

# **Catskill Environmental Research & Monitoring (CERM) An Overview**

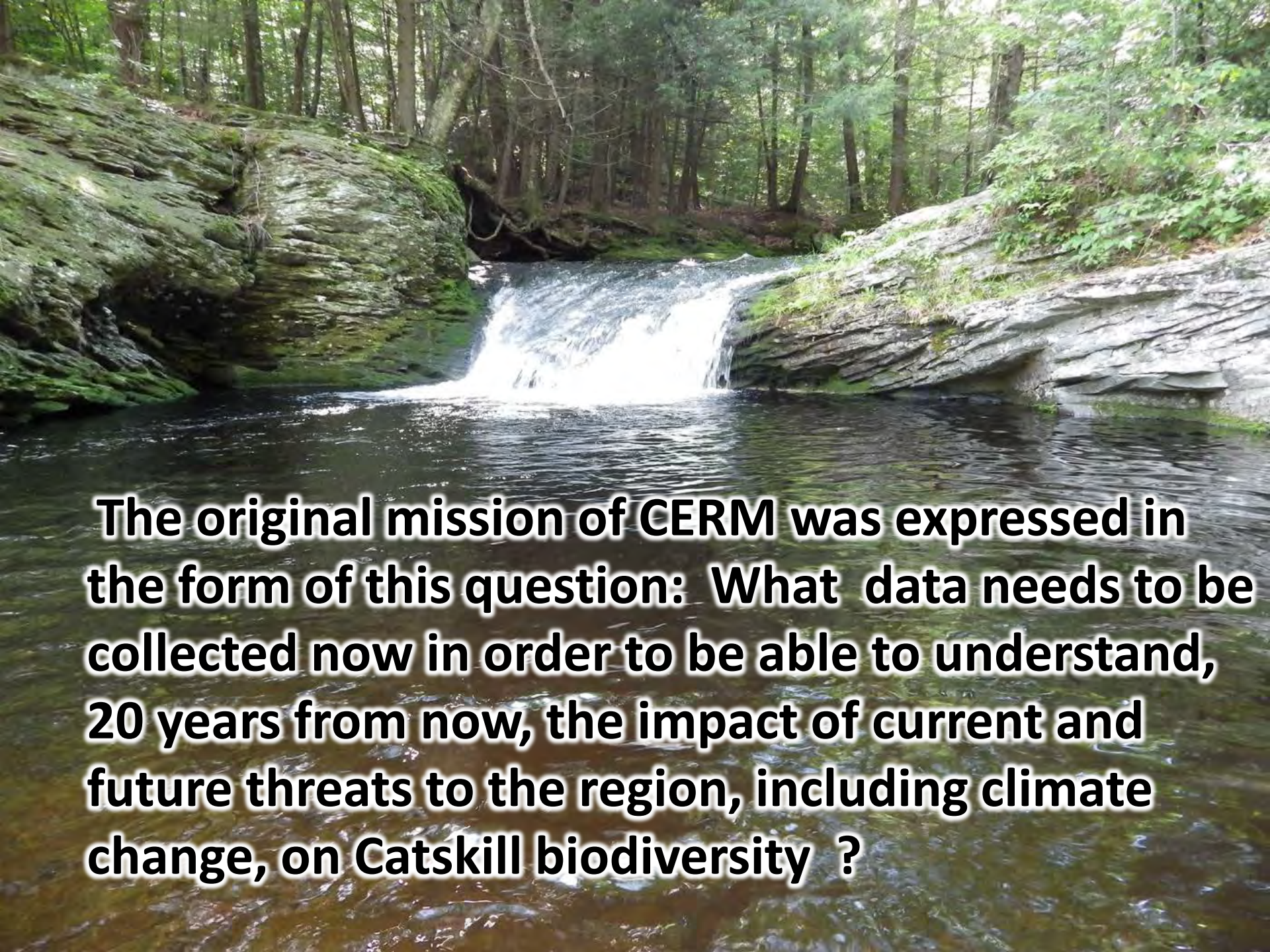
Presented by Steve Parisio, NYSDEC at the  
Ninth Annual Workshop of the  
Northeastern Soil Monitoring Cooperative  
USGS New York Water Science Center, Troy, NY  
March 26, 2015

**Origin of CERM: Conceived by the Department of Environmental Conservation in 2009, in consultation with key research institutions.**

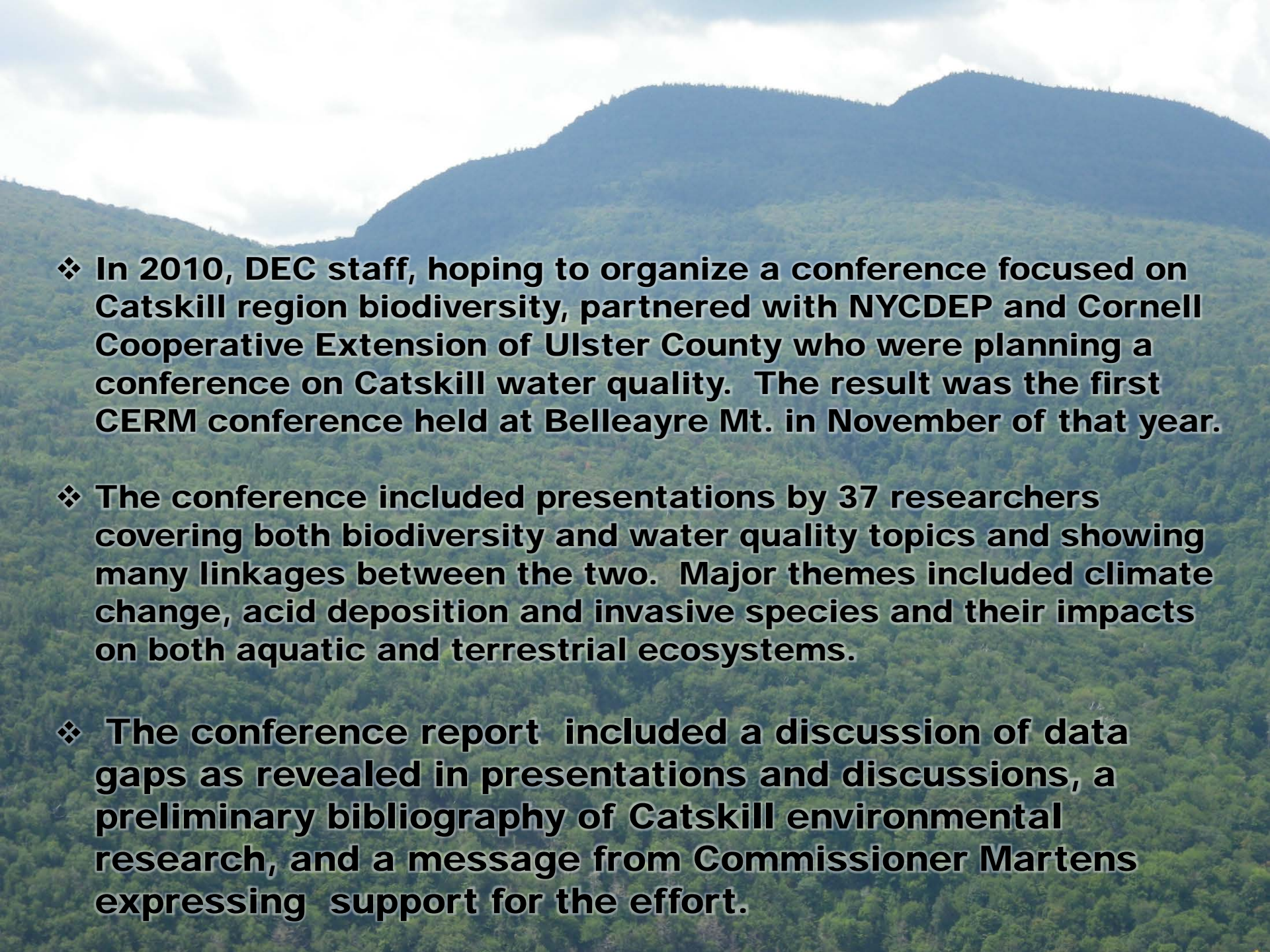
**Primary Goals:**

- 1. Review past and current environmental research and monitoring activities in the Catskills;**
- 2. Identify critical data gaps;**
- 3. Develop a research and monitoring agenda to address threats to the region, including climate change and invasive species; and**
- 4. Encourage communication, cooperation and collaboration among researchers and research institutions.**





**The original mission of CERM was expressed in the form of this question: What data needs to be collected now in order to be able to understand, 20 years from now, the impact of current and future threats to the region, including climate change, on Catskill biodiversity ?**

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- A scenic view of a forested mountain range under a cloudy sky. The mountains are covered in dense green forest, and the sky is filled with soft, white clouds. The overall atmosphere is peaceful and natural.
- ❖ In 2010, DEC staff, hoping to organize a conference focused on Catskill region biodiversity, partnered with NYCDEP and Cornell Cooperative Extension of Ulster County who were planning a conference on Catskill water quality. The result was the first CERM conference held at Belleayre Mt. in November of that year.
  - ❖ The conference included presentations by 37 researchers covering both biodiversity and water quality topics and showing many linkages between the two. Major themes included climate change, acid deposition and invasive species and their impacts on both aquatic and terrestrial ecosystems.
  - ❖ The conference report included a discussion of data gaps as revealed in presentations and discussions, a preliminary bibliography of Catskill environmental research, and a message from Commissioner Martens expressing support for the effort.

**CERM is an informal partnership between researchers and resource managers from several government agencies and academic institutions.**

**Current Composition of the CERM Conference Planning Committee:**

**NYSDEC**

**NYCDEP**

**Cary Institute of Ecosystem Studies**

**Cornell Cooperative Extension of Ulster County**

**US Geological Survey**

**Catskill Institute for the Environment**

**NYS Museum**

**NYSERDA**

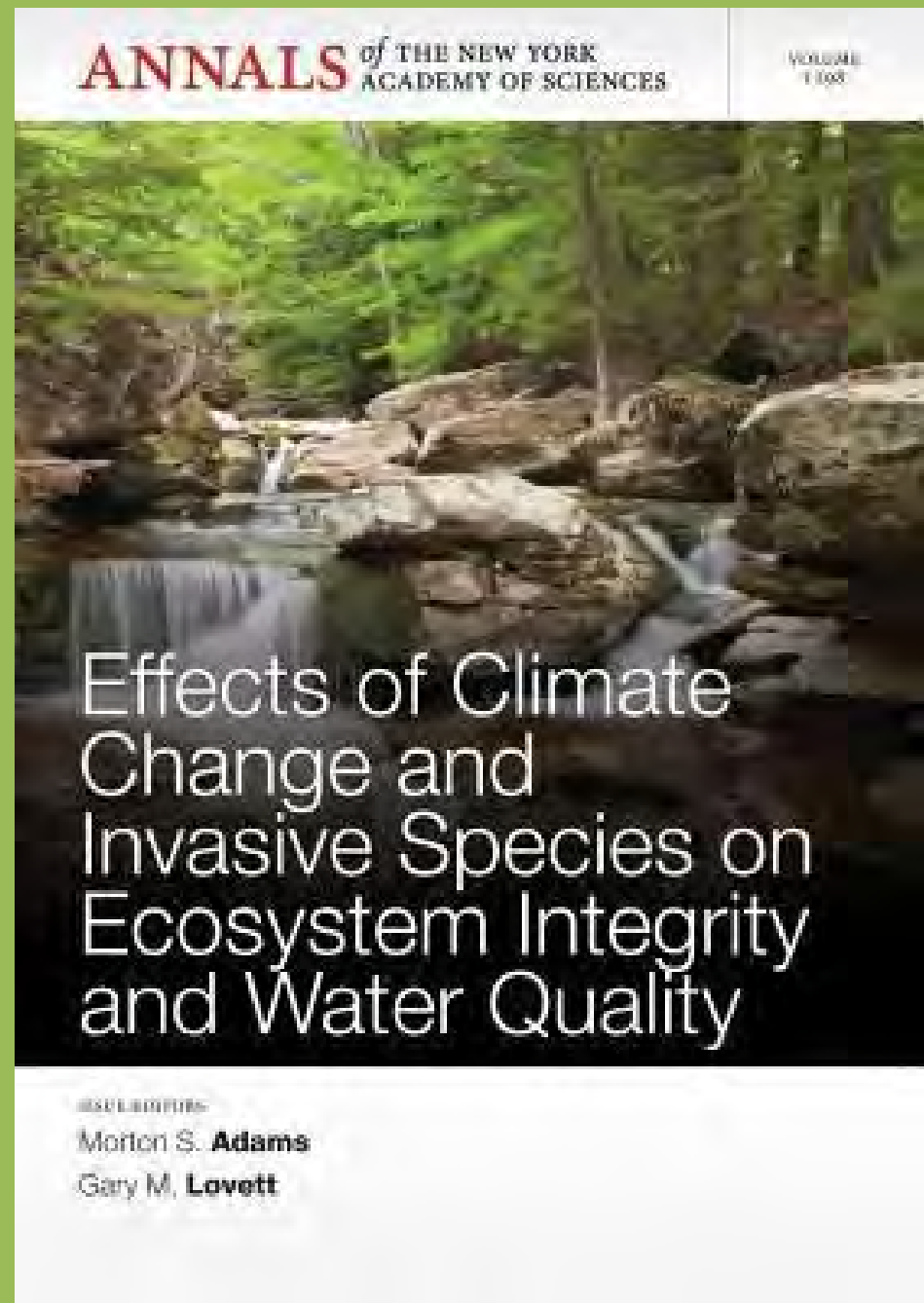
**Syracuse University**

**Bard Center for Environmental Policy**

The 2<sup>nd</sup> Biennial CERM Conference, held at Belleayre Mt. in October of 2012, featured 48 presentations by Catskill researchers.

The proceedings of the conference was published as a special issue of the Annals of the New York Academy of Sciences, a high-impact, peer-reviewed scientific journal.

The issue includes nine research papers covering topics relating to geologic weathering, soil chemistry, extreme weather events, groundwater chemistry, forest health, forest history, vulnerability of biodiversity elements to climate change, invasive species and wildlife habitat connectivity. The title expresses the unifying theme of the conference





**A third biennial conference was held in 2014. This conference featured a number of invited speakers in sessions on science communication/citizen science, new approaches to environmental monitoring and novel uses for historical data sets.**

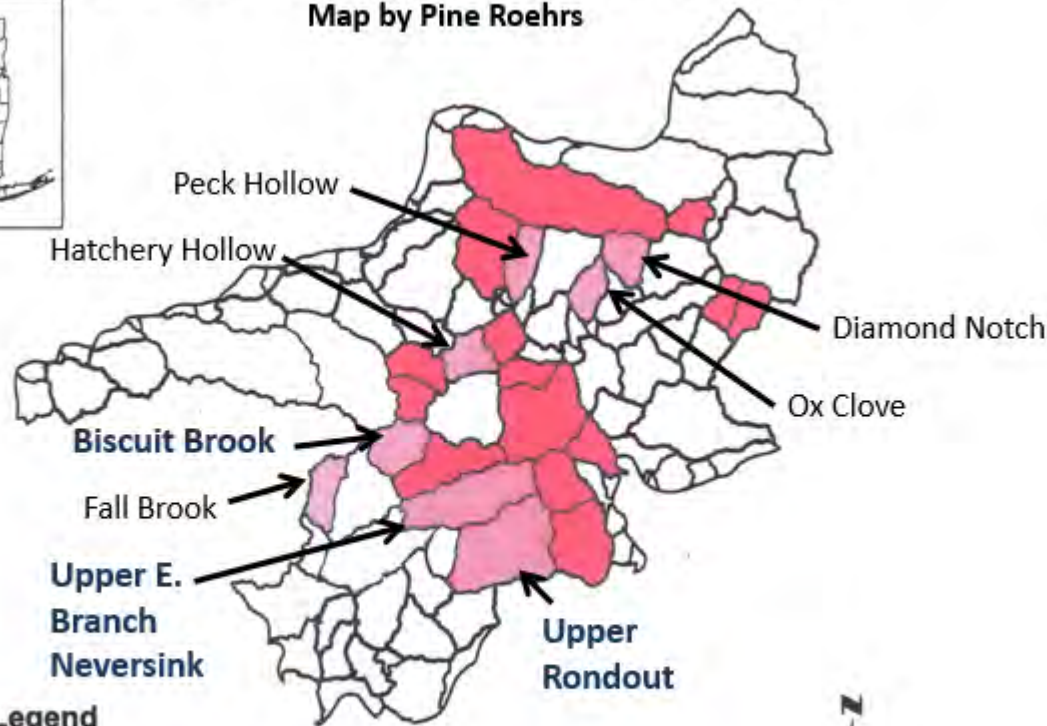
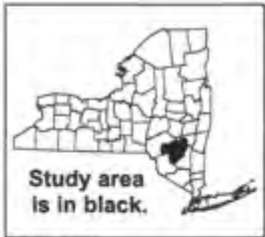
In addition to holding the biennial conference, the CERM planning committee has identified and begun working on the following initiatives:

- ❖ Catskill Research Forest
- ❖ Catskill Data Sharing Catalogue
- ❖ Bibliography of Catskill Environmental Research
- ❖ Catskill Cooperative Research & Monitoring Network

2015 is a non-conference year. Our goal is to make progress on some of the other CERM initiatives such as the Catskill Research Forest.

### Candidate Watersheds within Study Area

Map by Pine Roehrs



#### Legend

- Final candidate watersheds
- Candidate watersheds eliminated from consideration

0 5 10 20 30 40 Miles

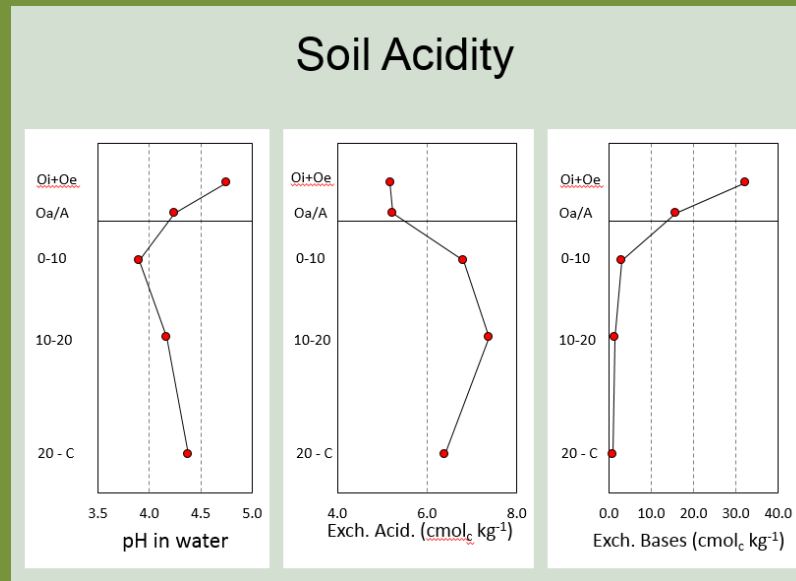


We have completed a preliminary siting study to identify candidate sites. Next steps are to visit and evaluate the top-ranked sites and initiate discussions with the landowners.



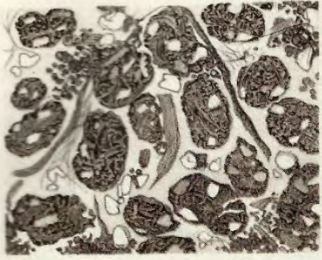
In 2015 we will also begin working on the CERM cooperative research initiative. The project we have selected is soil science related.

Catskill soils have been studied extensively from the standpoint of soil chemistry, especially in relation to acid deposition.

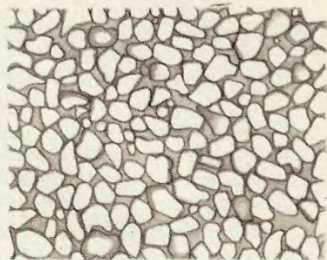


However, significant data gaps exist with respect to soil classification, the types of soil profiles present under different forest types and the relationships between soil genesis, vegetation and below-ground biodiversity.

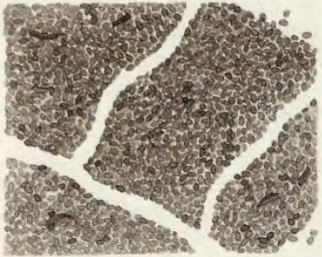
II.



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We will study sites representative of the three major humus forms: Mor, Moder and Mull.

For this project, so far, the research team we have assembled includes expertise in geology, geochemistry, soil genesis, vascular plants, bryology, gastropods, entomology, microbiology, forest ecology and forest history. Several of members of the team have not worked in the Catskills previously. We will visit and sample at least six sites starting in early May.

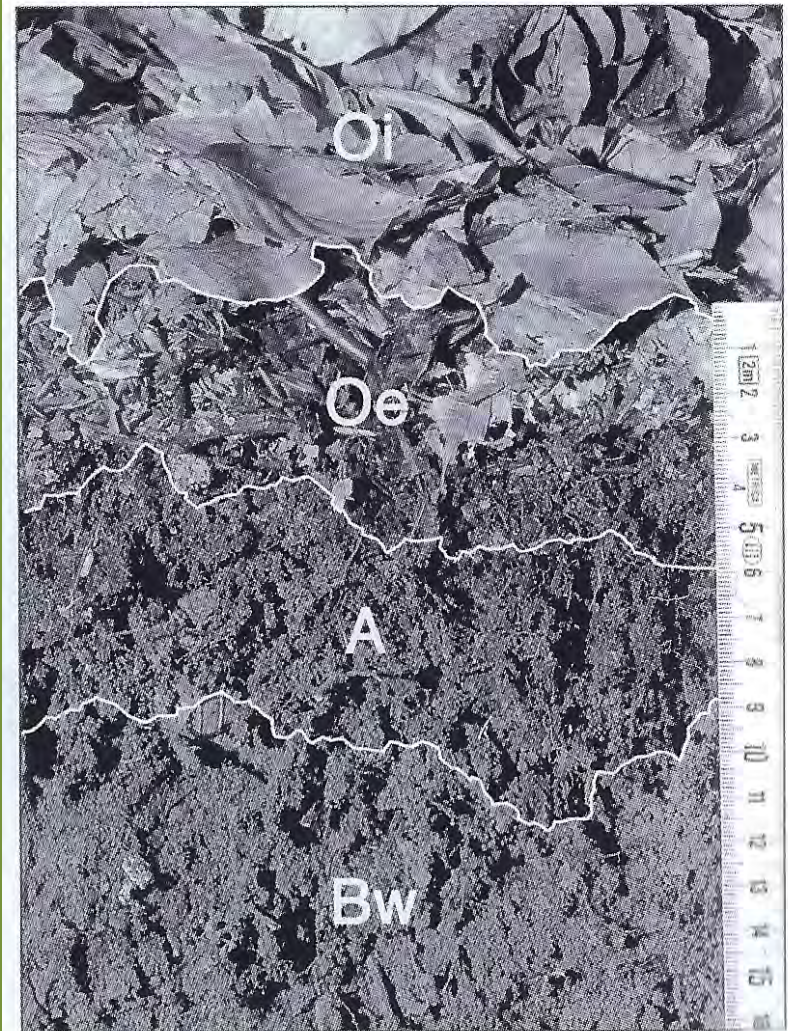
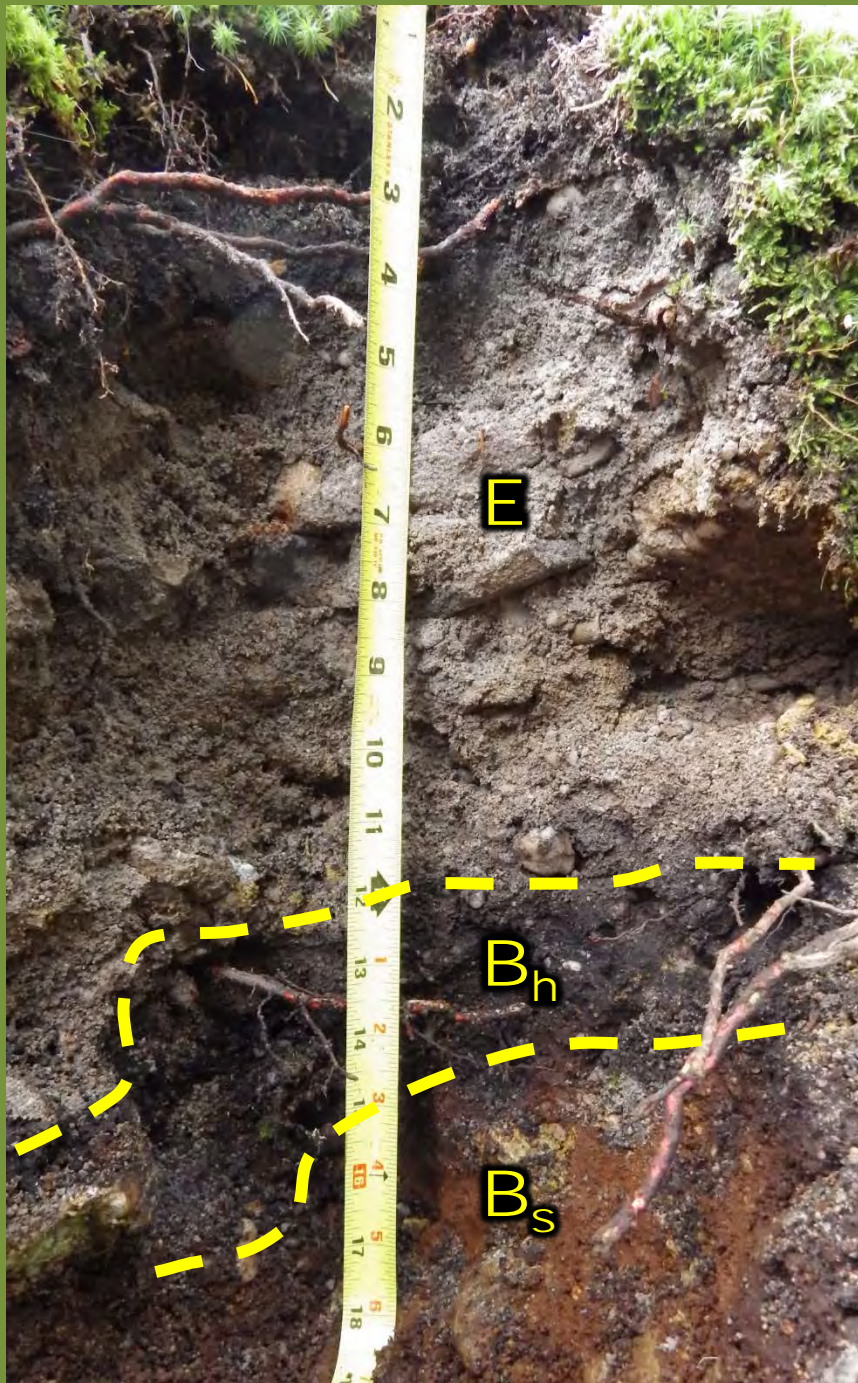


Fig. 4.6 - Hemi-moder di una faggeta alpina, che mostra due orizzonti organici (Oi, Oe) e la parte superiore del suolo minerale (orizzonti A e Bw). Modificato da Zanella e altri (2001).



As part of this project, we hope to confirm and document the presence of spodosols in the Catskills. Because spodosols are currently not mapped in published soil survey reports for the Catskill counties or otherwise documented in the soils literature, this study will address a major data gap with respect to soil genesis and classification. The profile shown here was photographed and sampled in 2014. Diagnostic laboratory tests are needed to confirm that the soil taxonomic criteria have been met and this testing will be carried out as part of this project.

A photograph showing a cross-section of soil. The soil is dark brown and appears moist. On the left side, a white, segmented worm is visible, partially buried in the soil. On the right side, a pinkish, segmented worm is visible, also partially buried. The soil surface is covered with dry, brown leaves and twigs. The text "The End" is overlaid in yellow on the left side of the image.

The End