management NA where she was lead portfolio manager of $6 billion in institutional client assets. Prior to this, she worked at Scudder Kemper Investments as Managing Director/Head of International Institutional Investments and lead portfolio manager for $10 billion in client assets. She began her career as a financial analyst at SKB & Associates responsible for the electric utilities, food, and building materials industries. She holds a Master of Forestry from Yale University, a MBA from the University of California, Berkeley, a MTS from Harvard University, and a BA from Tufts University. She has served on several boards including the National Wildlife Federation, where she is a member of the Executive Committee, the Connecticut Forest & Park Association, and the Guilford Land Conservation Trust. She is a trustee of the NWF Endowment and the Robert & Patricia Switzer Foundation, where she chairs the investment committee. She is a Chartered Financial Analyst (CFA).

dspalding@working-lands.com

WORKING LANDS
INVESTMENT PARTNERS, LLC

Monetizing Carbon Credits on Timberland

Deborah Spalding, CFA
FRA Timberland Investors' Forum
Atlanta, GA
July 30, 2009

Presentation Overview

- The role of environmental credits in timberland investments
- Carbon markets available to investors
- Navigating the forest carbon rules
- Structural and financial challenges
- Future opportunities

The Role of Environmental Credits

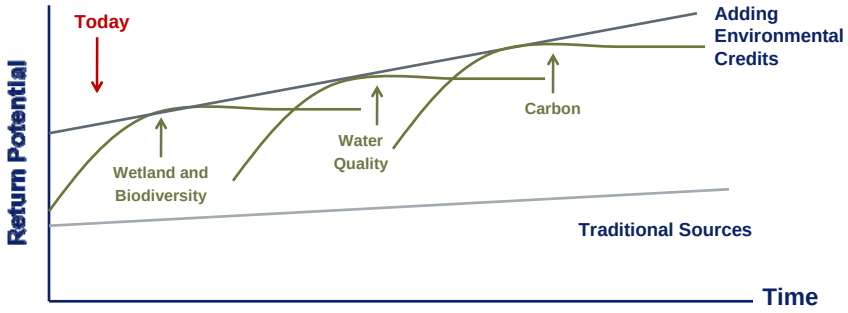
- Traditional markets do not fully compensate landowners for environmental values their lands provide
- Goals of environmental credit markets:
  - Financially reward landowners who keep environmental services in production
  - Mitigate human impacts on the environment
- Including these values in investment returns helps forests compete with other land uses

Characteristics of Traditional Markets

- Established product
  - Bushel of corn, ton of sawtimber
- Sufficient numbers of buyers and sellers
- Information transparency (volume and price)
- Price driven by supply and demand
- Mechanism for settling transactions
- Delivery risk on the supplier

Drivers of Market Returns

- Returns are expanding as markets develop
- Each environmental market is in a different development phase, creating a long tail of rapid growth potential



Types of Carbon Credits

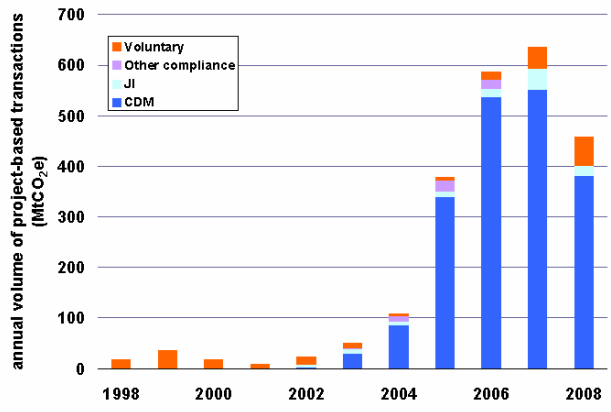
- Allowances vs. Offsets
  - *Allowances:* emission rights issued by governments under a compliance regime (Kyoto)
  - *Offsets:* emission reductions from a specific project that governments recognize
- Agriculture, Forestry and Land Use (AFOLU) projects generate carbon offsets

Size of Carbon Markets: 2008

	Volume MtCO2e	Value MUS$
Allowance Markets		
EU ETS	3,093	91,910
New South Wales	31	183
CCX	69	309
RGGI	65	246
AAUs	18	211
TOTAL	**3,276**	**92,859**
Project Based Markets		
Primary CDM	389	6,519
JI	20	294
Voluntary Market	54	397
TOTAL	**463**	**7,210**
Secondary Markets		
CDM	1,072	26,277
GRAND TOTAL	**4,811**	**126,346**

The World Bank, State and Trends of the Carbon Market 2009, Washington DC.

Carbon Offset Market Growth



The World Bank, State and Trends of the Carbon Market 2009, Washington DC.

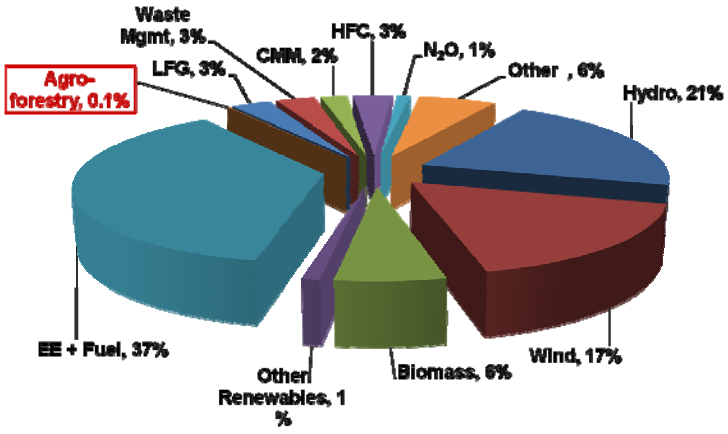
Rules Overview

- Eligibility
  - Varies by project type and starting date
- Basic requirements
  - Demonstrate additionality
  - Ensure against leakage
  - Maintain permanence
- Verification
  - Frequency and scope
- Accounting
  - Ex-post vs. ex-ante crediting
  - Crediting period

Forestry Offsets: What's Allowed Today

- Compliance Markets
  - Kyoto
    - Re/Afforestation under Clean Development Mechanism (CDM)
    - Use of "temporary" credits
  - Regional Greenhouse Gas Initiative (RGGI)
    - Afforestation only in model rule
    - No transactions to date
    - May expand to forest management and forest products in use

CDM Projects to Date (by Type)



The World Bank, State and Trends of the Carbon Market 2009, Washington DC.

Forestry Offsets: What's Allowed Today

- REDD: Reduced Emissions from Deforestation and Land Degradation
  - Emerged from lack of CDM support of avoided deforestation projects
  - Concerns about deflationary pricing pressure
    - Credits cheaper to produce than reforestation projects
  - Likely to be in successor to Kyoto Protocol

Forestry Offsets: What's Allowed Today

- California Climate Action Registry (CCAR)
  - Reforestation, improved forest management, avoided conversion
  - Baseline based on maximum allowable harvest
  - Issues tradable "CRTs" (Climate Reserve Tonnes or "carrots")
  - From voluntary standard to accepted protocol in 2012
  - From CA only to national standard
  - Convertible into "VCU" credits (one-way)
  - Standards now part of Climate Action Reserve (2009)

Climate Action Reserve in Detail

- Requirements for approval:
  - Real, additional, verifiable, permanent, enforceable
  - Project must have started after 2001
  - 100 year crediting period
- Current Market:
  - 69 Projects in 26 states
    - 8 Registered, 43 Listed, 21 Submitted
  - CRTs issued to date: 1,321,579
  - Average Price: $6.10/tonne

New Carbon Finance, Voluntary Carbon Index, cited in Climate Action Reserve Overview to NYMEX, June 2009,

CAR Current Projects

New Carbon Finance, Voluntary Carbon Index, cited in Climate Action Reserve Overview to NYMEX, June 2009.

Choosing a Carbon Standard

- Voluntary Market Standards
  - Voluntary Carbon Standard (VCS)
  - Climate, Community & Biodiversity Alliance (CCB)
  - American Carbon Registry (ACR)
  - The Gold Standard
  - VER+
  - CarbonFix

Variations by Standard

- Voluntary Carbon Standard (VCS)
  - Scope: A/R, forest management, REDD, multiple land uses in one project
  - Final rules issued November, 2008
  - Methodologies similar to CDM hurdles
  - Premium prices paid for credits
  - Concerns about “buffer reserve” for permanence
  - Transaction costs: two independent audits required
  - Credits issued ex-post basis

Variations by Standard

- CarbonFix
  - Seeks to incorporate wider benefits of CCB and issue credits
  - Allows ex-ante credits
    - » Lower transaction costs
    - » Pushback from environmentalists
  - Accepts CCB and FSC verified credits
  - Low upfront fees with high back end loaded charges (€50 per credit) after credit sale

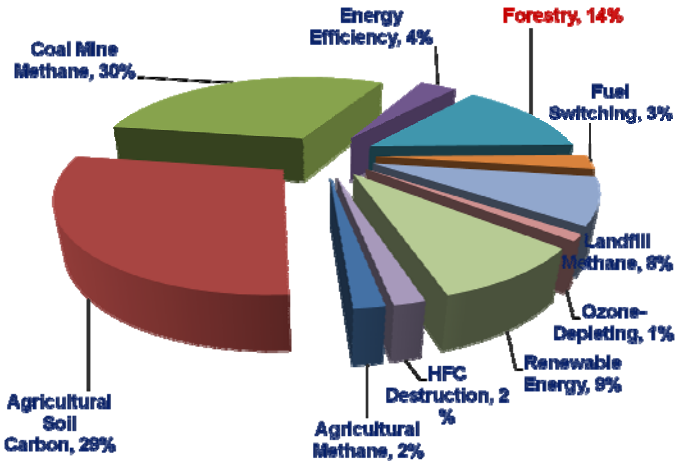
Variations by Standard

- American Carbon Registry
  - Scope: A/R, REDD, improved forest management
  - Verification every five years
  - Buffer reserve for permanence need not be land based (other project type or insurance)
  - Issues ex-post credits

Transacting in Forest Carbon

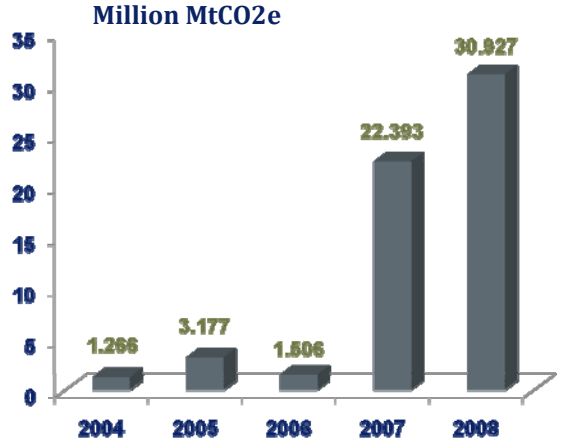
- Exchange-based Transactions
  - Example: Chicago Climate Exchange (CCX)
- Over the Counter Transactions
  - Contract between buyer and seller

CCX Offsets to Date (2009)



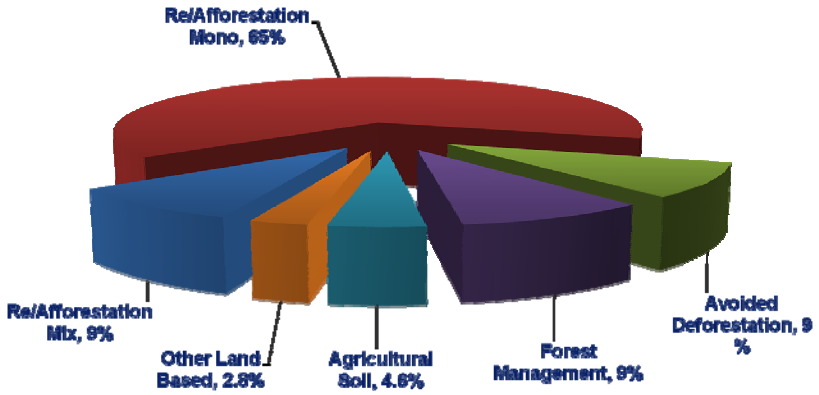
Chicago Climate Exchange, CCX Offset Report, Vol. 1, No. 1, January, 2009.

CCX Offset Project Growth



Chicago Climate Exchange, CCX Offset Report, Vol. 1, No. 1, January, 2009.

2008 OTC Land Based Offsets by Type



Hamilton, K., et al., Fortifying the Foundation: State of the Voluntary Carbon Markets 2009.

The Role of Aggregators

- Example: National Carbon Offset Coalition
- Positives:
  - Helps to overcome scale issues
  - Creates liquidity
  - Advocate for smaller landowners
  - Access to member only registries/exchanges
- Negatives
  - Middleman: additional layer of fees (10%+)
  - Land encumbrance may be unattractive for some

Market Challenges

- Credibility (short term)
  - Carbon sequestration process more complex
  - Risk of disturbance loss
- Credibility (long term)
  - Markets after Kyoto ends in 2012
  - Requires US federal “cap and trade” market
- Transaction Costs
  - Project development costs often upfront
  - Annual verification cycles often uneconomic

Financial Challenges For Investors

- High transaction costs
  - Upfront costs for future revenues
- Returns tradeoffs vs. other activities
- Scale (small projects may be uneconomic)
- Project conflicts/tradeoffs with other goals
- May unduly encumber the land
- Are current carbon prices attractive given the risks?

Roadmap for Land Investors

- Develop clear management objectives
- Recognize the market is in flux
- Identify opportunities consistent with goals
- Understand the tradeoffs
- Implement a comprehensive stewardship plan
- Pick a point of entry with realistic expectations

Factors to Watch

- Development of standards
- Emergence of secondary market
- Availability of risk management tools
- Greater flexibility to implement multiple projects and types
- Improved transparency

Thank you

Exploring innovative ways to capitalize on timberland: Can investments in conservation easements, ecosystems and recreational land uses be profitable?

Speakers:
James Hubbard, *Forest Service, Deputy Chief*
STATE AND PRIVATE FORESTRY

Peter Stein, *Manager*
LYME TIMBER

Scott Mooney, *Vice President Acquisitions*
CONSERVATION FORESTRY LLC

Biographical Sketch
James E. Hubbard

In January 2006, James E. Hubbard stepped into the position of U.S. Forest Service Deputy Chief for State and Private Forestry, with responsibility for Fire and Aviation Management, Cooperative Forestry Programs, Forest Health Protection, Conservation Education, Urban and Community Forestry, and the Office of Tribal Relations.

Jim comes to the U. S. Forest Service after serving as the Director of the Office of Wildland Fire Coordination with the Department of the Interior. In this position he had oversight for the implementation of the National Fire Plan.

Jim was a member of the Colorado Forest Service for over 34 years before coming to Federal Service in 2004. He served as Colorado State Forester from 1984 until 2004. As State Forester he held Governor-appointed positions on numerous natural resources committees and chaired the working group on Wildland-Urban Interface Fire as well as the Governor's Conference on Forest Health. He was a member of the National Research Council Study on nonfederal forestry in the United States.

During his tenure as Colorado State Forester, Jim served as President of the National Association of State Foresters (NASF), chaired the Council of Western State Foresters and as Liaison to the Western Governor's Association.

He holds a Bachelor of Science degree in Forest Management from Colorado State University and is an Honor Alum of the College of Natural Resources.

Hubbard grew up in Neodesha, rural Kansas, where he enjoyed working the land. He and his wife Cindy have three grown daughters.

Innovative Ways to Capitalize on Timberland:

Making Investments in Forest Land Profitable?

Timberland Investor's Forum, Atlanta, Georgia

James E. Hubbard
Deputy Chief, State & Private Forestry USDA Forest Service

July 30, 2009

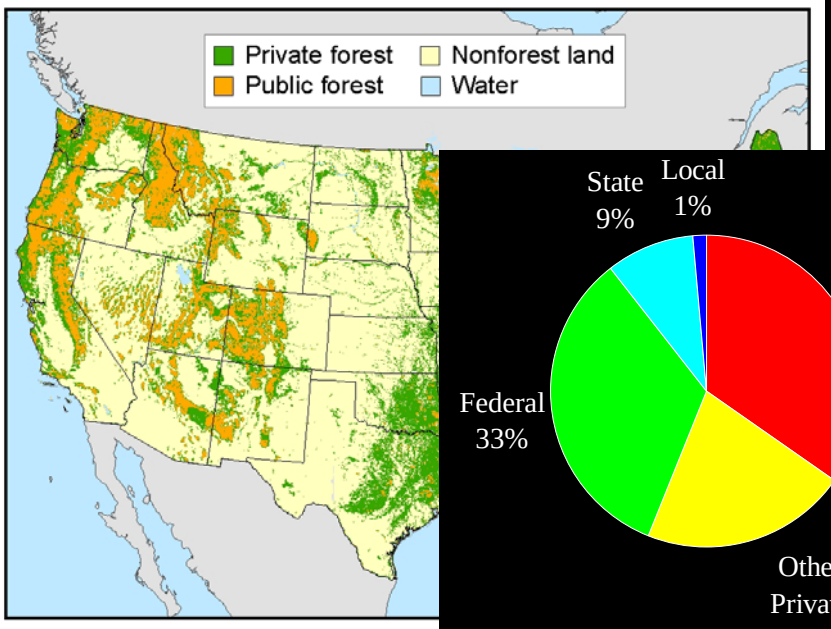
Forests Provide Numerous Benefits

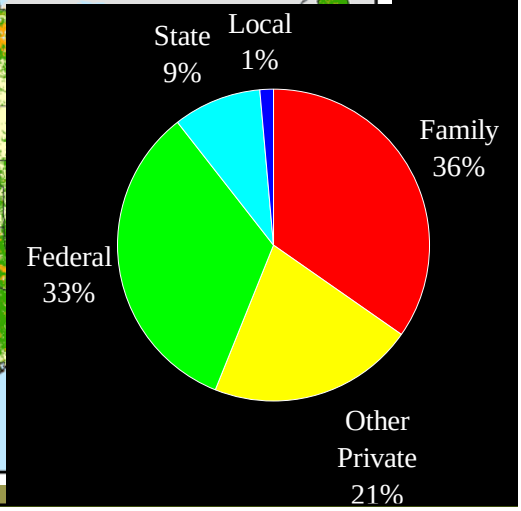
Threats and Emerging Issues:

- Loss of forest and open space
- Wildfires
- Insects and Disease
- Increasing Demands
- Changing Climate

2

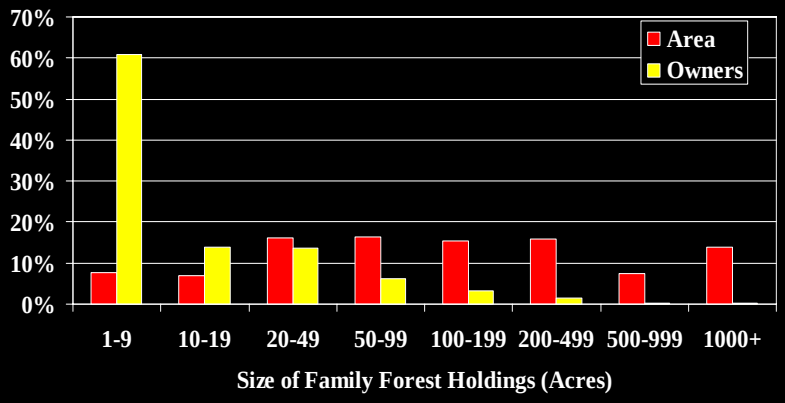
U.S. Forest Ownership





Size of Forest Holdings

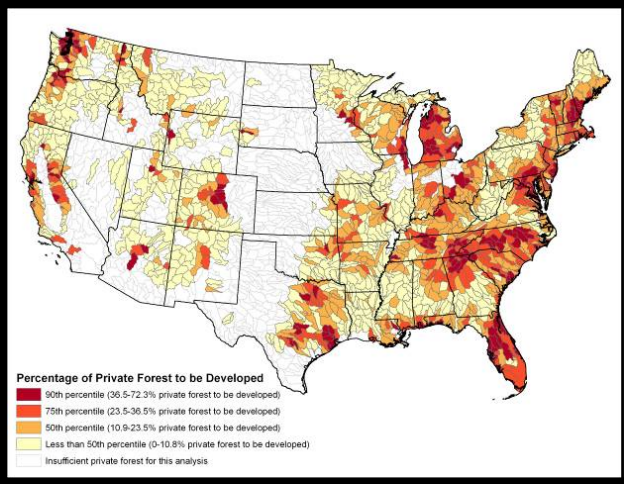
United States, 2006



4

Southern Forest Land Snapshot

- Forest Land
- Timber
- Water
- Habitat



5

National Level Approach

- Conserve Working Forest Landscapes
- Protect Forests from Harm
- Enhance Public Benefits

6

State Forest Resource Assessments

2008 Farm Bill

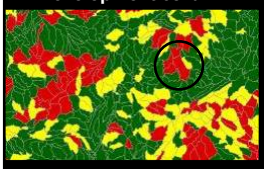
National Association of State Foresters

- Requires State Assessments and Resource Strategies
- Replaces other planning requirements
- 2 years to complete (June 2010)

7

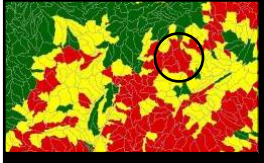
Sample State Assessment Results:

Development 65%

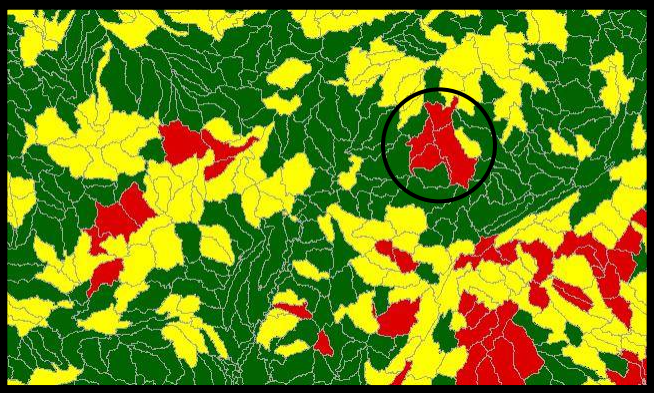


Woody Biomass 22%

Fragmentation 13%



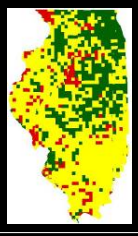
Conserve Working Forest Land



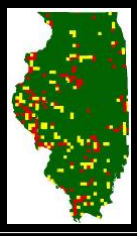
High Moderate Low

8

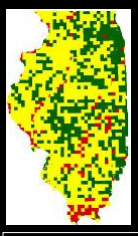
Sample State Assessment Results



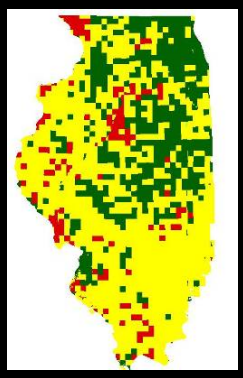
Conserve Working Forests



Protect Forests from Harm



Enhance Public Benefits



Composite

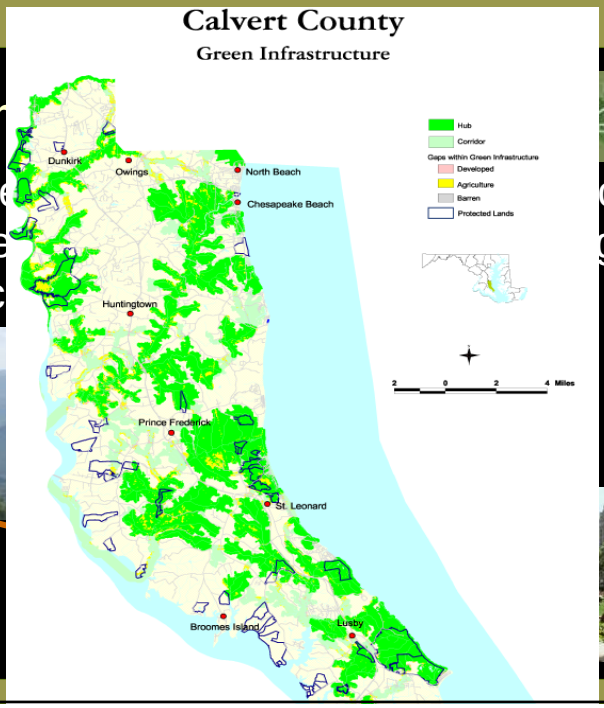
High Moderate Low

9

Green

- Syste
  prote
  spac

ch to
green



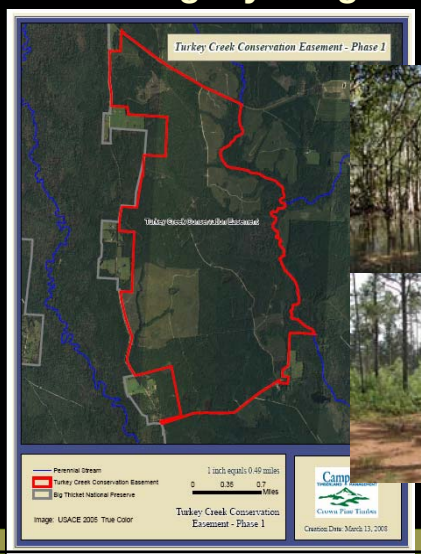
10

Conservation Easements:
Investments in the Forest Legacy Program

Texas - Turkey Creek Forest Legacy Project:

- **Timber Management**
- **Drinking Water**
- **Biodiversity**
- **Recreation**

Forest Legacy contribution: 3.5 million. Total project cost: 5.6 million



11

What are ecosystem services?

The benefits **people** obtain from **nature**…

Marketable **Non-Marketable**

$$$$	$$$	$$	$	Priceless

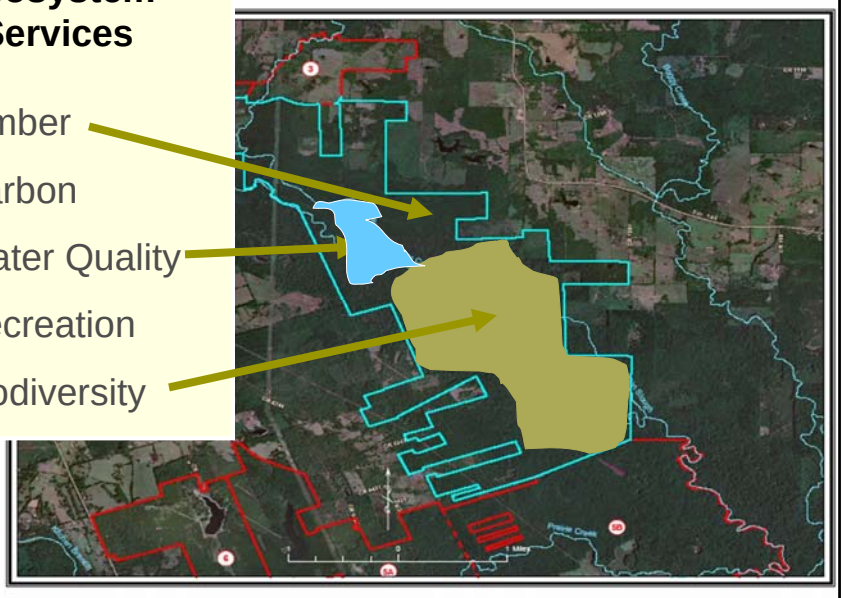
12

Potential for ecosystem service markets and conservation programs

13

Private Forest Ecosystem Services

- Timber
- Carbon
- Water Quality
- Recreation
- Biodiversity



14

A Portfolio of Forestland Assets

Easement Sale	Sustainable Forestry	Recreation Lease	Biodiversity Mitigation	Carbon Sequestration
2000 acres Appraised value/acre: $300 Transaction Cost: $30,000	Timber harvest: $2000/ac Leave Timber : $500/ac, 8% Growth 3% price inflation	Hunting Lease rate/acre: $10 Insurance cost/ac: $1.50	Investment: $500,000 Wetland: credit: 875@ $12,000/ac T&E credit: 12 @ $2600/ac	Enhanced Forest Mgmt: 2400 tons @ $4/ton Tree Planting: 18 @ $6/ac/year

15

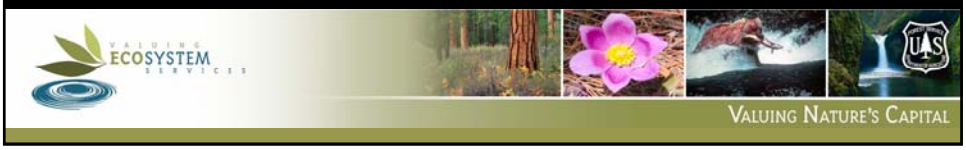
"The crux of the land problem is to show how integrated use is possible on private farms and forests, and that such integration can be mutually advantageous to the owner and the public."

- Aldo Leopold, 1935

16

www.fs.fed.us/spf/coop/

www.fs.fed.us/ecosystemservices



Peter R. Stein
Managing Director
The Lyme Timber Company
LTC Conservation Advisory Services
23 South Main Street – 3rd Floor
Hanover, New Hampshire 03755
Tel. 603-643-3300 Ext. 112
Fax. 603-643-0331
E-mail: peterstein@lymetimber.com
Website: www.lymetimber.com

Mr. Stein is a Managing Director at The Lyme Timber Company, a timberland investment management organization based in Hanover, New Hampshire and is responsible for the design and management of large scale forestland purchases in cooperation with regional and national land conservation organizations. These investments are made through the Lyme Northern Forest Fund L.P. and The Lyme Forest Fund, L.P. that currently own more than 650,000 acres in Maine, New Hampshire, Pennsylvania, Massachusetts, Tennessee and New York. Lyme received the New York State Department of Environmental Conservation 2006 Environmental Excellence Award for the innovative partnership with The Nature Conservancy to protect and balance the environmental and land-use interests of multiple stakeholders in the 105,000 acre Domtar lands acquisition in 2004.

In addition, Mr. Stein manages LTC Conservation Advisory Services, Lyme's consulting business, which assists individual, corporate and family landowners in the design and implementation of conservation land transactions and provides land conservation grant-making design and implementation support to the Doris Duke Charitable Foundation and a few family foundations. Prior to joining the Company in 1990, he was Senior Vice-President of the Trust for Public Land where he directed their conservation real estate acquisition activities in the Northeast and Midwest. Current non-profit organization Board memberships include Island Press and Hubbard Brook Research Foundation. In addition, he is a Commissioner of the newly created Land Trust Accreditation Commission. He also serves as a member of the Advisory Board of Rose Smart Growth Real Estate Fund No. 1. Mr. Stein received a B.A., with highest honors, from the University of California at Santa Cruz, 1975 and a Loeb Fellowship in Advanced Environmental Studies, Harvard University, 1981. Mr. Stein lives in Norwich, VT and is married to Lisa Cashdan, a senior philanthropic advisor with the Vermont Community Foundation. They have two children, Ali and Willy and a Golden Retriever, Otis.

The Lyme Timber Company

Presentation to

Timberland Investors' Forum

July 30th, 2009

Peter R. Stein
Managing Director
The Lyme Timber Company
LTC Conservation Advisory Services
23 South Main Street-3rd Floor
Hanover, NH 03755
Tel. 603-643-3300 x 112 Fax 603-643-0331
E-mail: peterstein@lymetimber.com
www.lymetimber.com

The Lyme Timber Company

The Lyme Timber Company

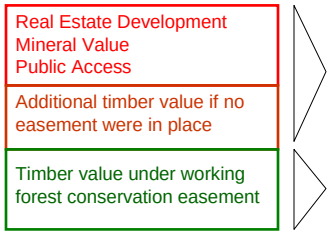
The Lyme Timber Company

Lyme Timber is a family of funds, 2 of which focus exclusively on "high conservation value" forests. Our historic investment niche has been the Northeast, Middle Atlantic and Upper Midwest, but we are now active in the Southern Appalachians (Tennessee). We are now raising our third fund.

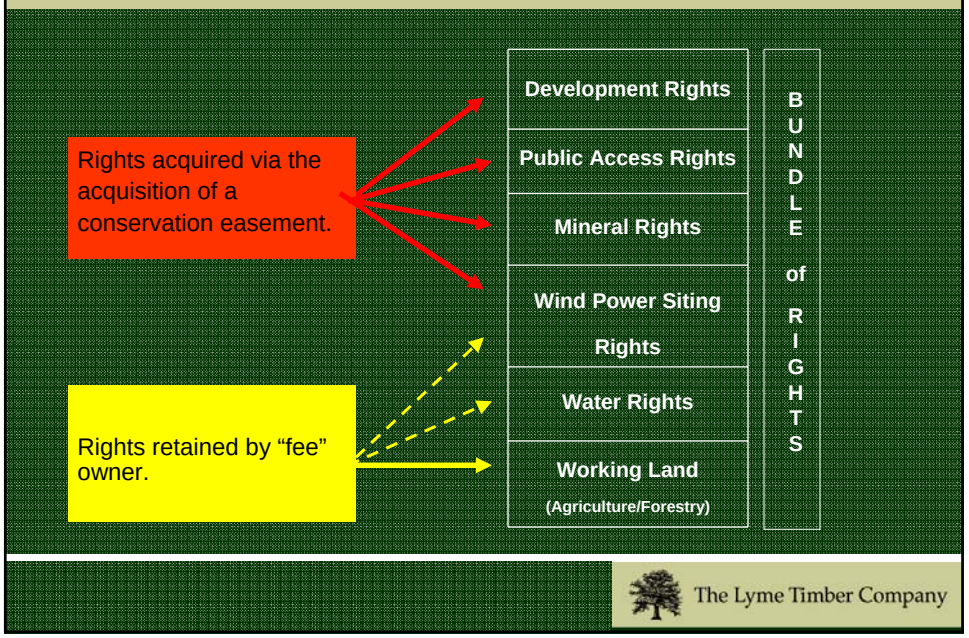
Lyme's Niche Among Timberland Investors

Lyme's Niche…

- We specialize in conservation: we are comfortable working with conservation organizations and state agencies. We are comfortable owning and managing lands encumbered by working forest conservation easements.
- We generally do not speculate on real estate or mineral appreciation. We are investors in timberland, not real estate developers.
- When the real estate development value of a property is significant relative to its timber value, we either avoid the property or we work with a conservation partner that wants to protect the property from development.



What is a Conservation Easement?

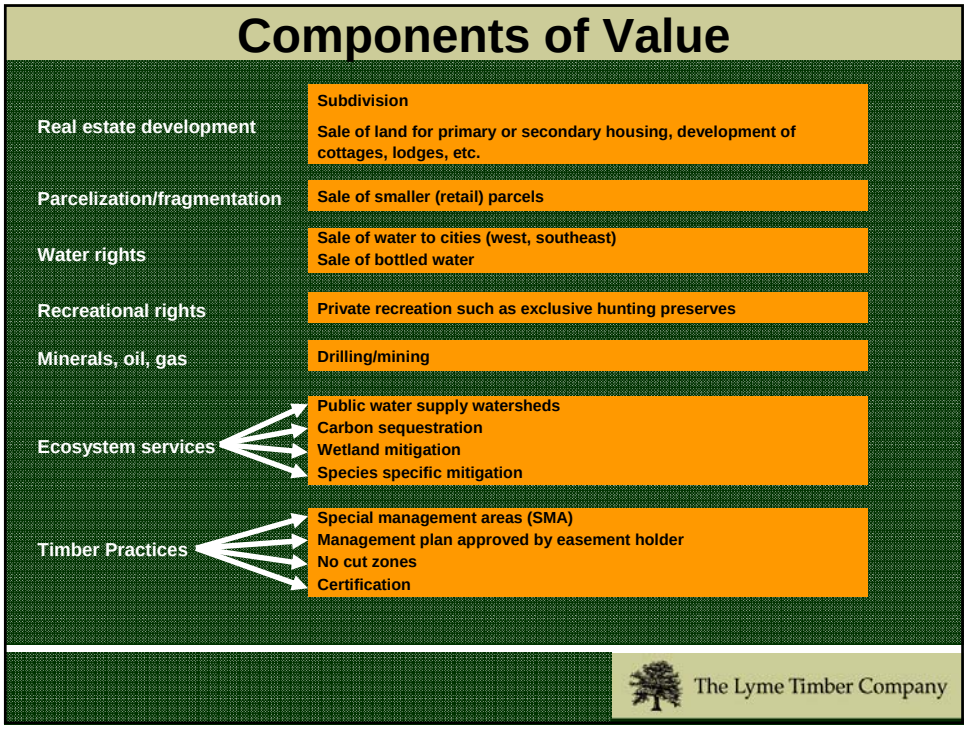


The Lyme Timber Company

Definition of a Conservation Easement

The Lyme Timber Company

Components of Value



The Lyme Timber Company

Current Issues (2009)

- Valuation corrections.
- Appraisal challenges (freshness, lack of comps, evolving methodology).
- Delays/disappearance of public money.
- Capacity constraints with land trust organizations.
- Managing risk.

The Lyme Timber Company

Scott T. Mooney, Vice-President of Acquisitions, Conservation Forestry LLC

Scott has been in the forest products industry for fourteen years where he has held key positions in land management, consulting and acquisitions. Prior to joining Conservation Forestry, Scott served as Director of Acquisitions at the publicly traded timberland REIT, Plum Creek. Scott was also the Acquisitions Manager for a leading timberland investment management organization, Forest Investment Associates, for six years. Scott has significant transaction experience, having been directly involved in all aspects of acquisitions, including due diligence, valuation, conservation partnership structuring, and negotiation, resulting in 40 closed transactions throughout the US and totaling over $2.5 billion in value. Scott is a member of the Society of American Foresters and is an SAF Certified Forester. He has bachelor and graduate degrees in forestry from the University of Georgia.

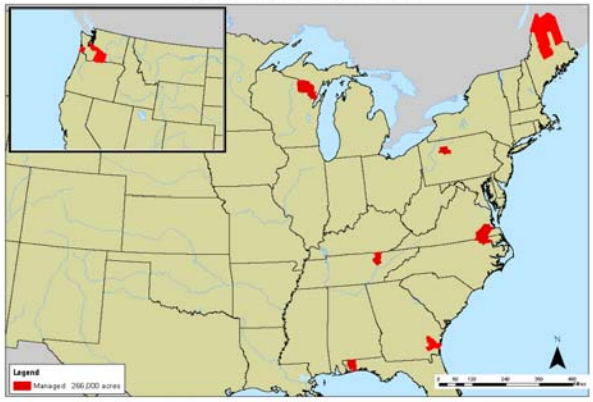
Aligning Investment and Conservation Capital

July 30, 2009
Scott T. Mooney

Conservation Forestry, LLC

Conservation Forestry

Conservation Forestry Investments (county-level)



Conservation Forestry is an investment organization that aligns private equity with conservation capital for the purpose of acquiring and managing large forest landscapes. We do so in a manner that provides a competitive rate of return for our investors while enhancing the conservation values of the forests.

Conservation Forestry, LLC

Overview

- Background on Conservation
- Transaction Examples
- Outlook

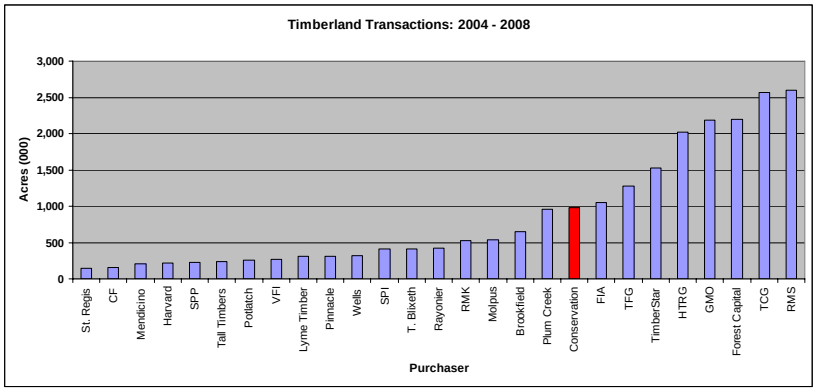
Background on Conservation

Who is "Conservation"?

- National NGOs
  - The Nature Conservancy, The Conservation Fund, Trust for Public Lands
- Regional NGOs
  - Western Rivers Conservancy, Appalachian Mountain Club, Open Space Institute
- Government
  - Federal, State and County/Municipal agencies

Background on Conservation

- Conservation groups have been active market participants



Source RISI

Background on Conservation

The Upside to Conservation Partnerships

- For Sellers: Legacy and long term protection
  - Not necessarily important to all sellers
- For Investors: Sustainable investments; double bottom line
  - Monetize non-timber values via conservation
- For Conservation: Leverage available conservation dollars
  - Do not have to become timber managers

Background on Conservation

The Downside to Conservation Partnerships

- Complexity
  - Many groups, varying goals
- Time
  - Long set-ups; identification of funding sources
- Appraisal issues

Background on Conservation

A note about deal structure

- Does not necessarily always include a conservation easement
- Every conservation easement is different
  - Property splits
  - Limited development
  - Certification
  - Recreation rights

Transaction Examples

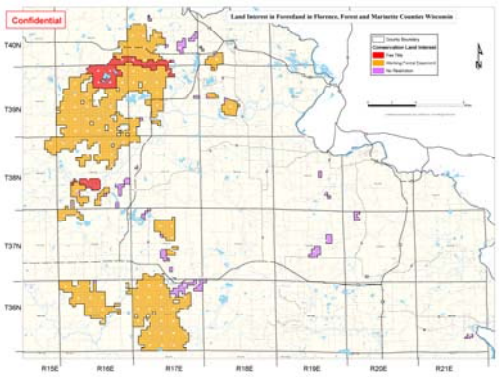
Goodman Forest Wisconsin

- 69,000 acre IP ownership
- High quality Hard Maple
- Purchased by the Nature Conservancy, State of Wisconsin, Conservation Forestry and Forest Investment Associates
- Significant conservation easement component

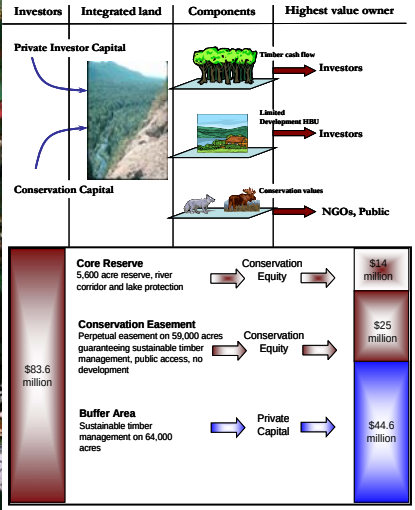
Transaction Examples

Goodman Forest Wisconsin

- River corridors and undeveloped lakes purchased by the State
- Contiguous properties purchased in fee by CF/FIA, easement purchased by State
- Non-contiguous parcels purchased in fee by CF/FIA without an easement



Transaction Examples



"This purchase also protects our Wisconsin economy, Forestry is much more than an industry in Wisconsin – it is a part of who we are. Without a healthy forest industry, it is not possible to sustainably manage the forests in Wisconsin while producing the products that consumers demand, and maintaining the recreational and ecological benefits that make Wisconsin such a great place to live. This piece of land will continue to provide the pulpwood and saw logs that feed local mills, contributing to our economy and producing the products that you and I use every day."

Governor Jim Doyle, Wisconsin.

Conservation Forestry LLC

Transaction Examples

Goodwood Virginia

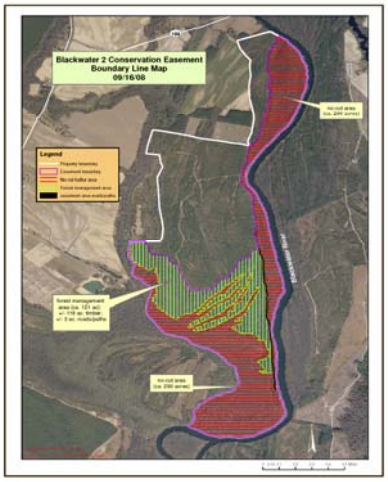
- 20,000 acres in Southeastern Virginia, formerly IP & Union Camp
- 50% pine upland, primarily pine plantations of various ages
- 50% well-stocked hardwood bottomland
- Significant frontage on Blackwater, Nottoway and Meherrin Rivers

Conservation Forestry LLC

Transaction Examples

Goodwood Virginia

- 415 acre conservation easement sold in February 2009 (total tract is 720 acres)
- 290 acre buffer area along river; 125 acre timber management
- Protects 3 miles of Blackwater River frontage
- Monetizes hardwood resource while leaving recreational and aesthetic appeal intact



Conservation Forestry LLC

Transaction Examples

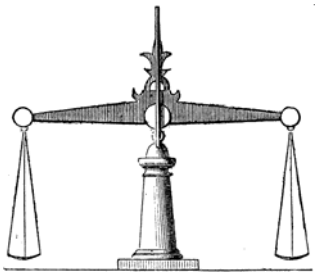
Conservation Outcomes

- Facilitated protection on over 400,000 acres of timberland across the U.S
- Over 200 miles of high quality or state-designated rivers protected
- 50 lakes and ponds protected
- Habitat for threatened and endangered species protected in perpetuity

Conservation Forestry LLC

Outlook

Sources of Conservation Funding



Private Philanthropy

Public Funding

Conservation Forestry LLC

Outlook

- Conservation funding is likely to decrease overall in the current market
  - Although some studies have suggested charitable giving is impacted by recessions but not significantly
  - Federal and State budgets are tight
- There is still capital on the conservation side, but this forces conservation to prioritize

Photo Gary P. Fleming / © DCR Natural Heritage.

Conservation Forestry LLC

Summary

- Conservation groups have been active acquirers of timberland
- Conservation transactions can be complex and time consuming
- For investors, the ability to acquire attributes associated with timber
- Allows conservation to leverage available capital
- Conservation funding may be constrained in the near term
- The impacts of encumbered properties at exit are largely untested

Questions