

CASE STUDY

The Forest Resilience Bond

PROJECT OVERVIEW

At a glance

Implementing partner: [Blue Forest](#)

Location: California (United States)

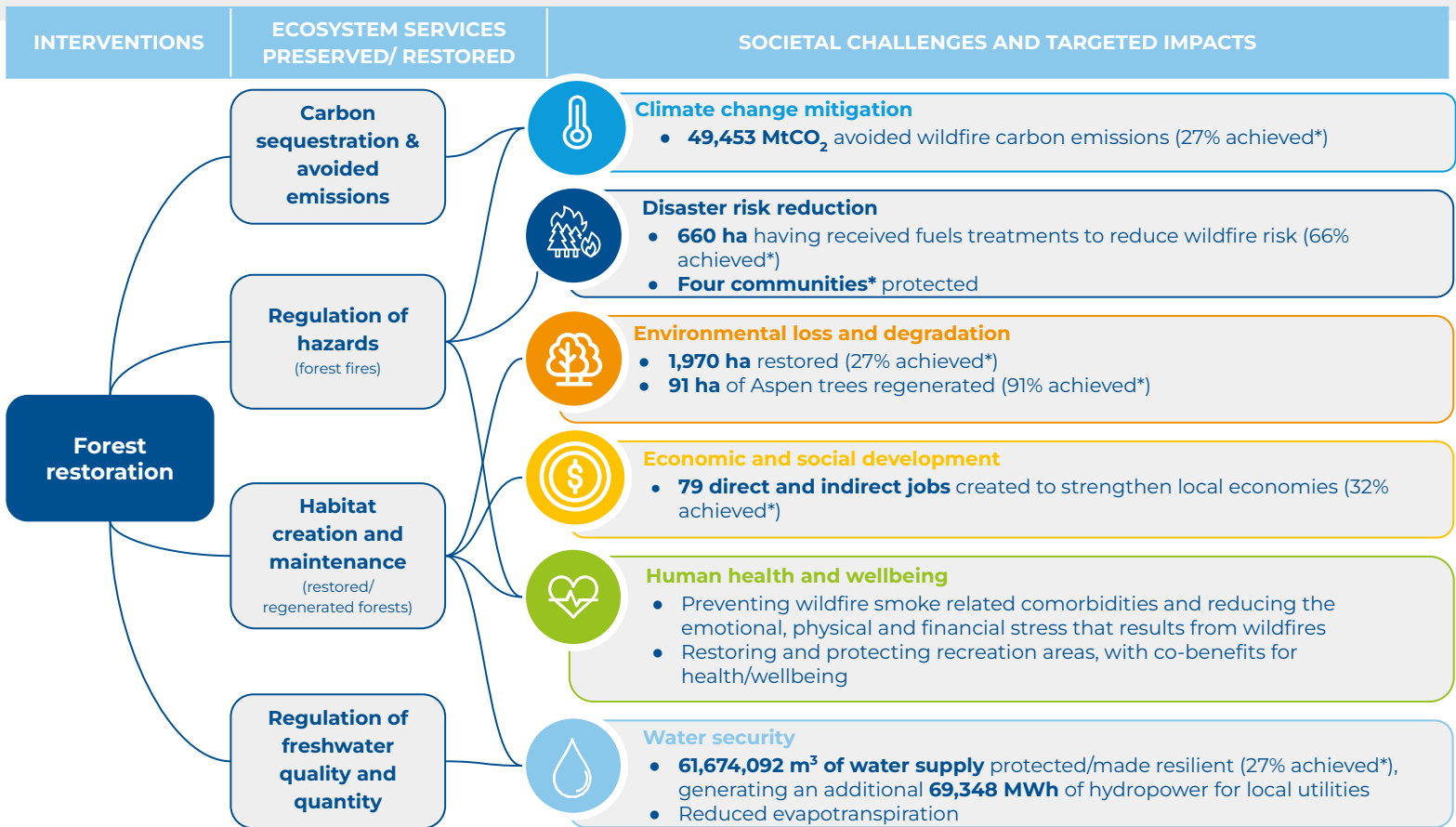
Stage: Yuba I pilot implementation (2019-2022). A second project, Yuba II, was launched in late 2021, but the case study focuses principally on Yuba I.



Project description

Unnaturally dense forests are linked to significant wildfire risk and degraded water supplies. In California alone, over 2.5 million ha of forests need to be restored to reduce those risks, but public funds are limited and increasingly spent on fire suppression rather than fire prevention activities, leading to a growing financing gap.

The Forest Resilience Bond (FRB) is a public-private partnership that enables private capital to finance forest restoration activities that reduce fire risk and deliver environmental and social co-benefits. The activities focus on the strategic removal of excess vegetation, land regeneration and protection, and fuels treatments – including thinning, prescribed burning and pruning. Beneficiaries of the restoration work, such as the US Forest Service, water and electric utilities, and governmental agencies, make contracted annual payments to provide investors with competitive returns. The FRB is piloted on a 5,890 ha area in the Yuba River Watershed (California).



* impacts achieved as of end of 2020

Primary beneficiaries

- US Forest Service, State of California, Yuba Water Agency
- Local population (jobs creation, reduced adverse health impacts from forest fires)

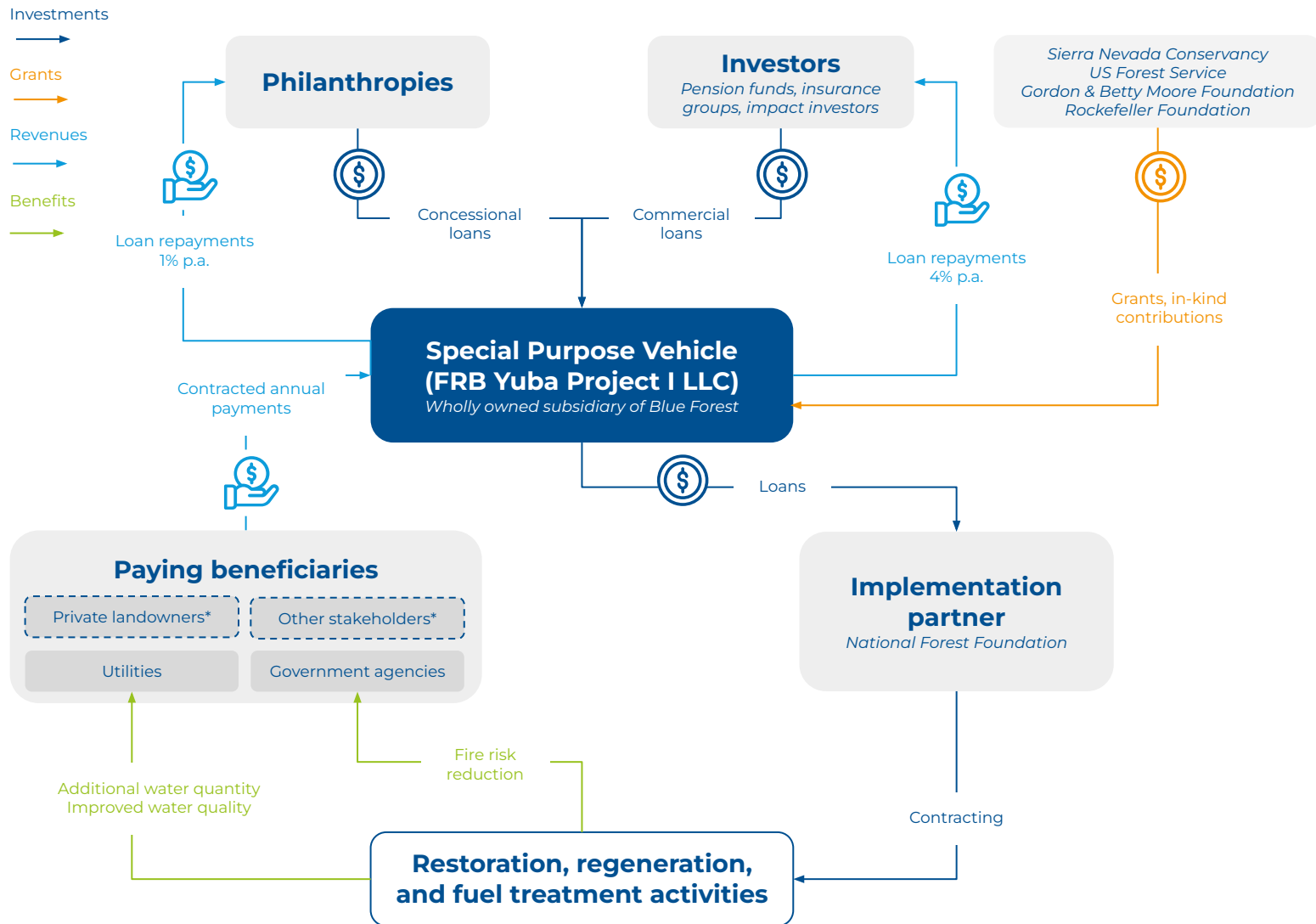
Other stakeholders

- Funders/payors:** Rockefeller Foundation, Gordon and Betty Moore Foundation, Calvert Impact Capital, CSAA Insurance group, Yuba Water Agency, California Fire
- Research partners:** WRI, University of California Merced, Stanford University

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INVESTMENT MODEL



**Potential payors – not applicable in current pilots*

How it works: Investors provide upfront capital to cover the costs of restoration, regeneration and other activities through both concessional and commercial loans. A special purpose vehicle (SPV) passes on the loan proceeds to its implementation partner, the National Forest Foundation, which contracts the restoration activities. Paying beneficiaries, including the Yuba Water Agency and California Fire, pay contracted annual payments – individually negotiated on the basis of estimated savings – which are used to repay investors.

Asset classes: Debt (market rate and concessional).

Investment raised: USD 4 million for the Yuba I project, of which USD 1.28 million had been invested as of the end of 2020. In late 2021, Blue Forest launched the Yuba II project, which aims to protect 19,500 ha for a total value of USD 25-30 million, (of which USD 11 million has already been raised).

Investment term: Up to 10 years.

Revenue streams: Reduced costs/improved benefits are translated into annual payments from a range of beneficiaries. For example, the US Forest Service and local governments benefit from lower fire suppression costs, and water and utilities benefit from protected water quality and improved water volumes.

Fixed returns: 4% p.a. for commercial lenders, 1% p.a. for concessional lenders.

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KEY SUCCESS FACTORS

The most important success factors are indicated with 

SET-UP & DESIGN

Working with experienced and credible partners

Blue Forest contracts implementation partners to implement the restoration work on the ground. The selected partners – in the case of the Yuba I pilot, the National Forest Foundation – are experienced and knowledgeable non-profits, with existing relationships with the US Forest Service and community stakeholders.

Blue Forest's funders and investors, including the Rockefeller Foundation and Calvert Impact Capital, are highly regarded in the field of innovative and impact finance and bring additional credibility, as do research partners like the World Resources Institute (WRI). Blue Forest also partnered with Encourage Capital, an impact investment firm, on fundraising, financial structuring and the execution of the FRB.

FEASIBILITY & PILOTING

Demonstrating the business case

The WRI conducted an economic analysis to demonstrate the business case to paying beneficiaries. This analysis was essential to securing payments from the Yuba Water Agency (YWA), as it demonstrated that investing in the ecosystem benefits would provide greater economic value to YWA than the amount it contributed. While developing the economic analysis took three years for the Yuba I pilot, it took less than 12 months for Yuba II – despite this being a much bigger project. This shows that demonstrating a strong business case on a pilot can significantly ease replication and scale-up.

Mobilising feasibility funding

In 2015, Blue Forest received an early-stage grant from the Rockefeller Foundation's newly launched Zero Gap Portfolio, which offered support for building out the model and identifying investors. According to Blue Forest, few funders provide targeted support for innovative financing mechanisms, even though this is absolutely essential to developing new models for bankable nature-based solutions.

In addition, another grant from the Gordon and Betty Moore Foundation helped enable the development of the model, including stakeholder engagement, which took a significant amount of time and effort.

STRUCTURING INVESTMENTS

Leveraging concessional loans

Both the Rockefeller Foundation and the Gordon and Betty Moore Foundation have committed concessional debt at below market rates, enabling private investors Calvert Impact Capital and CSAA Insurance Group to invest at higher rates while keeping contracted payments for beneficiaries down. However, concessional and commercial investors are *pari passu*, meaning the debt they hold is of equal seniority and they receive the same treatment in case of default.

Cost-sharing between payors

The costs associated with the forest restoration activities are shared between a range of beneficiaries, including public agencies and utilities, who repay investors through contracted annual payments. Sharing the costs (and benefits) between those payors reduces the aggregated costs for each individual stakeholder.

REVENUE & IMPACT

Measuring impact

Blue Forest works closely with researchers and academics on the quantification and valuation of forest restoration benefits over the life of the FRB. Partners include the Sierra Nevada Research Institute at the University of California Merced and the Natural Capital Project and Water in the West at Stanford University, which worked on the environmental modelling and analysis. Working with local universities with relevant local research experience is important to ensure adequate impact measurement methodologies.

LOOKING FORWARD: SCALING UP THE FRB

Collaboration on the Yuba FRB has laid the groundwork for the North Yuba Forest Partnership (NYFP), which brings together nine federal, state, tribal and non-governmental partners. The NYFP plans to use the Forest Resilience Bond to finance more than USD 100 million of unfunded restoration work across 275,000 acres of public and private lands in the North Yuba River watershed. Blue Forest is also looking to replicate the FRB beyond California, including in Washington state.