Climate change

What's happening and what does it mean for Maine?

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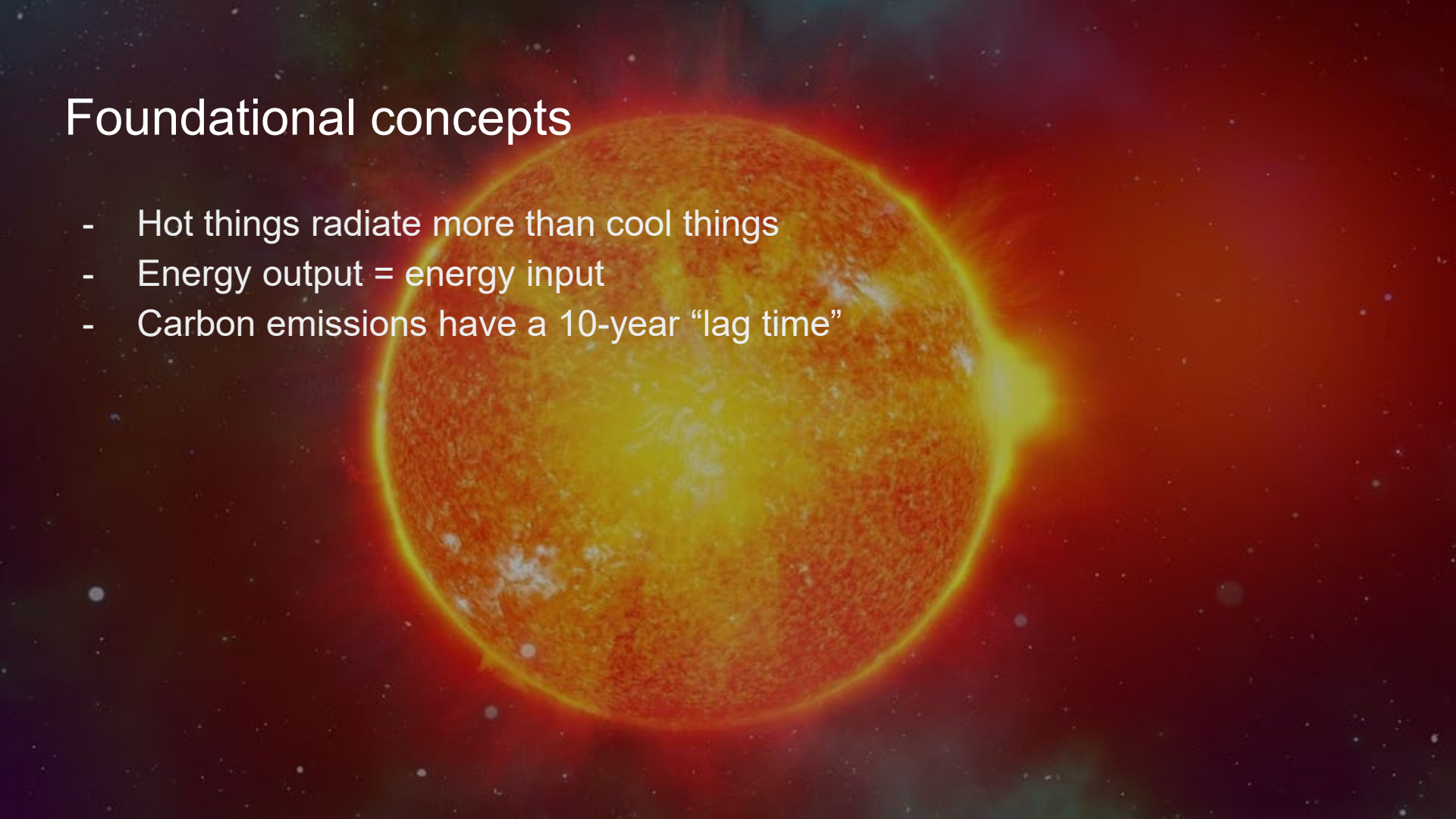
1865 THE UNIVERSITY OF MAINE

The Agroecology Lab

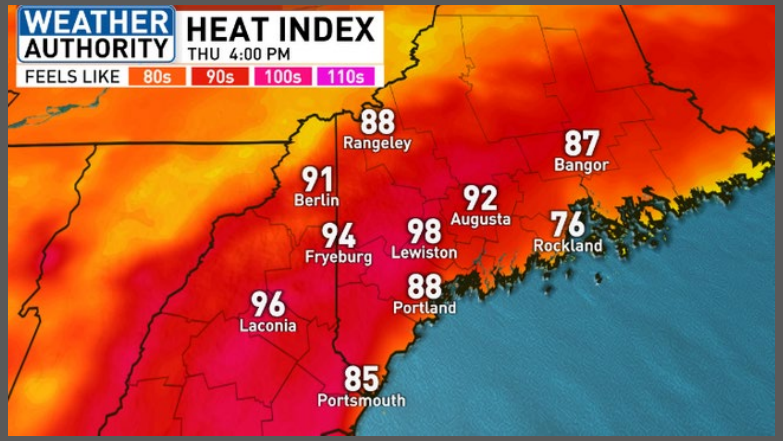
Foundational concepts

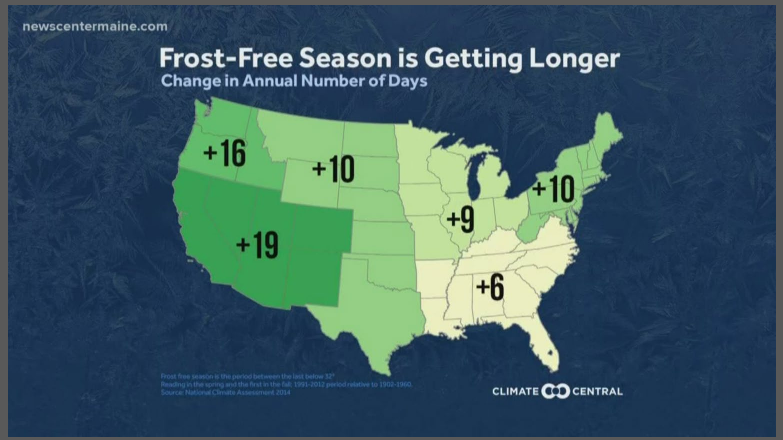
- Hot things radiate more than cool things
- Energy output = energy input
- Carbon emissions have a 10-year “lag time”



The Northeast (and Maine) are changing

- More “hot extremes”
- Higher annual rainfall
- More heavy rainfall
- Drought (???)





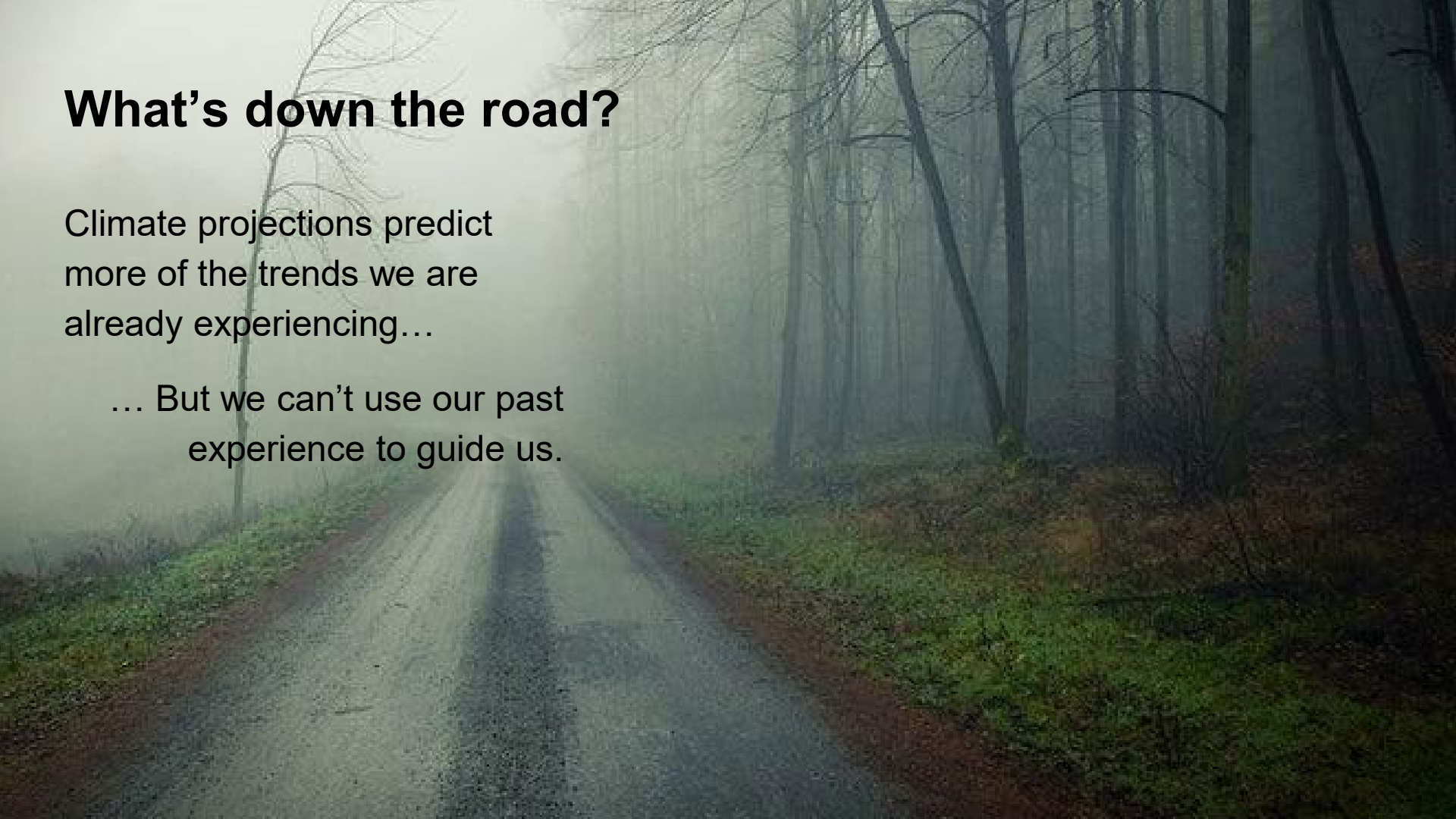
Effects of changing rainfall patterns

- Delayed planting
- Loss of nutrients
- Soil compaction

“Erosion increases at a rate of 1.7 times annual rainfall increases” (Nearing et al., 2004).

Photo credit: Jim Schultz

Photo credit: Vern Grubinger



What's down the road?

Climate projections predict more of the trends we are already experiencing…

… But we can't use our past experience to guide us.

Thank you

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Climate Impacts & Resilience at Bumbleroot

Melissa Law, Bumbleroot Organic Farm

- 89 acres
- Windham, Maine
- Certified organic vegetables & flowers
- Local markets

Climate Impacts On Our Farm

- Unpredictable & erratic frosts
- Intensified storms
- High winds
- Extreme wet periods
- Drought

Climate Adaptation Strategies

- **Short Term**
  - Reduced tillage
  - Cover crops
- **Medium Term**
  - Slope management plan
  - Windbreaks
  - Pollinator habitat
- **Long Term**
  - Renewable energy
  - Ecological design planning

Sustainability & Resilience

- Soil health
- Biodiversity
- Water management
- Diversification
- Local food systems

Climate Advocacy

- Community Events
- National Young Farmers Coalition
- Maine Climate Council
- Education

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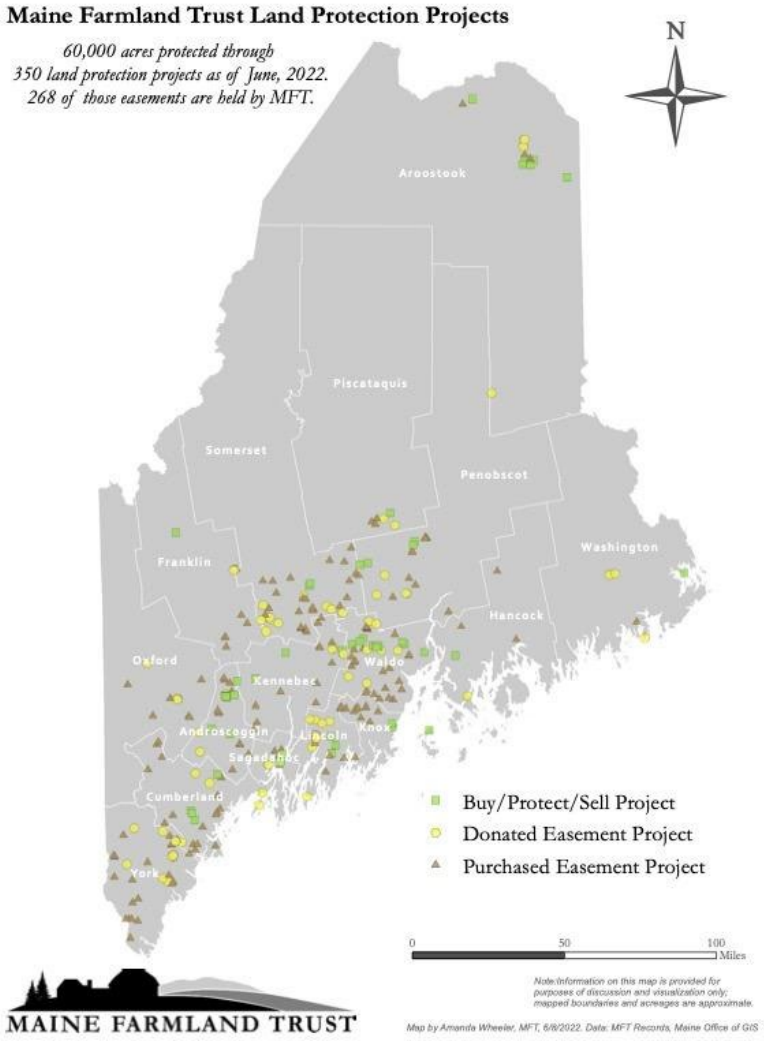
Climate Resilience for Maine Farms:
supporting farm viability from the soil up

Sarah Simon, Climate Resilience Specialist



Farmland protection is a climate mitigation strategy

- Permanent conservation easements
- 60,000 acres
- 370 properties

Our investment in forever farms goes beyond easements

We also provide:

- **Long-term stewardship and monitoring** of farm properties
- Federal and state **policy advocacy**
- On-farm research opportunities to make **data-driven decisions**
- Financial analysis to make **the business case for climate-smart practices**
- Planning & funding to **overcome barriers to adoption**
- Support for **farmer-led innovation & collaboration**

Developing a Climate Resilience Program

2021

16 farms in pilot cohort

2023

Secured federal and private funding to expand

2027

Reach 180 farms with events, research, planning services and funding

Agricultural Practices

- On-farm climate resilience research
- Farm-based analysis & planning
- Access to funding for climate-smart practices & infrastructure

Farm Ecosystem

- Farmscape planning and design
- Funding for whole farm resilience

Peer-to-Peer Learning

- Peer-to-peer farmer network and education

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Climate Adaptation Planning

Bumbleroot Organic Farm: 89 acres with 7 acres in annual vegetables, flowers, herbs

Goals: Soil Health | Biodiversity | Carbon Sequestration | Emissions Reduction

Short-Term

- Cover crop rotation plan
- Reduced tillage
- Pollinator meadow
- Native plant windbreak

Medium-Term

- Erosion control plan to integrate use of perennials on sloped fields

Long-Term

- Transition to renewable energy
- Forestry management

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