

2015 Vermont Monitoring Cooperative Conference

25 Years of Forest Ecosystem Monitoring: Trends, Patterns, and Lessons Learned

Davis Center, University of Vermont

Friday, December 11, 2015



The University of Vermont

THE RUBENSTEIN SCHOOL
OF ENVIRONMENT AND NATURAL RESOURCES



About the 2015 Conference

This year, the theme for the conference is:

25 Years of Forest Ecosystem Health Monitoring: Trends, Patterns, and Lessons Learned

As the VMC celebrates its 25th year of environmental monitoring we are taking stock of how long-term data can be used to keep us apprised of the condition of our forested ecosystem, identify emerging threats and inform planning and management decisions. This year we focus on the long-term records of many of our VMC collaborators. The morning plenary features invited presentations from experts in various disciplines synthesizing the long-term trends in their data and implications for the forested ecosystem, followed by a reflection on 25 years of cooperative monitoring and a look ahead to the future. The afternoon features three tracks of concurrent sessions where collaborators present their most recent work, followed by seven working group sessions convened by members of our professional community. We will wrap up the day with a poster session and social hour.

Schedule at a glance	
9:00 – 9:10	Welcome
9:10 – 11:40	Long-term trends in the forested ecosystem
11:40 – 12:00	Reflection on 25 years of VMC
12:00 – 1:00	Lunch
1:00 – 2:40	Contributed Presentations
2:50 – 4:10	Concurrent Working Sessions
4:10 – 5:15	Poster Session and Social Hour

A special thank you to our graduate student Conference Facilitators Cathleen Balantic, David Gudex-Cross, Alexandra Kosiba, Nicole Rogers, and Tami Wuestenberg for their help in facilitating the plenary session question-and-answer process, and moderating the afternoon concurrent sessions.

News from the Cooperative in 2015

[The Vermont Monitoring Cooperative Long-Term Monitoring Update – 2014](#)

A review of long term trends in twelve key areas affecting regional forest ecosystem health, updated for 2014.

Available online at http://www.uvm.edu/vmc/about/annual_report/2014

[New Members Welcomed to the Steering and Advisory Committees](#)

We are pleased to welcome **Connie Carpenter** (US Forest Service, Northeastern Area State and Private Forestry), **Heidi Hales** (VT Department of Environmental Conservation), **John Sinclair** (Green Mountain and Finger Lakes National Forests) and **Jim Westfall** (US Forest Service Northern Research Station) to the VMC Steering Committee, and we want to thank **Steve Sinclair** for stepping into the Chairperson's role. We also welcome **Bennet Leon** (VT Department of Environmental Conservation) to the VMC Advisory Committee.

[Forest Health Monitoring Network Doubled in 2015](#)

Building on existing forest health inventories, VMC worked with partners in Vermont Forests, Parks and Recreation and the Green Mountain National Forest to vastly expand the historical and spatial extent of our forest health monitoring network.

More information and data online at <http://www.uvm.edu/vmc/project/forest-health-monitoring>

Agenda

8:15 – 9:00 **Registration** (*Livak Fireplace Lounge*)

9:00 – 9:10 **Host's Welcome and Introductory Remarks** (*Sugar/Silver Maple*)
Nancy Mathews, *Dean of the Rubenstein School of Environment and Natural Resources, University of Vermont*
Jennifer Pontius, *Principal Investigator, Vermont Monitoring Cooperative*

9:10 – 11:40 **Plenary Session**

Long-term trends in the forested ecosystem

Fast-paced presentation of long-term trends in key ecosystem processes and components.
Moderator: Steve Sinclair, Director of Forests, VT Department of Forests, Parks and Recreation

Tree Pests & Damage <i>Barbara Schultz</i>	Tree Growth Trends <i>Paul Schaberg</i>	Phenology <i>Josh Halman</i>	Forest Fragmentation <i>Michael Snyder</i>	
--- Coffee Break ---				
Climate <i>Lesley-Ann Dupigny-Giroux</i>	Acid Deposition <i>Rich Poirot</i>	Monitoring Water Quality <i>Jim Kellogg</i>	Mercury <i>Jamie Shanley</i>	Soils <i>Scott Bailey</i>
--- Coffee Break ---				
Vermont's Big Game Mammals <i>Mark Scott</i>	Bat Populations <i>Alyssa Bennett</i>	Amphibians and Reptiles <i>Jim Andrews</i>	Forest Birds <i>Steve Faccio</i>	

NOTE: Rather than taking questions during the session, we will be collecting questions over the course of the morning, and working with presenters to post answers online by the end of lunch. Either post your questions to the [Facebook event page](https://www.facebook.com/events/482076881972588) or write them down and hand to one of the morning facilitators. Online: <https://www.facebook.com/events/482076881972588>

11:40-12:00 **Reflections on 25 Years of VMC**

Robert Paquin, Vermont State Director, USDA [Farm Service Agency](#) and long-time Legislative Assistant and Congressional Aide to Senator Leahy, **Lawrence Forcier**, former Dean of the UVM School of Natural Resources and College of Agriculture and Life Sciences and **Conrad Motyka**, former VT State Forester and Commissioner of Forests, Parks and Recreation all played critical roles in establishing the Vermont Monitoring Cooperative 25 years ago. They along with key individuals from the U.S. Forest Service brought together the VMC partners and crafted a vision and direction for the organization. They will speak about those early foundational days, VMC's evolution and impacts over the years, and also try to look forward to some of the major opportunities and challenges for the continually-evolving organization. **Thomas Berry**, Field Representative for U.S. Senator Patrick Leahy, will deliver some remarks on behalf of the Senator.

12:00 – 1:00 **Lunch** (*Sugar/Silver Maple*)

1:00 - 2:40 **Contributed Presentations** (*Rooms listed below*)

Learn about new and ongoing research, monitoring, conservation and outreach initiatives related to the forested ecosystem through several concurrent sessions of presentations.

Changing Forests and Management - *Silver Maple*

Water Quality and Watersheds - *Livak Ballroom*

Fauna and Landscapes - *Jost*

The full schedule is listed at the end of the agenda, and the abstracts are available at the registration desk.

2:40 – 2:50 **Coffee Break** (*Silver Maple*)

2:50 - 4:10 **Concurrent Working Sessions** (*Rooms listed below*)

Proposed, organized and run by meeting participants, this time allows for more structured networking and communication among current and potential collaborators.

Class I Wetlands - Planning Public Outreach and Organizing for the Greatest Wetland Protection -By Invitation-

Organizer: Danielle Owczarski, VT Department of Environmental Conservation

Room: Boulder Society

Exploring a Forest Indicators Dashboard -Open to All-

Organizer: Jennifer Pontius, Rubenstein School of Environment and Natural Resources, US Forest Service Northern Research Station

Room: Mildred Livak

Forest-Lake connections -Open to All-

Organizer: Peter Isles, Rubenstein School of Environment and Natural Resources

Room: Frank Livak

Incorporating Forest Management and Stakeholder Expertise into a Vermont-Specific Forest Management Decision Support Tool -By Invitation-

Organizer: Clare Ginger, Tony D'Amato, Mary Sisock, Rubenstein School of Environment and Natural Resources

Room: Chittenden

Monitoring Earthworm Invasions into Northern Hardwood Forests -Open to All-

Organizer: Josef Gorres and Ahmed Hamed, University of Vermont

Room: Spruce

Overcoming the Barriers to PPSR -Open to All-

Organizer: Bridget Butler, Bird Diva Consulting/Cold Hollow to Canada

Room: Jost

Vermont Water Monitoring Council Meeting -Open to All-

Organizer: Neil Kamman, VT Department of Environmental Conservation

Room: Sugar Maple

4:10 – 5:15 **Posters & Social Hour** (*Sugar/Silver Maple*)

Enjoy conversation, posters and a cash bar at the end of the day.

Contributed Presentations Schedule

Time	Changing Forests and Management <i>Moderator: Nicole Rogers Room: Silver Maple</i>	Water Quality and Watersheds <i>Moderator: Tami Wuestenberg Room: Livak Ballroom</i>	Fauna and Landscapes <i>Moderator: Cathleen Balantic Room: Jost</i>
1:00 to 1:20	Management for old-growth characteristics and late-successional biodiversity in temperate montane forests <i>William Keeton, University of Vermont Rubenstein School of Environment and Natural Resources</i>	Hydrology <i>Jamie Shanley, US Geological Survey</i>	Decline of bumblebee species diversity in Vermont, 1900-2013 <i>Leif L. Richardson, Gund Institute for Ecological Economics, University of Vermont</i>
1:20 to 1:40	Effectively Communicating Science: Lessons Learned <i>Sandy Wilmot, Vermont Department of Forests, Parks and Recreation</i>	Edge of Field Monitoring in Vermont <i>Fletcher (Kip) Potter, USDA/NRCS</i>	Not your parents' field guide: a site-specific macroinvertebrate iPhone app for citizen scientists. <i>Declan J. McCabe, Saint Michael's College Biology</i>
1:40 to 2:00	Tracking parcelization and addressing forest fragmentation – tools and strategies for reversing negative trends in Vermont. <i>Jamey Fidel, Vermont Natural Resources Council</i>	High-resolution Mapping of Potential Vernal Pools using LiDAR and Object-based Image Analysis <i>Sean MacFaden, University of Vermont Spatial Analysis Laboratory</i>	Improving Large-scale Forest Mapping in the Northeast: Coupling Pixel-based and Object-based Classification of Multitemporal Landsat Imagery <i>David Gudex-Cross, Rubenstein School of Environment and Natural Resources, UVM</i>
2:00 to 2:20	An Overview of the Vermont Boreal Flora <i>Robert Popp, Vermont Fish & Wildlife Dept.</i>	Climate-driven changes in energy and mass inputs alter N:P stoichiometry differently in deep and shallow sites in Lake Champlain <i>Peter D.F. Isles, Rubenstein School of Environment and Natural Resources, UVM</i>	Drones Mapping Vermont's Changing Landscape <i>Jarlath O'Neil-Dunne, University of Vermont</i>
2:20 to 2:40	The role of climate in sugar maple health: projections for the future <i>Jennifer Pontius, UVM RSENR and USFS NRS</i>	Assessment of Vermont Department of Environmental Conservation Watershed Management Division's LaRosa Partnership Program <i>Rachael DeWitt, University of Vermont Rubenstein School of Environment and Natural Resources</i>	Calculating carbon storage in the Northern Forest: a methods comparison <i>Alison Adams, Rubenstein School of Environment & Natural Resources, UVM</i>

Concurrent Working Session Descriptions

Class I Wetlands - Planning Public Outreach and Organizing for the Greatest Wetland Protection **-By Invitation-**

Class I Wetland designation provides the strongest protection for VT's wetlands. A Class I designation requires compelling public support, so how do we plan for successful designations for VT's most valuable wetlands? The session will start with a background on Class I wetland designations and an overview of the new process the State of VT has been developing to identify these wetlands, and then move on to the question of how we can get the public involved with the process in a positive way. In this working session we will discuss: where's the best place to start, what's the best way to organize this process, how do we get the word out, and how do we find our strongest partners.

Organizer: Danielle Owczarski, VT Department of Environmental Conservation

Room: Boulder Society

Exploring a Forest Indicators Dashboard **-Open to All-**

We explore the utility of using a coarse assessment of multiple forest health metrics to summarize the relative condition of Vermont's forests compared to historical records. This will include a discussion of additional data sets for inclusion, potential uses of such a tool, potential drawbacks of summarizing a complex system in a simple metric, and outlets for dissemination.

Organizer: Jennifer Pontius, Rubenstein School of Environment and Natural Resources and US Forest Service Northern Research Station

Room: Mildred Livak

Forest-Lake Connections **-Open to All-**

A great deal of limnological research in Vermont has focused on agricultural impacts on Lake Champlain, however many of Vermont's smaller lakes exist in predominantly forested catchments, which may be experiencing different stressors as a result of changes in climate, atmospheric nutrient and acid deposition, and forest ecosystem changes. For example, many lakes in forested catchments in Sweden and Canada have experienced "browning" as a result of increasing DOC concentrations, reducing lake productivity and altering the balance between carbon sequestration and carbon release. Lakes may also act as "climate sentinels," providing integrated information about climate effects on watershed processes. In this session, we will bring together researchers in forestry, hydrology, and limnology to address the availability of complimentary datasets in Vermont lakes and forests and identify sites where increased data may lead to valuable insights about forest and small lake ecosystems.

Organizer: Peter Isles, Rubenstein School of Environment and Natural Resources

Room: Frank Livak

Incorporating Forest Management And Stakeholder Expertise Into A Vermont-Specific Forest Management Decision Support Tool **-By Invitation-**

The Forest Health and Climate Research Group in the Rubenstein School at the University of Vermont is developing a tool to inform forest management in Vermont under conditions of global change. This tool is intended to be used by forest managers and stakeholders. It will be different from coarser, regional scale tools such as Tree Atlas because it will be Vermont-specific and incorporate forest management activities. The purpose of the working session is to gather input from potential users of the

tool.

Organizer: Clare Ginger, Tony D'Amato, Mary Sisock, Rubenstein School of Environment and Natural Resources

Room: Chittenden

Monitoring Earthworm Invasions into Northern Hardwood Forests -Open to All-

Earthworm invasions represent a serious threat to forest health. However, resources are scarce to detect affected ecosystems and judge the degree of damage done. Volunteer networks of citizen scientists are probably the only practicable way to assess and monitor the state of the invasion in northeastern forests. In this workshop you will learn the telltale signs of earthworm invasions and how you can contribute to public awareness of this invasion and inform the forest and ecological science community by utilizing social media.

Organizer: Josef Gorres and Ahmed Hamed, University of Vermont

Room: Spruce

Overcoming the Barriers to PPSR -Open to All-

PPSR is the acronym for Public Participation in Scientific Research, otherwise known as citizen science. As citizen science has grown in popularity, some professional scientists are skeptical of the public's scientific potential. Additionally, the excitement behind the crowdsourcing trend has led to projects without support from professional scientists and with data being collected without a defined and relevant purpose. In this working group, we'll look at some exemplary projects, hear about their stumbling blocks and tips for success, as well as identify potential future projects where PPSR could be used effectively.

Organizer: Bridget Butler, Bird Diva Consulting/Cold Hollow to Canada

Room: Jost

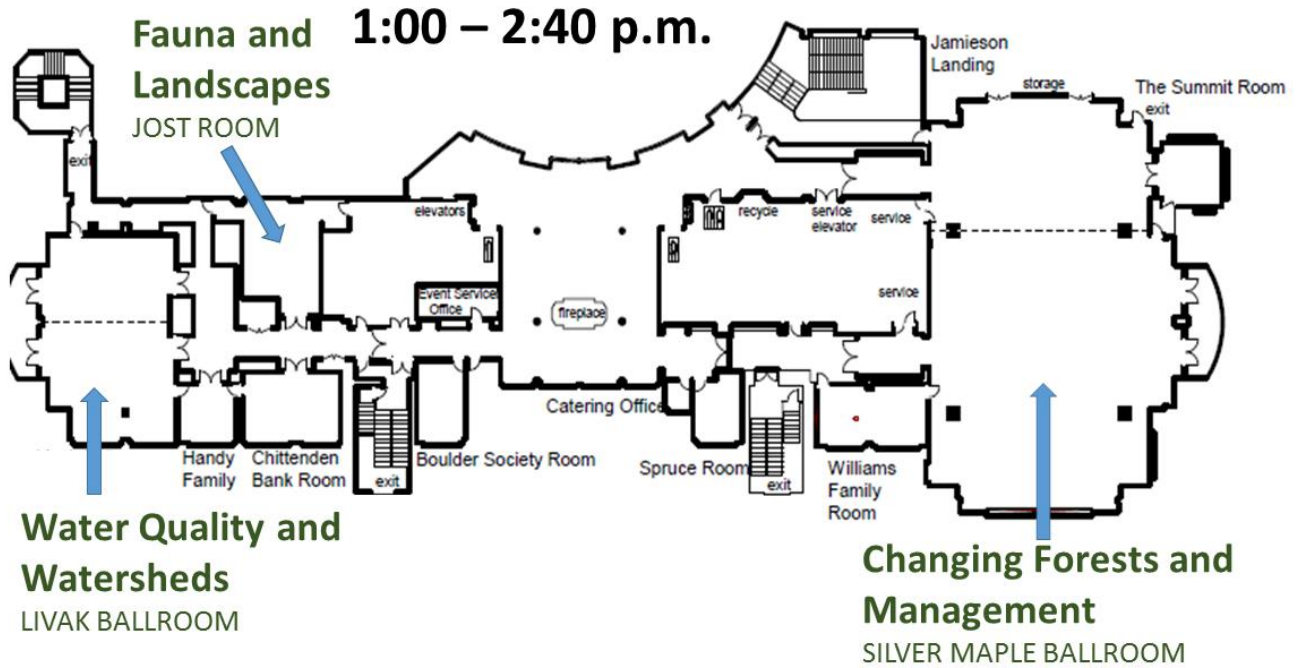
Vermont Water Monitoring Council Meeting -Open to All-

The Vermont Water Monitoring Council serves to complement VMC's statewide work by convening a broad stakeholder group for whom the availability of water quantity and quality data is of significant interest. During this session, the Council will meet to discuss: 1) Recent developments regarding the State's LaRosa Partnership Program, including a presentation from a UVM Consulting Team on proposed modifications to the program; 2) updates from USGS and EPA on current initiatives (invited content will include the National Aquatic Resources Survey of EPA, and USGS' proposed High-Elevation monitoring network); 3) updates from the State regarding how the new Vermont Clean Water Act will influence water quality monitoring in VT; 4) roundtable discussion on monitoring successes from 2015.

Organizer: Neil Kamman, VT Department of Environmental Conservation

Room: Sugar Maple

Room Assignments for Contributed Presentations



Room Assignments for Concurrent Working Sessions

