

Keynote Address

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Thank you for all of your work in maintaining a healthy and vibrant Addison County

Thank you for this opportunity to share some thoughts on the future of Vermont forestry

From Forest Resource Management to Forest Ecosystem Conservation: Re-thinking Vermont Forestry in a Rapidly Changing Climate, Economy, & Culture

GOALS FOR THIS PRESENTATION:

- Make the moral case for forest ecosystem conservation that is based on the virtues of our collective history
- Create more room in Vermont forestry for the Commons, Commoning, and Commoners
- Promote CLEAN WATER as Vermont's Premier Forest Product

CONTEXT:

- Vermont's climate is changing.¹ Mean annual air temperatures are warming, total annual precipitation is increasing, and the freeze up of the main body of Lake Champlain is happening less frequently. Our forests must adapt to these changes and many other changes. We can help.
- Vermont's forest based economy is changing.² Forest-based recreation is outpacing the economic contributions of our traditional forest industries. We now have a bi-modal forest-based economy that is presenting new opportunities.
- Vermont's demographics are changing, forest parcels are getting smaller, and forest landowners have expanded values for, expectations of, and relationships with their forests. This shift is opening up doors.

¹ J. Curt Stager and Mary Thill (2010) Climate Change in the Lake Champlain Basin: What Natural Resource Managers Can Expect and Do. The Nature Conservancy.

² North East State Foresters Association (2013) The Economic Importance of Vermont's Forest-Based Economy 2013.

- And, as luck would have it, Vermont’s forests retain their capacity for self-renewal and we should celebrate that fact without taking forest health, integrity, resilience, and/or beauty for granted.

FOREST RESOURCE MANAGEMENT & FOREST ECOSYSTEM CONSERVATION:

There are two forestry models in Vermont. The Gifford Pinchot inspired model is called “Forest Resource Management” and it is focused on the wise use of forests and sustained yields over time.³ Control is the key word and the motivation is primarily economic.

The Aldo Leopold inspired model is about “Forest Ecosystem Conservation” and is focused on forest health, integrity, resilience, and beauty over time.⁴ Self-renewal is the key phrase and the motivations are ecological, ethical, and economic.

There is overlap between the two models. However, Vermont forestry, in my humble view, presently places more emphasis on forest resource management than on forest ecosystem health conservation. The changing climate, economy, and culture suggest we might do well to re-think this.

Examples of Priorities Under the Forest Resource Management Model:

- Address Worker’s Compensation issues for loggers
- Require landowners to actively manage their forests for timber and maple syrup products in exchange for use value taxation
- Find better markets for low grade wood products in order to avoid high-grading and to cover the costs of the large-scale, mechanized harvesting that includes feller-bunchers and grapple skidders
- Employ more guidelines and fewer standards and more education and less regulation and
- Utilize public cost-share funding for the management of privately-held timber, sugarbushes, wildlife habitat, and invasive exotics.

Examples of Priorities Under the Forest Ecosystem Conservation Model:

- Actively conserve site and water quality, biodiversity, carbon storage, and forest vitality, resilience, integrity, and beauty
- Encourage the forest industry to re-tool with smaller, lighter, lower-impact logging equipment including forwarders
- Differentiate publicly-held interests from privately-held interests from commonly-held interests
- Leave much more wood to rot in the forest, to slow, spread and sink storm flows, to provide for the mycorrhizal fungi that feed, water, and protect the forest, to serve as

³ Gifford Pinchot (1905) A Primer of Forestry: Part II – Practical Forestry. USDA Bureau of Forestry.

⁴ Aldo Leopold (1949) A Sand County Almanac. Oxford University Press.

legacies and ecological lifeboats that help forests weather disturbances and stress, to cool and stabilize forest soils, and to produce stable humus

- Recognize the need for a Land Use Triad⁵ including intensively managed areas, areas where light-on-the-land forestry is practiced, and ecological reserves. All acres cannot be everything to everyone in a working landscape
- Engage commoners in recognizing the economic, ecological, and social values of community-based forest ecosystem conservation, in practicing adaptive conservation, in monitoring forest ecosystem health especially water quality, peak flow attenuation, flood resilience, the status of keystone predators, and optimal conservation practice compliance levels
- Focus more cost-share funding on the monitoring and conservation of commonly-held forest elements including water and wildlife commons, and
- Recognize clean, clear, highly-oxygenated water commons and diverse wildlife populations as essential forest products.

FINDING COMMON GROUND:

There is overlap between forest resource management, use, and control and forest ecosystem health, conservation, and self-renewal. However, there is also tension between the two perspectives. What can be done to find the common ground and the commons?

Holistic Planning:

Communities face three major tasks: (1) survival, (2) continuity, (3) improvement. They exist to provide freedom and opportunity for the maturing, growth, unfoldment, and evolution of the individual and the community.⁶

Actively Conserving Communities:

Wendell Berry got more specific. He said “If members of a local community want their community to cohere, to flourish, and to last,” there are at least 17 things they would do.⁷ I’ll focus on three:

(1) ask what will the proposed change will do to our community and how will it affect our common wealth

(2) always include the land, water, the air, and native creatures within the membership of the community

(3) ask how local needs can be supplied from local sources

⁵ Robert S. Seymour and Malcolm L. Hunter (1992) *New forestry in eastern spruce-fir forests: Principles and applications to Maine*. Maine Agricultural Experiment Station.

⁶ Scott Nearing (1952) *Economics for The Power Age*. World Events Committee. East Palatka, Florida

⁷ Wendell Berry (1995) *Conserving Communities in Another Turn of the Crank: Essays by Wendell Berry*. Counter Point, Washington, D.C.

- (4) always supply local needs *first*
- (5) understand the unsoundness of “labor saving” if it implies poor work, unemployment, pollution, or contamination
- (6) develop properly scaled value-adding industries to ensure the community does not become merely a colony of the state, national, or global economy
- (7) develop small-scale industries and businesses to support the local farm and/or forest economy
- (8) strive to produce as much of the community’s own energy as possible
- (9) strive to increase earnings -- in whatever form -- within the community and decrease expenditures outside the community
- (10) make sure that money paid into the local economy circulates within the community as long as possible before it is paid out
- (11) make the community able to invest in itself by maintaining its properties, keeping itself clean without dirtying other places, caring for its old people, and teaching its children
- (12) see that old and young take care of one another
- (13) account for costs conventionally hidden or externalized
- (14) look into the possible uses of local currency, community-funded LOAN programs, systems of barter, and the like
- (15) always be aware of the economic values of neighborly acts
- (16) a rural community should always be acquainted with, and complexly connected with, community-minded people in nearby towns and cities, and
- (17) a sustainable rural economy will be dependent on urban consumers loyal to local products.

Points 1, 2, and 13 are key if we are to Conserve Forest Ecosystem Health – protect our common wealth, include land in community, address externalities, and employ life cycle analyses

Resolving the Tension Between Forest Resource Management & Use and Forest Ecosystem Health & Conservation

In 2016 Frederic Rich published “Ten Commandments for Reforming the Green Movement”⁸

1. Tell the truth, admit uncertainty, and be humble
2. Be hopeful and articulate a positive vision
3. Compromise and incrementalism are okay
4. Accept the imperative of growth. Growth is good. The question is how do you want to grow?

⁸ Frederic C. Rich (2016) *Getting to Green: Saving Nature: A Bipartisan Solution*. W.W. Norton & Company, New York

5. Accept capitalism - especially if it has a triple top line – ecology, ethics, and economy.
6. Business is not the enemy - Engage with business in general but especially those having enlightened environmental leadership
7. Make the moral case for conservation
8. Avoid mission creep. Focus on a well-defined mission
9. Connect and mobilize
10. Embrace healthy, livable, verdant, vibrant cities

I'd like to advocate for more work on two of these ten commandments:

- Making the moral case for forest ecosystem health conservation, and
- Focusing our mission: Conserving water quality in forests; slowing, spreading, and sinking storm flows in headwater forests; and attenuating downstream damage from peak storm flows.

WHY MAKE THE MORAL CASE FOR FOREST ECOSYSTEM CONSERVATION?

- Prioritizing forest ecosystem health conservation in Vermont means we are in relation with the forest. It shows we have grown beyond what Martin Buber called the “I and it” experience of forests and added the “I and thou” relationship with forests.⁹
- That relationship with the forest as a sentient organism capable of detecting and responding to change and differences shows respect for the forest as “mind and nature” and more.
- That relationship with the forest also means that we are more aware of externalities than an economic system in a rush for returns on investment.

FOUR DIFFERENT RELATIONSHIPS IN VERMONT’S FOREST HISTORY:

E.F. Schumacher ended *Small is Beautiful* this way: “Everywhere people ask: What can I actually do? The answer is as simple as it is disconcerting: we can, each of us, work to put our own inner house in order. The guidance we need for this work cannot be found in science or technology, the value of which utterly depends on the ends they serve. But the guidance we need can still be found in the traditional wisdom of humanity.”¹⁰

I. Western Abenaki ERA– 10,500 - present (5000 year-old quarries at or near Waterworks.

“Human beings have a physical body and a life force. The source of this life force is the Earth.” Our Grandmother gave everything life when warmed by the sun. Hunting grounds are commonly held and tended within family units. The Western Abenaki belong to the hunting ground rather than the reverse. There are gods among the rocks, animals, and trees. The Western

⁹ Walter Kaufmann (1970) *I and Thou* ~ Martin Buber: A New Translation. Charles Scribner’s and Sons, New York.

¹⁰ E.F. Schumacher (1973) *Small is Beautiful: Economics as if People Mattered*. Harper and Row, New York.

Abenaki have a gentle ethos. They think that all things, living or inert, sentient or not, were animate in some way – that is they possess an indwelling spirit.”¹¹

Western Abenaki virtues – (1) Gratitude, (2) Humility, (3) Kindness, (4) Mutual-aid, (5) Simplicity and frugality – living at 25% of carrying capacity, (7) Land as commons to which we belong but do not own.

II. Exploitation followed by Migration ERA– starting in 1762

“A complete list of the reasons for the Vermont migration would stretch the liveliest of imagination. Vermonters were nothing if not contrary. The Vermont movement was predominantly the product of certain tendencies and factors worth repeating. First of all, there is the well-nigh universal factor of exploitation. The first white Vermonters used up Vermont. As early as 1820 a good share of the available resources was dwindling. Fish and game, forests and water power, and fundamental richness of the soil itself, were on the wane. The Vermont of 1860 certainly was not the Vermont of 1776. It had lost most of its economic potentiality.”¹²

Though hard on land, Early Vermont white settlers had character and virtue to spare – (1) climbing, ingenious, creative stock, (2) earnest - delighted in obstacles, (3) certain of purpose, (4) capable of making over any environment they encountered in ways that were often bold and dubious, (5) active and rebellious, (6) abhorrent of arbitrary power, and (7) placed a premium on high quality education.

III. Conservative Lumbering ERA, Practical Forestry, Forest Resource Management, Control and Use – 1905 to present

“There are four things a forest must have before it can be in condition to render best service: (1) protection against fire, overgrazing, and thieves, (2) strong and abundant regeneration, (3) a regular supply of trees ripe for the ax, and (4) growing space enough for every tree, so that the forest as a whole may not only produce wood as fast as possible, but the most valuable sort of wood as well.” (Gifford Pinchot, Practical Forestry)

Forest Resource Management virtues – (1) Prudence – site specific but with a timber focus, (2) Temperance - sustained yield, not cutting more than the growth, and (3) Fortitude.

IV. Ecological Forestry ERA, Group B Forestry, Forest Ecosystem Conservation – Health and Self-Renewal - 1949 to present

“Group B Forestry feels the stirrings of an ecological conscience.” Aldo Leopold

“A good tinkerer keeps all of the parts.”

¹¹ Jan Albers (2000) Hands on the Land: A History of the Vermont Landscape. MIT Press, Cambridge, Massachusetts.

¹² Lewis D. Stillwell (1948) Migration from Vermont. Vermont Historical Society, Montpelier, VT.

“A land ethic, reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land.”

“Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity.”

Virtues of Forest Ecosystem Conservation – (1) Gratitude, (2) Prudence - conserve forest ecosystem health, integrity, stability, resilience, and beauty first, (3) Compassion -- recognize the forest as a thinking ecosystem, (4) Intense consciousness on the land – subconscious (i.e. intuition, instinct); conscious – awake, phenomenology, western science; super consciousness – meditation, noumenology, beyond ego.¹³

PRESENT: CHANGING CLIMATE, FOREST ECONOMY, AND FOREST CULTURE:

Vermont’s climate, forest-based economy, and culture are changing. Science and technology will help us deliver on the things we value as a people. However, they are not substitutes for an optimal land ethic rooted in key traditional virtues and values best suited for addressing the challenges of our current ecological, economic, and social reality.

Employing the virtues of our collective history can help.

- Gratitude, mutual aid, the commons, and more from the Western Abenaki peoples.
- Ingenuity, freedom and unity, and placing a premium on high quality education from the first wave of white settlers.
- Prudence and Temperance from the Conservative Lumbering Era and
- Compassion and Intense Consciousness from the Ecological Forestry Era will all serve us well as we grapple with the forestry challenges in a changing climate

IN ADDITION TO KEYSTONE VIRTUES OF GRATITUDE, INGENUITY, PRUDENCE, AND COMPASSION, WE ALSO NEED TO FOCUS ON A WELL-DEFINED MISSION:

MONTREAL PROCESS: Seven Criteria for the Conservation and Sustainable Management of Temperate and Boreal Forests¹⁴

Criterion 1 - Conservation of biological diversity

Criterion 2 - Maintenance of productive capacity of forest ecosystems

Criterion 3 - Maintenance of forest ecosystem health and vitality

¹³ Sri V. Subrahmania Iyer (1955) The Philosophy of Truth

¹⁴ The Montreal Process (2015) Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests, Fifth Edition, Montreal, Canada.

- Criterion 4 - Conservation and maintenance of soil and water resources
- Criterion 5 - Maintenance of forest contribution to global carbon cycles
- Criterion 6 - Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of society
- Criterion 7 - Legal, policy, and institutional framework

What is a forested place like Vermont actually supposed to focus on and do?

A. Recognize three types of interests and elements

- Publicly-held forest interests and elements
- Privately-held forest interests and elements
- Commonly-held forest interests and elements (i.e. water, wildlife, and weather)

B. Employ triad mapping

- Ecological reserves – steep (>35%), fragile communities, wetlands, erosive soils, unique, and or riparian areas where forest management and conservation activities require specific design.
- Light-on-the-land forestry – moderate slopes (15-35%) – Optimal Conservation Practices
- Intensive Management Areas – relatively flat slopes (0-15%) – Acceptable Management practices

C. Focus on Vermont's water commons and clean water as the premier forest product. Why?

- Like the blood in our veins reflects and is diagnostic of our overall health, Vermont's water commons reflect exceptionally well the overall health of the watersheds of home.
- When the water flowing from forests is clear, clean, highly-oxygenated, and low in suspended sediment and associated nutrients like phosphorus, it indicates that the forestland is healthy and that it retains the capacity for self-renewal.
- When water is slowed, spread, and sunk in forests as evidenced by moderated peak storm flow events, it indicates that the forestland is healthy.
- Unlike soil, native vegetation, carbon and even invasive exotic plants, water is commonly held in Vermont. It is all of ours to take care of and to use. The State of Vermont is our trustee but we the people still hold the water.

D. Recognize Eleanor Ostrum's Eight Points of Orientation and Work on Commoning for which she earned the Nobel Prize for Economics in 2012¹⁵

- (1) As a commoner I clearly understand which resources I need to care for and with whom I share his responsibility. Common resources are those we create together, that we maintain as gifts of nature (e.g. Water), or whose use has been guaranteed to everyone (e.g. Lands with conservation easements)
- (2) We use the commons resources that we create, care for and maintain.

¹⁵ David Bollier and Silke Helfrich, Editors (2015) Eight Points of Orientation for Commoning *in* Patterns of Commoning. The Commons Strategies Group, Amherst, Massachusetts

- (3) We enter into or modify our own rules and commitments and every commoner can participate in the process. Our commitments serve to create, maintain, and preserve the commons to satisfy our needs.
- (4) We monitor the respect of these commitments ourselves and sometimes we mandate others whom we trust to help us reach this goal. We continually reassess whether our commitments still serve their purpose.
- (5) We work out appropriate rules for dealing with violations of our commitments. We determine whether and what kinds of sanctions shall be used, depending on the context and severity of a violation.
- (6) Every commoner can make use of a space and means for conflict resolution. We seek to resolve conflicts among us in an easily accessible and straightforward way.
- (7) We regulate our own affairs, and external authorities respect that.
- (8) We realize that every commons is part of a larger whole. Therefore, different institutions working at different scales are needed to coordinate stewardship and to cooperate with each other.

E. Promote Optimal Conservation Practices for: improving water quality; slowing, spreading, and sinking peak storm flows; and attenuating flood damage while enhancing forest-based recreation and forest productivity in forested headwaters.

Here are some examples:

- Directional felling trees across contour and leaving to increase large dead wood to serve as debris dams
- Limiting area in access roads, trails, paths, and landings to 5% or less of the area served.
- Limiting average grade of roads, trails, and paths to 8% or less.
- Avoiding timber harvesting in areas over 35% grade
- Maintaining undisturbed riparian zones adjacent to streams, rivers, wetlands, and lakes
- Drainage structure spacing to limit overland flow
- Minimize and optimize stream crossings number and frequency respectively.
- Use broad-based dips to drain roads
- Avoid ditching roads
- Log under frozen winter and/or dry summer conditions only.

F. Encourage Principles, Ideals, and Virtues that support of an Optimal Water Commons Ethic in the Watersheds of Home:

- Forest Conservation planning should include Public, Private, and Common Interests
- Employ Watershed mapping
- Expand Monitoring of water quality by Commoners
- Begin systematically monitoring of AMP, OCP, and Reserve compliance
- Practice Adaptive Conservation
- Trade Student Debt for Student Data – \$1 Trillion +

- Collect a Carbon emissions fee to fund water commons and wildlife commons conservation work
- Use Forwarders
- Focus cost-share practices on Vermont's Water Commons
- Complement Use Value Appraisal with Forest Health Value Appraisal
- Establish a Vermont Forest Ecosystem Conservation Center Focused on Vermont's Water, Wildlife, and Weather Commons

V. Conclusion

There is much forest ecosystem conservation work to be accomplished in Vermont in this era of a rapidly changing climate, culture and economy.

As Aldo Leopold wrote: *To sum up, a system of management based solely or primarily on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate or degrade, many elements in the land community that lack commercial value, but that are essential to its healthy functioning.*

Our water commons is the most essential of these non-commercial elements for conserving the long-term health, productivity, integrity, resilience, and beauty of Vermont's Forest Ecosystems

- Let's encourage even better management of publicly-held and privately-held forest resources such as timber, sugarbushes, wildlife habitat, recreational trails, and invasive exotics through education and guidelines and by re-tooling the timber harvesting industry to meet the current realities.
- Let's also recognize and celebrate Vermont's water commons in a healthy, productive, resilient, beautiful, working forest landscape that includes a triad of intensively managed forests, light-on-the-land forestry, and ecological reserves.
- Let's focus much more attention, monitoring, adaptive conservation and incentives on our water commons in the forested headwaters of home by recognizing the commons and embracing commoners and commoning as co-equal partners in our conservation efforts, and
- Let's not forget that, in our collective history, humility, gratitude, mutual aid, ingenuity, temperance, prudence, compassion, and intense consciousness have all served us well. Let's revisit and employ them in conserving our water commons and forested ecosystems in the watersheds of home.

MAY THE FOREST BE WITH YOU!