NewForests

INVESTING IN FORESTS FOR CLIMATE MITIGATION

A Practitioner's Perspective

For more information, please contact:

Brian Shillinglaw
Executive Director, United States
bshillinglaw@newforests-us.com

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New Forests: Investment in Sustainable Forestry and Climate Impact

Fast Facts

- One of the top five forestry asset managers globally
- USD 3.7B in assets under management
- Manages >2 million acres of production forests and conservation assets globally, the vast majority FSC certified
- Over 30% of land managed in conservation areas
- Sells 5.2 million tonnes of sustainably certified timber annually
- Supports 4,200 people globally in forestry operations
- Stores 113 million tons of CO2 in production forests – more in conservation areas not managed for timber production
- A leading supplier of forest carbon offsets to the California cap and trade system, with over 500,000 acres of forest carbon projects
- In 2016, used forest carbon offset finance to permanently conserve the Bering River Coal Field with Chugach Alaska Native Corporation – up to 3 billion tons of coal near the Copper River Delta.

Outline

1. How the capital markets analyze real assets and natural resources
2. Gap between climate science requirements for land sector mitigation and investment, operational tools
3. Policy interventions that mobilize private capital for climate mitigation in natural resources
4. Example: California offset policy
5. Conclusions and recommendations

How do Capital Markets Analyze Natural Resources?

Modern Portfolio Theory, Capital Asset Pricing Model, Discounted Cash Flow Analysis

MPT	CAPM	DCF
Mathematical framework for assembling a portfolio of assets that is expected to maximize return for a given level of risk. Markowitz (1952).	Used to estimate appropriate rate of return for capital asset in light of historical sensitivity of asset returns to market rate of return (systemic risk) and other factors.	Simple framework for estimating the net present value of a capital asset in light of the market discount rate and forecast asset costs and revenues. Also used for operational management.

Key Implications

- At common commercial discount rates, even in the contemporary environment of very low interest rates, costs in 2100 have virtually no impact on investment and operational decisions today – even very high costs.
- To influence the flow of private capital today, you must significantly advantage the net present value of investments with positive climate impact and/or significantly disadvantage the net present value of investments with negative climate impact at current market discount rates. No surprise here.

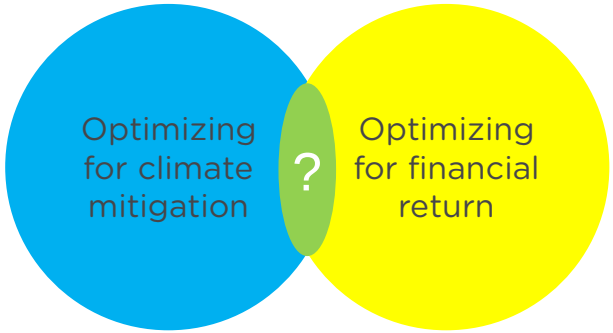
Climate Science Required Land-Sector Mitigation v. Current Practice

There is a very material gap between what the climate science requires of natural resource management through 2100 and:

(a) *current investment* in climate impact; and

(b) *operational tools* available for managers to understand the climate impact of management actions and optimize for climate impact under applicable constraints.

Climate Science Requires	Private Sector Action
• End of deforestation • Improved forest management • Improved soil carbon management • Massive carbon dioxide removal (afforestation, BECCS) • General modeling focus on landscape or earth-scale models (e.g. coupled atmospheric-ocean GCMs)	• Will mobilize capital at scale for climate mitigation only when an investment opportunity can deliver a market rate of return when compared to substitutes and/or improve the risk-return profile of a portfolio • Lacks accessible tools for quantifying climate impact of operational decisions and optimizing climate impact in context of financial and other constraints • Lives in Excel



Mobilizing Private Capital for Climate Impact in Natural Resources

Price Signal

- Increase the cost of climate pollution and/or improve the profitability of climate mitigation
- Taxes, equity subsidies, debt subsidies, insurance markets, cap and trade
- Natural resources, with highly diffuse decision makers, are more easily influenced through price signals than command/control

Operational Standards

- Explicit definition of the behavior to be sanctioned or encouraged through measurable operational standards

Tools for Operational Decisions

- Accessible tools for:
  - (a) Understanding which management actions deliver what climate mitigation; and
  - (b) Pricing those actions so that they can be incorporated into an operational model

Example: California Offset Policy Delivers Climate Finance for Forests

Price Signal

- Cap and trade with auction price reserve

Operational Standards

- Compliance Offset Protocol, U.S. Forest Projects
- Adopted by regulation after a decade of development

Tools for Operational Decisions

- Carbon modeling framework defined in the offset protocol
- Growth and Yield Models (e.g. FVS)
- Linear Programming Harvest Schedulers (e.g. Woodstock)
- Common discounted cash flow modeling

Result

- USD **1 billion** in offset transactions 2014-2018, over 75% of all issued offsets from US forests to date
- USD **10 billion** in forecast offset market value through 2030
- Over **6 million** acres of US forests listed or enrolled in the system

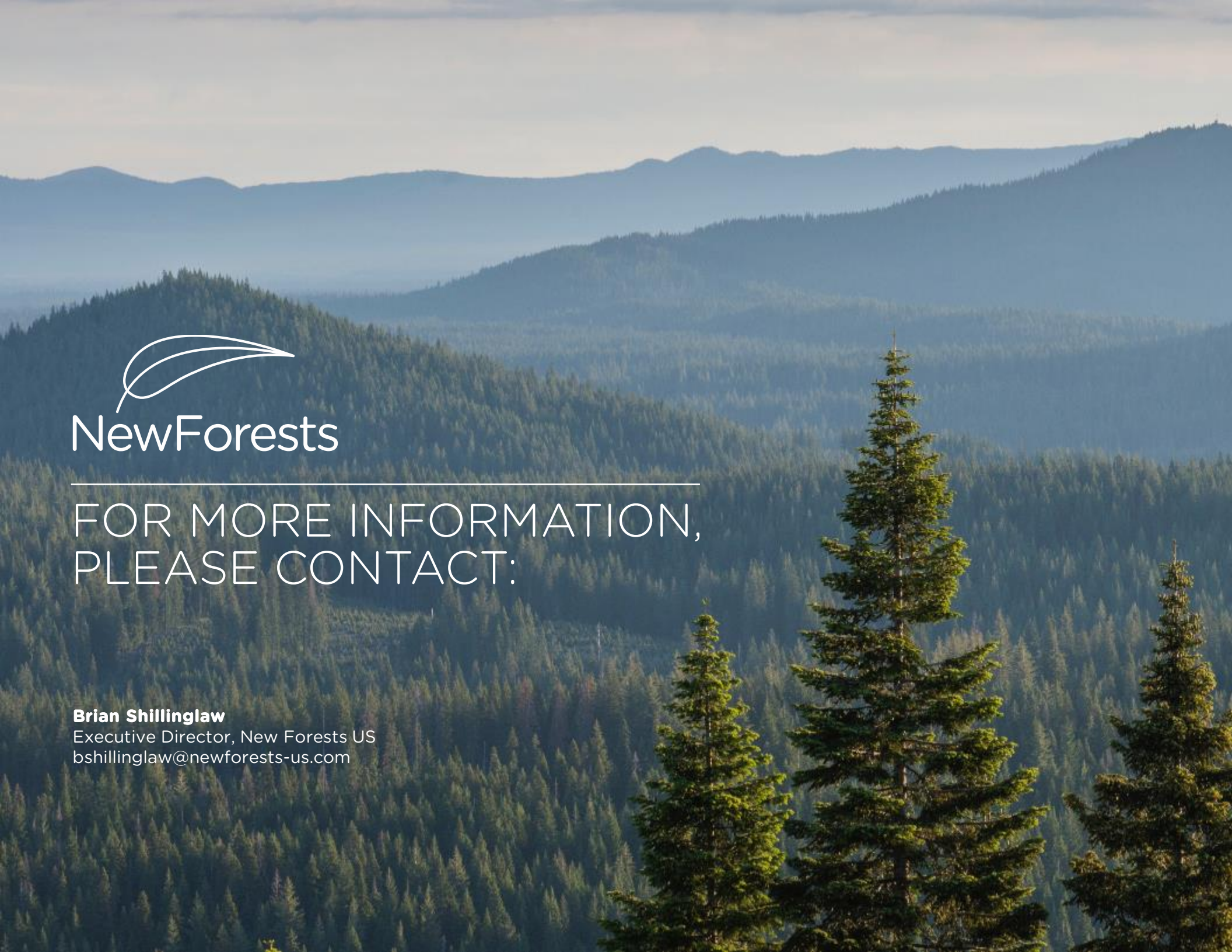
Conclusion and Recommendations

1. Capital markets (human beings making investment decisions in an environment of substitution and uncertainty) don't care about the climate or, by implication, material risks of civilizational collapse in 100 years.

2. Capital markets can be induced to make investments at scale in natural resource-based climate mitigation that are critical to society through a combination of price signals, operational standards and operational tools.

3. Natural resource-based climate mitigation would benefit from research identifying *operational standards* for optimal climate mitigation and *modeling tools* supporting assessment of operational trade-offs in a DCF modeling context. Think Excel.

4. Continue to roll out proven policy models for mobilizing private investment in natural-resource based climate mitigation.



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