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FOREST SERVICE US DEPARTMENT OF AGRICULTURE

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Forest Carbon and Climate Program
Department of Forestry
MICHIGAN STATE UNIVERSITY

Modeling Climate-Smart Forestry in 7 US States

SFI Annual Conference

May 22, 2025

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Modeling state & regional climate-smart forestry

✓ Partners in 7 US states (MD, PA, MN, MI, WI, OR & CA)

Objectives:

- Model carbon impacts of forest management, wood utilization, and natural disturbance scenarios
  - Ecosystem + wood products + substitution (+ economics)
- Understand climate mitigation potential of scenarios & identify climate-smart forestry practices
- Integrate resilience (or carbon) in forest management and planning
- Integrate forests as natural climate solutions in state climate planning and funding

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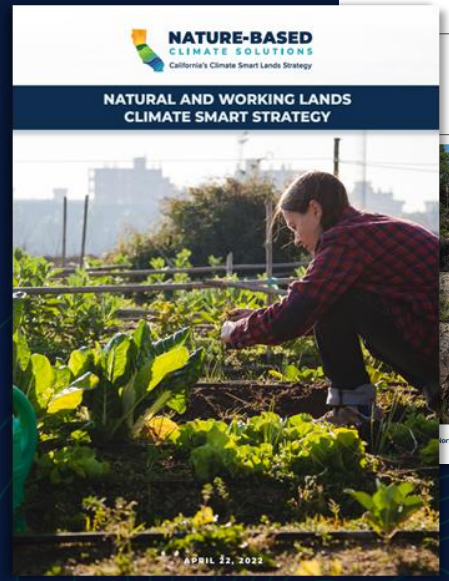
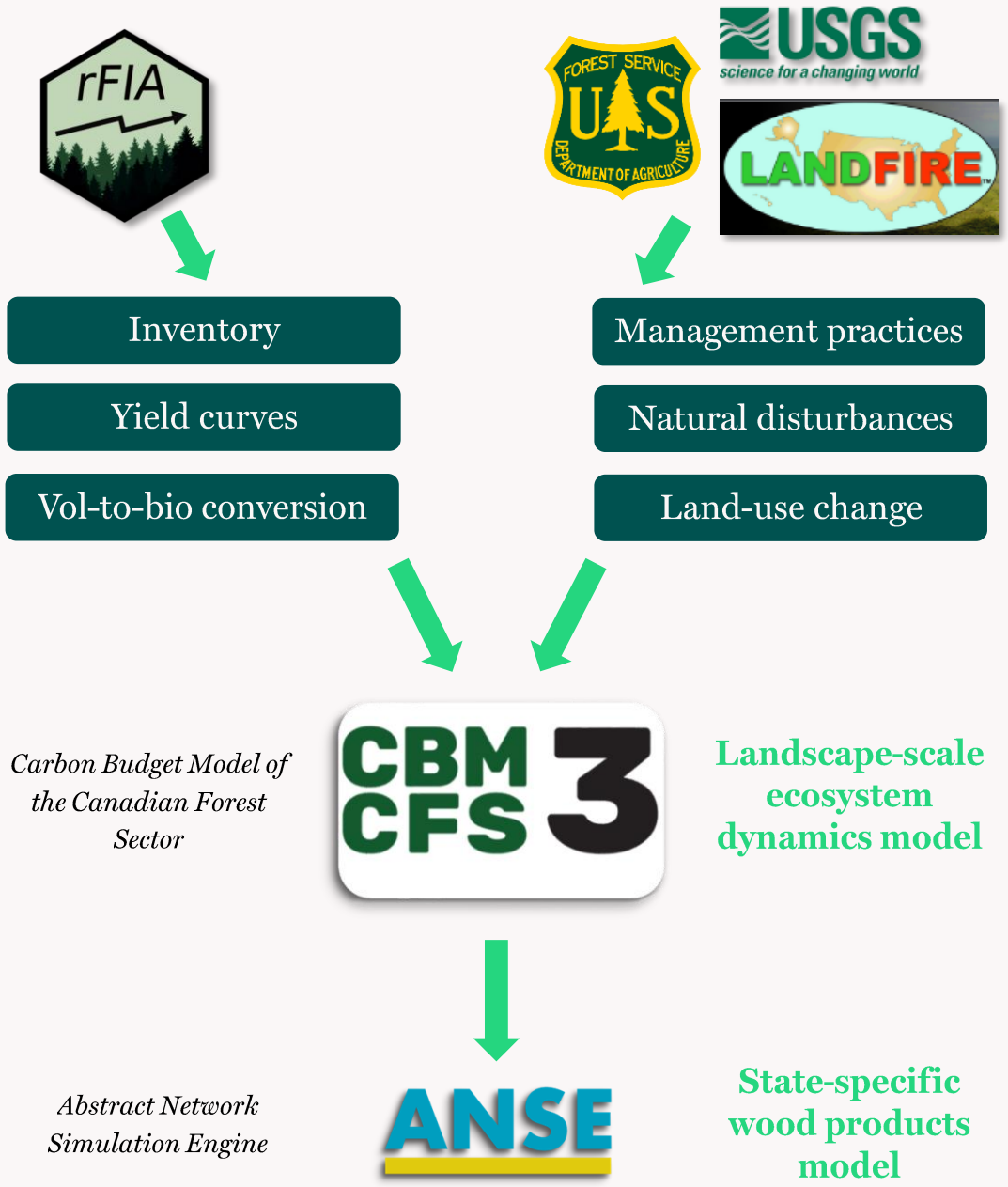


UNITED STATES CLIMATE ALLIANCE

Scenario analysis

- Compare projected business-as-usual (BAU) to broad range of alternative forest management & wood utilization scenarios
- Incorporate projected climate change impacts
- Construct *Portfolio* scenario(s) representing state-wide commitments to climate-smart forestry
- Build scenarios using:
  - State partner input
  - Technical expert engagement
  - Forest inventory and remote sensing data
  - Literature review
  - State planning documents and goals



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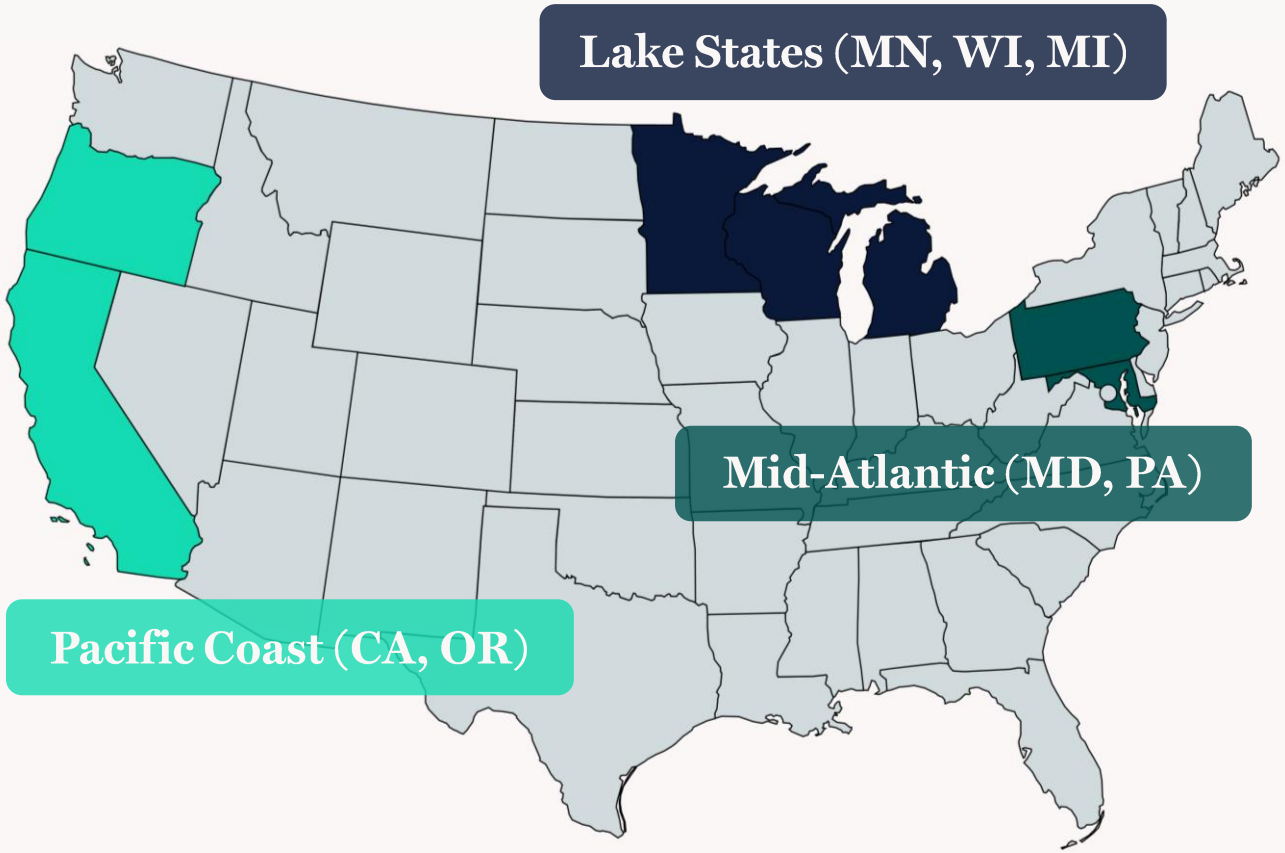
Regional scenarios

- ✓ Developed based on forest priorities and concerns identified by state partners



Pacific Coast	Lake States	Mid-Atlantic	Scenario
✓	✓	✓	Afforestation
✓		✓	Silvopasture
	✓	✓	Restock understocked stands
		✓	Control deer browse
	✓		Promote natural regeneration
✓			Post-fire reforestation and restoration
		✓	Timber stand improvements (thin + Rx burn)
✓	✓	✓	Changes in rotation length
	✓		Increase even-aged management
✓			Transition to uneven-aged management
	✓		Increase reserve patch sizes
	✓		Coarse woody debris enhancement
		✓	Reduce diameter limit cutting
✓	✓	✓	Reduce deforestation
	✓	✓	No harvest activities
	✓		Manage forest type transitions
✓			Promote old-growth resilience
✓			Fire resilience treatments (thin + Rx burn)
✓			Maintain oak woodlands
✓	✓		Increase wood utilization in new products
✓	✓	✓	Climate change impacts

Climate-smart forestry in the US

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Climate-smart forestry objective	DRAFT Pacific Coast (CA, OR)	DRAFT Lake States (MN, WI, MI)	Mid-Atlantic (MD, PA)
Maintain and increase **forest extent**	• Reduce deforestation • Afforestation • Silvopasture	• Reduce deforestation • Afforestation	• Reduce deforestation • Afforestation • Silvopasture
Protect and restore the ability of forests to **naturally regenerate**	• Restore post-fire landscapes through salvage and reforestation	• Restock understocked stands through enrichment planting • Promote natural regeneration though regeneration cuts	• Control deer browse, particularly in stands <25 years old • Restock understocked stands through enrichment planting
Encourage **sustainable management** practices on private lands			• Reduce diameter limit cuts
Increase forest **carbon stocks** while sustaining timber supply	• Extend rotations • Transition to uneven-aged management	• Extend rotations • Increase reserve patch sizes	• Extend rotations
Utilize active management to **restore ecosystem resilience**	• Increase resilience through thinning and prescribed fire treatments		• Timber stand improvements
Support innovative **wood utilization**	• Utilize restoration treatment removals for wood products rather than leaving them on site for decomposition or burning	• Increase utilization of harvest residues • Engineered wood products	
Prepare for impacts of **climate change**	• Manage for increases in natural disturbance occurrence and severity • Combat post-fire regeneration failure • Manage for climate mismatch and productivity declines	• Manage for projected forest type conversions, facilitate transition where appropriate	• Manage for insect and disease disturbances

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Thank you!

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NEW! Scan this code to open our new report for California

Read more:

https://www.americanforests.org/project/forest-carbon-modeling/