RYEGATE AND VERMONT FOREST PRODUCTS INDUSTRY

House Committee on Energy & Digital Infrastructure

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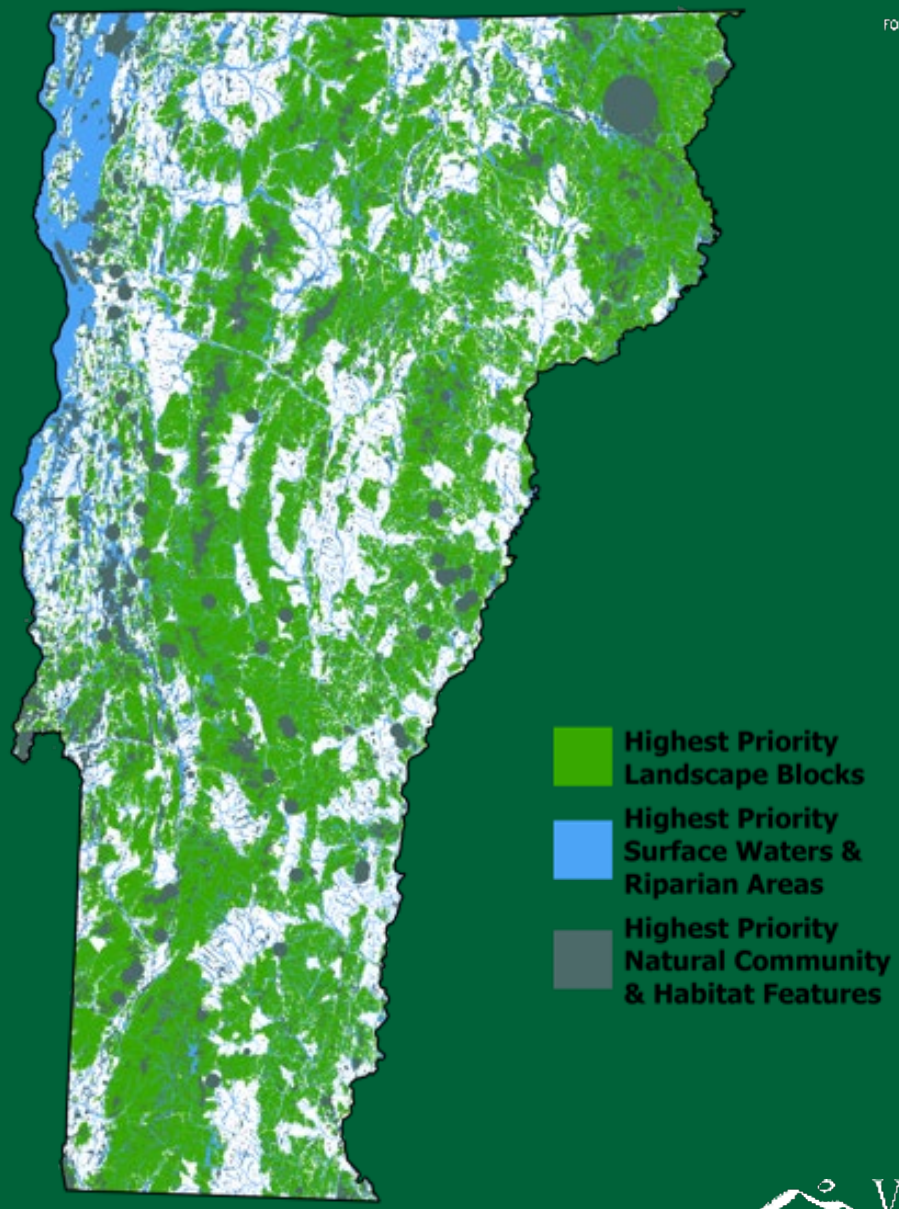
BIG PICTURE

- Ryegate provides a market for whole tree wood chips (250,000 tons / yr)
- Wood chips considered low-grade wood harvest material; markets limited
- For loggers and landowners, markets for low-grade wood are essential for economic viability and sustainable forest management & forest health
- Ryegate harvesting follows stringent procedures to ensure sustainability
- *Biomass electricity is renewable, preferable to fossil fuels, keeps $ in VT*
- *Payment of loggers supplying Ryegate has improved in last year (Act 142)*
- *FPR supports increasing efficiency of Ryegate's Operations*
- **Maintaining Ryegate's operations is important for VT's forest economy**

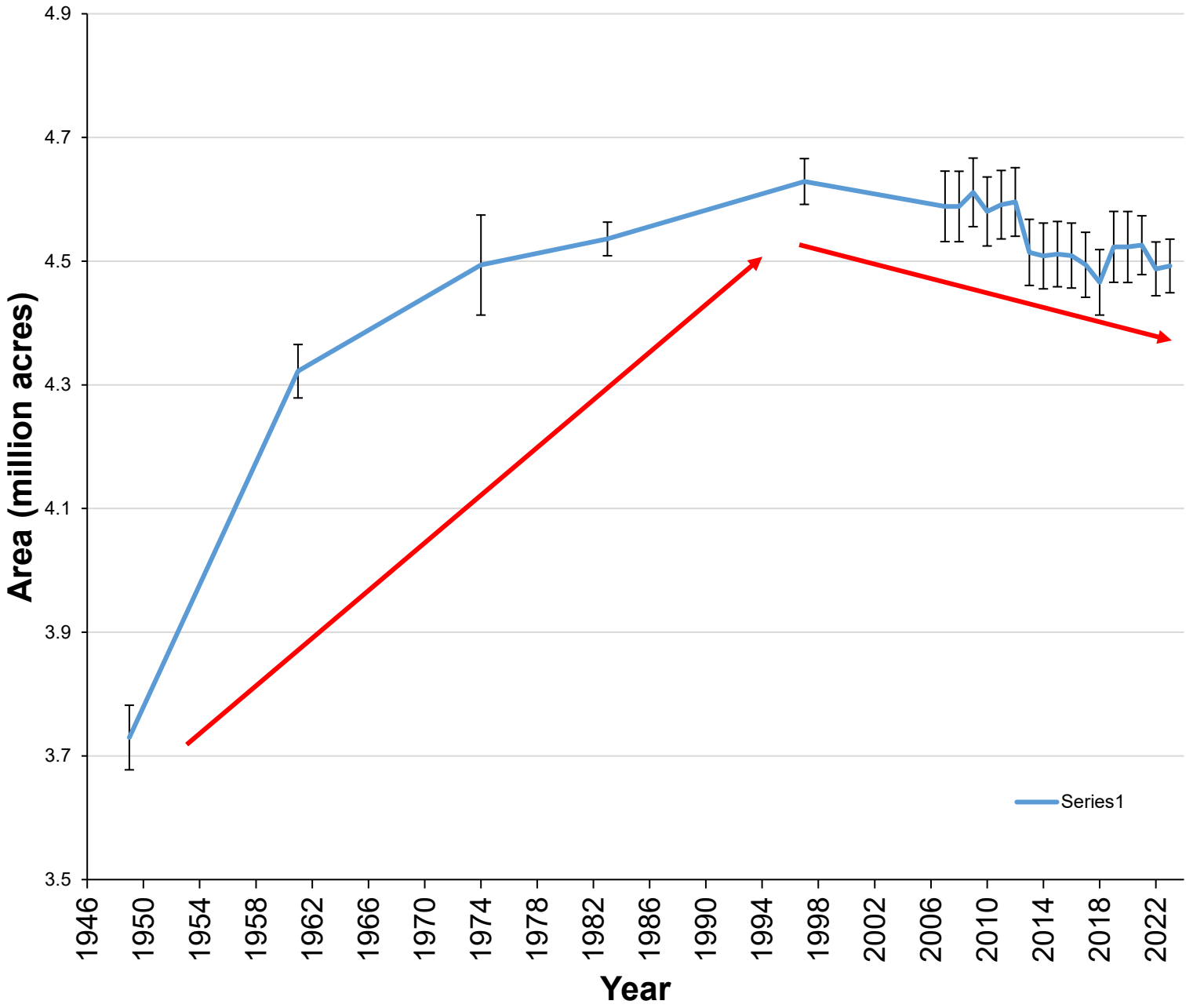
BASIC DATA ON VT'S FORESTS

- 76% of Vermont is Forested
  - 4.49 million acres, 2022 FIA Data
- Ownership is 80% Private, 10% Federal, 9% State, 1% Municipal
- Northern hardwood mix of beech, birch, and maple: 71% of forest cover
  - Pines and Spruce/Fir Groups: 15%
- Most of Vermont's Forests "mature"



Forest Cover Change in VT 1948-2023

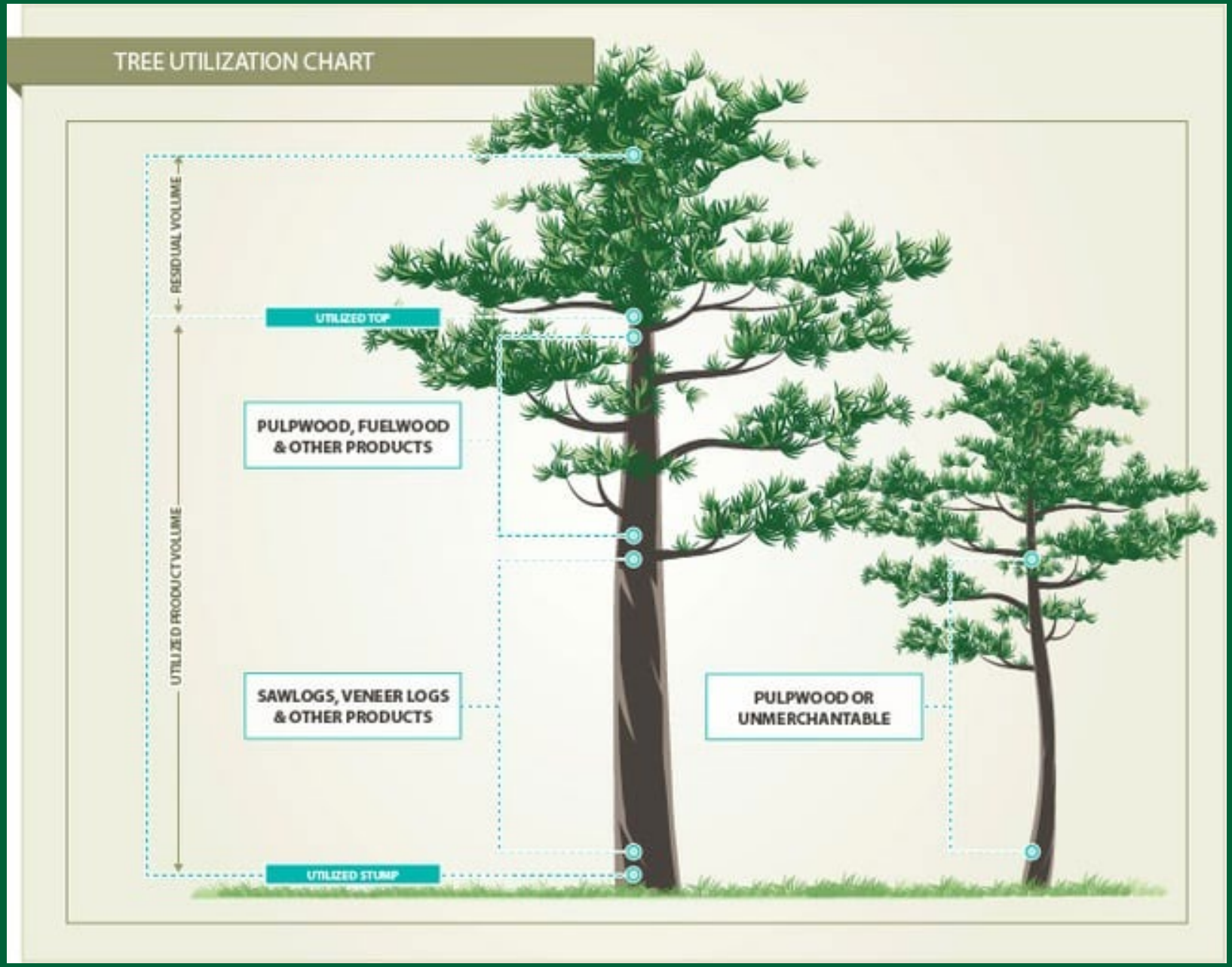
- USFS Forest Inventory & Analysis Data
- 75-year Expansion
- Peaked in 1997
- 1997 – 2023: 5,250 acres lost/yr
- Conversion remains an issue
- Focus on maintaining working lands



BASIC DATA ON VT'S FOREST ECONOMY

- 9,107 direct jobs
- $291.5 million in direct labor income
- $393.4 million in value-added
- **$1.4 billion in direct output**

- Sale of wood chips to Ryegate and McNeil are a foundational element



- Whole Tree Wood Chips are made from low grade wood material, typically branches, limbs, crowns, & “waste” from mills

RYEGATE AND FOREST MANAGEMENT

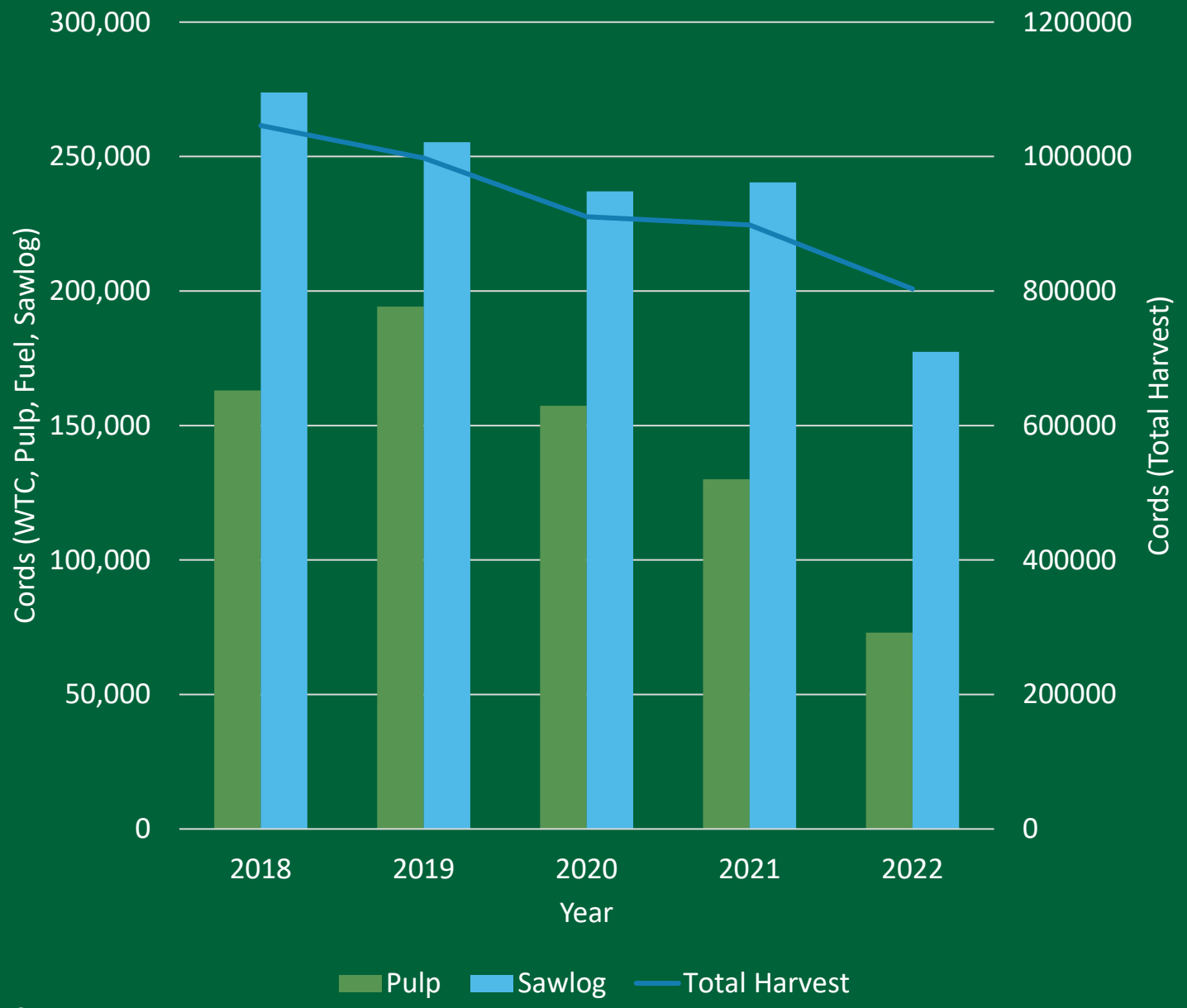
- As required by Ryegate's Certificate of Public Good, suppliers to the plant must follow a harvesting policy approved by PUC, FPR, and F&W
- These harvesting policies are among the most the most stringent regulations required of any purchaser of forest products in Vermont:
  - include F&W wildlife habitat assessments & site visits;
  - strict adherence to practices to maintain water quality;
  - protection of archeological sites;
  - use of scientific silvicultural practices (limited clearcuts);

RYEGATE AND FOREST MANAGEMENT

- In the last 9 years, F&W reviews of ryegate chip harvests (1,473 reviews) resulted in determining that lands providing chips were protecting:
  - 12,156 acres of deer wintering areas
  - 8,272 acres of Threatened and Endangered Species habitat
  - 342 acres of wetland protection
  - 79 acres of Bear habitat, and
  - 47 acres of significant natural communities

RYEGATE'S ROLE IN VT FOREST ECONOMY

- Ryegate uses whole tree chips to generate 20 MW of electricity
- In 2023-2024, Ryegate purchased 260,000 tons of chips
- Chips are sourced from 90 loggers from VT (31%), NH (55%), MA and CT
- 82,500 tons of chips from VT @ $40 / ton = $3.3M in direct payments
- Supply from VT loggers has decreased, due to reductions in harvesting in VT in 2023-2024 due to wet summers and warm winters



Over last five years:

- Harvesting of Wood Products in VT has decreased

Over last 100 years:

- Annual Precipitation has increased by almost 7 inches
- Annual air temperature means have increased by 2 F in summer and 4 F in winter

RYEGATE'S ROLE IN VT FOREST ECONOMY

- Markets for low-grade wood are limited in VT:
  - whole tree wood chips for power generation
  - bole wood chips and pellets for heating
  - pulp for paper making
  - unchipped logs for firewood (*limited*)

- Demand for low-grade wood has decreased over last ten years w/ closure of pulp plants, paper mills, and power generation facilities in region
- Ryegate and McNeil collectively purchase the largest amount of low-grade wood from Vermont loggers / landowners

RYEGATE'S ROLE IN VT FOREST ECONOMY

2022 Harvest Data	MbF	Green Tons
Total Harvest (cds)	383,228	1,916,140
Sawlogs (Mbf)	88,723	443,615
Log Exports (Mbf)	41,726	208,630
Pulpwood (cds)	36,502	182,510
Whole Tree Chips (gt)	**67,074**	**335,370**
Roundwood Fuelwood (cds)	209,278	1,046,390

2 cords = 1 Mbf
1 cord = 2.5 gt
Mbf = thousand board feet

RYEGATE'S ROLE IN VT FOREST ECONOMY

- Sustainable forestry focuses on improving the future forest (regeneration)
- In addition to the economics supporting the removal of low-grade timber, Ryegate enables active forest management with science-based silviculture
  - Harvests produce wood with wide range of economic values for diverse markets and there is no such thing as a "low-grade harvest"
- Although it generates limited revenue for the landowner, harvesting low-grade wood is critical part of achieving landowners' desired outcomes:
  - Enhanced wildlife habitat, forest health, recreational opportunities, carbon storage, resilience to climate change, durable wood products, and more
  - Growth of higher-grade timber / high value wood products

RYEGATE'S ROLE IN VT FOREST ECONOMY

- Markets for low-grade wood are essential for sustainable forest management
- Harvesting of low-grade material supports VT's entire wood products sector
- When wood markets are absent, these forest management goals are financially difficult or impossible to achieve
- While the value of timber used for wood chip production is lower on a per ton basis other high value wood products, their sales help loggers' financial margins
- Wood chip production uses mechanized harvesting, which are safer, more environmentally friendly, and more efficient at harvesting lower value trees

RYEGATE'S ROLE IN VT FOREST ECONOMY

- Should the Ryegate Power Station close there is no other readily available market for the whole tree chips it consumes.
  - Alternative markets not in development, considerable time & capital needed
  - Unlikely that a new enterprise would start, utilize the existing plant / staff

- Ryegate contingency report found that if the plant closes:
  - 160,000 MWh of baseload electricity isn't generated (7.5% electricity in VT)
  - ~ 80,000 - 130,000 tons of wood chips would not be purchased from VT
  - $14 million of economic activity (purchase of chips) would not taking place.

- The loss of a major low grade wood market will make executing forest management plans financially more difficult.


THANKS FOR YOUR ATTENTION!
QUESTIONS?
FORESTS, PARKS & RECREATION
VERMONT
VERMONT

EXTRA SLIDES

KEY PRINCIPLES FOR SFM IN VERMONT

- Multiple Use Forest Management, focusing on conservation, regeneration
- Planning for Sustainability
  - >65% of Forests with Management Plans promoting sustainability, good silviculture, forest health, ecological functions, and water quality protection
  - Long Range Management Plans on Federal, State and Local Land (20%)
  - Use Value Appraisal Forest Management Plans (45%)
  - Management Plans developed & implemented by licensed foresters
- All Forests: Monitoring & Regulation
  - Heavy Cut & Acceptable Management Practices, Support Timber Trespass Laws

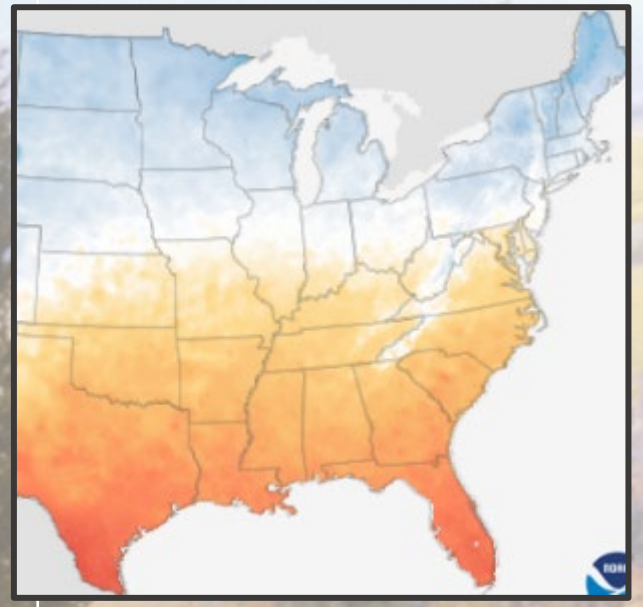
PLANNING FOR SUSTAINABILITY

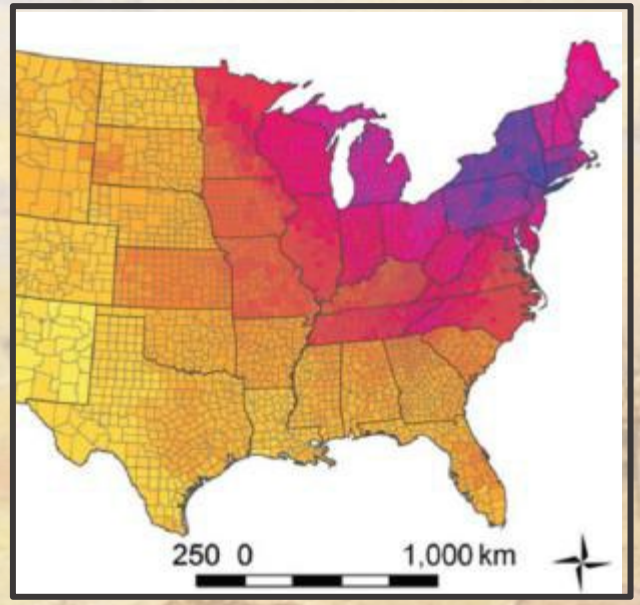
- Ecosystem Based Approach integrating silviculture & ecological principals
  - Balancing Active and Passive Management
  - Use of Sound Silvicultural Techniques (*Research to Assess Impact*)
    - Even Aged, Uneven Aged, Restorative, Single Tree / Group Selection, etc
  - VCD principles, i.e. manage for both young and old forest types
  - Climate Resiliency & Adaptation (Carbon Sequestration & Storage)
  - Clean Water
  - Wildlife Habitat & Biodiversity Conservation
  - Recreation
  - Public Input (where applicable)

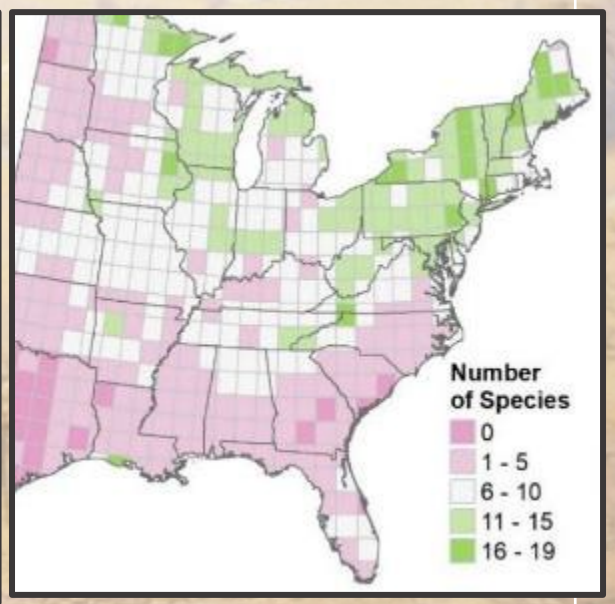
COMPLEX PROBLEMS FACING VT'S FORESTS

A resilient forest can withstand and recover from disturbances

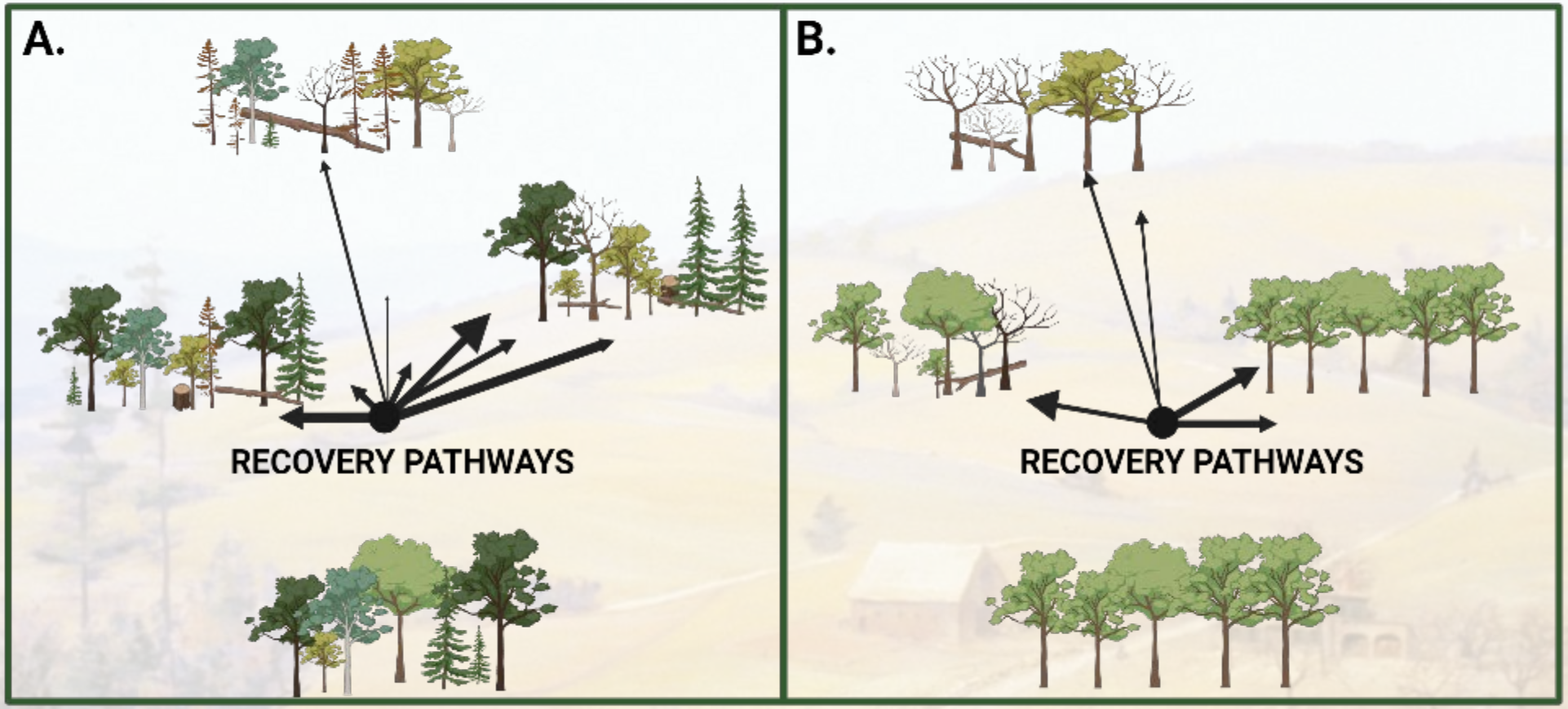
Extreme Weather **Predation Dynamics** **Introduced Pests** **Habitat Shifts**







COMPLEX PROBLEMS FACING VT'S FORESTS



Complex Forest Structure

Simple Forest Structure

Adapted from Puettmann and Messier 2020