24th Annual Conference on the Adirondacks

May 24th and 25th, 2017, The Conference Center at Lake Placid, Lake Placid, NY

"Transitions and Connectivity"
In the Adirondacks and the Northern Forest

PAPER ABSTRACTS

Langen, Tom A. [1]

Effectiveness of public-private partnerships for wetland conservation & restoration.

In the Great Lakes watershed, where much of the watershed is in the hands of private landowners, the importance of public-private partnership (PPP) programs to wetland conservation and restoration, and therefore water quality and ecosystem health, is vital. However, there has been little assessment of PPP programs, such as FWS Partners for Fish and Wildlife or NRCS Wetlands Reserve programs, related to ecological factors, like wetland associated biodiversity, and even less related to social or economic factors, such as why landowners choose to participate, their views on the value of the projects, what conservation practices they undertake, and the economic value of wetland restoration. These types of assessments are critical for improving and sustaining the success and impacts of PPP programs for wetland restoration.

With engagement and input from agencies and conservation NGOs who implement wetland restoration PPP programs, my team measured the ecological, social, and economic impacts of 50 restored PPP wetlands on private landholdings within the Lake Ontario/St. Lawrence River watershed in New York State. Key environmental and socioeconomic indicators for determining the suitability of a site for participation in a PPP program were identified, ecological and economic benefits of restored wetlands were quantified, and recommendations and BMPs to support outreach and recruitment for participation and for managing projects under these programs were developed. This project has collected key information and developed practical tools to increase the success of wetland restoration throughout the Great Lakes region, with findings that are likely equally applicable to the Northern Forest region.

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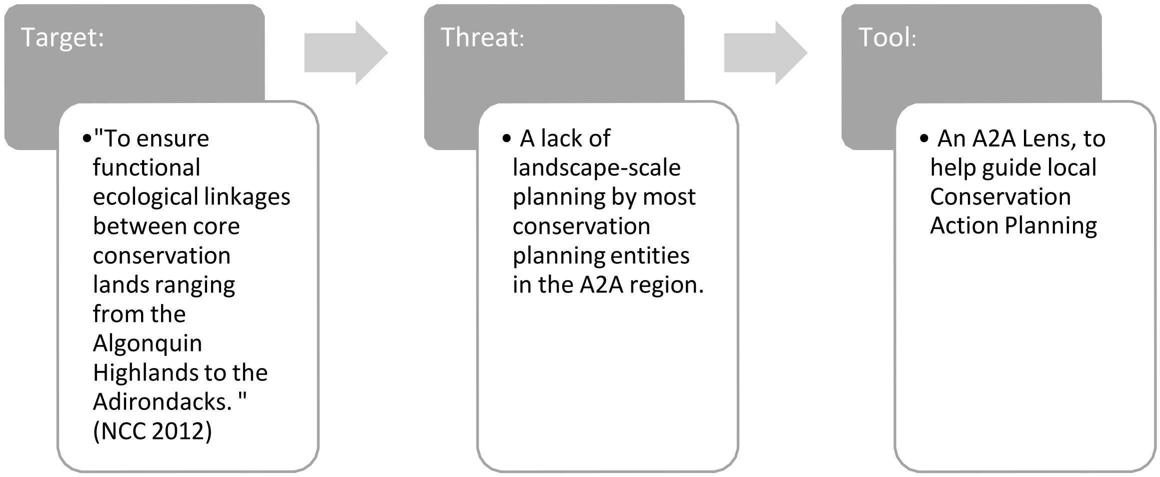
David **Miller**, M.Sc, Executive Director, Algonquin to Adirondacks (A2A) Collaborative

Connectivity Mapping and Conservation Planning in the Algonquin to Adirondacks Corridor

The Algonquin to Adirondacks (A2A) Collaborative is a regional organization dedicated to the protection of the forested biological corridor between Algonquin Park and the Adirondacks. http://www.a2acollaborative.org/. A2A has initiated development of a landscape corridor Conservation Action Planning Framework project. The project will help local conservation action planning efforts incorporate a broader landscape connectivity perspective as shown in this figure:



A key foundation for this work is **connectivity mapping**. A2A has completed a connectivity analysis and mapping project that is intended to identify the key ecological cores and connections in support of conservation planning efforts.
This presentation will review the A2A connectivity mapping in terms of:

- Criteria and approach to mapping critical core areas and corridor connections
    - Identify Land and water **core areas** based on size, quality, features
    - **Primary linkage** zones
        - Adapted from previous work in Southern Ontario (MNR Southern Region Information and Analysis Unit)
    - **Linkages** (primary and riparian pathways)
        - Utilize *Linkage Mapper* (ArcGIS Tools by TNC)
    - **Characterization** of the landscape
        - Overlay of binational species & community records
        - identifying surrogate for ecosystem function and constraints

- Mapping results

- What does the mapping tell us? Overall connectivity assessment will be highlighted
- How can it be used? To facilitate corridor assessment in local efforts
- Application in landscape corridor conservation action planning.

Challenges such as application in different landscapes (highly fragmented versus highly intact) will be discussed.

POSTER ABSTRACTS

Brandt, Richard E.[1*], James **Schwab**[1], Ken L. **Demerjian**[1], Brian A. **Crandall**[1], Paul. **Casson**[1], Henry D. **Felton**[2], Oliver V. **Rattigan**[2], and Jed E. **Dukett**[3]

25 Years of Atmospheric Monitoring at Whiteface Mountain Observatory

Long term records of precursor trace gases and condensed-phase atmospheric constituents have been collected for over two decades at the Whiteface Mountain Observatory in the Adirondack Mountains of northern New York. Built in 1971 by the Atmospheric Sciences Research Center

(ASRC) of the University of Albany, the observatory sits atop Whiteface Mountain (44.366°N 73.903°W) at 1483 m above sea level. At this altitude the bulk of the atmospheric constituents arrive from long range transport of regional sources. A second monitoring site is located on the eastern shoulder of Whiteface Mountain at ASRC's Marble Mountain Lodge (44.393° N and 73.859° W) at 604 m elevation that is collocated with a National Atmospheric Deposition Program site.

At Whiteface summit daily aerosol sampling began in 1978 including analysis for SO_4. Precursor trace gas measurements became routine in the early 1990's with warm season cloud water chemistry added in 1994. At Marble Lodge precipitation chemistry began in 1984. Trace gas observations were added in 2000 with sulfate and nitrate monitoring beginning in 2004. At the summit the SO_2 trend is very clearly decreasing over the roughly 25-year period of measurements. NO_y and NO_2 have more complicated trends; since the mid-2000's they have shown a sharp decrease. Cloud water pH has followed with a steady increase over the same period. Wind rose analysis shows the greatest contribution of precursor gases are from the west to south sectors. These datasets provide a detailed view of the atmospheric chemistry at a remote location in the northeastern U.S.A.

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Selma S. **Isil1,** Paul W. **Casson2**

Cloud Water and Filter Pack Concentrations from the Summit of Whiteface Mountain, NY

The Clean Air Status and Trends Network (CASTNET) began operation in 1991, as an expansion of the National Dry Deposition Network, and was established in response to the 1990 Clean Air Act Amendments (CAAA). CASTNET's principal function is to provide air pollutant concentration data to evaluate the effectiveness of national and regional emission control programs. The program was designed to determine trends in rural atmospheric ozone, nitrogen and sulfur concentrations and deposition fluxes of nitrogen and sulfur pollutants. CASTNET is sponsored mainly by the U.S Environmental Protection Agency (EPA) and the National Park Service (NPS).

This paper will present results from CASTNET site WFM007 and the ALSC cloud water site WFM300. Both sites are located on the Atmospheric Sciences Research Center's Summit Observatory which is located on the peak of the mountain at an elevation of 1483 m. CASTNET operates another site, WFM105, at the Marble Mountain Lodge site located on the eastern shoulder of the Whiteface massif at an elevation of 604 m. This site also houses a National Atmospheric Deposition Program/National Trends Network (NADP/NTN) site, NY98, for collection and analysis of weekly precipitation samples. Data from WFM105 and NY98 will also be presented and where possible compared with concentrations from the summit sites.

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Andre-Anne **Chenaille**, Alex **Whiston**, Dave **Nardelli**, Chloe **Mattilio**, Rob **DeSotle**, Erik **Yankowsky** and Celia **Evans** – Paul Smith's College

Examining Factors Correlated with Growth of *Larix laricina* in an Adirondack Peatland: Developing an emerging hypothesis about nitrogen limitation and source-sink dynamics

The discipline of ecology seeks to determine factors that influence the distribution and abundance of organisms. Distributions are influenced, firstly, by dispersal, the ability for propagules to reach a habitat. Ultimately, individuals must be able to grow and reproduce to maintain a viable population. This research, on the fine-scale factors that influence the growth of Eastern larch, extends our earlier work which examined fine-scale factors that influence the establishment of seedlings of Eastern larch. Factors that influence the establishment of a species may differ from factors that influence growth. Conditions in peatlands are typically low nutrient availability, high water table, low oxygen content, acidic conditions, and cold soils. Data from 6 transect, and 42, 5 m radius plots from coniferous forest into open peatland showed that neither seedling biomass nor needle nitrogen content differed across abiotic gradients. However, depth to groundwater and water temperature explained 54% of the variance in root:needle biomass ratio. Root proportion in seedlings was greatest where the depth to groundwater was greater and the water cooler. Sapling larch were taller for their age in areas where the canopy closure was greatest and N concentration in needles was highest. On average, saplings had significantly higher N concentration in their needles than did seedlings, suggesting that seedlings were not yet accessing the limited supply of N, but were allocating more biomass to roots out in the peatland to gain access to this limiting nutrient. In our data set, the ratio of seedlings: saplings was 17:1. This ratio, combined with the information that saplings had on average higher N concentration in needles than seedlings, and were growing better close to the edge of the peatland in the coniferous forest where needle nitrogen concentrations were higher, make us wonder if this peatland larch population is a sink population maintained by dispersal from the surrounding coniferous forests. Future studies of seedling mortality and seed production and viability will help elucidate whether source-sink dynamics are at play in this peatland tree population.

Aswini **Pai**[1*], Lydia **Horne**[1], Houston **Judd**[1]

Importance of kitchen gardens in supporting pollinator diversity in St. Lawrence County

Kitchen gardens exhibit great agrobiodiversity with respect to crop species and floral resources. We hypothesized that kitchen gardens foster greater pollinator diversity as compared to larger monocultural cropfields. We sampled wild bee communities using pan traps in 22 polycultural kitchen gardens and 6 monocultural forage cropfields in rural upstate New York through one growing season. We recorded 26 genera and 64 species of wild bees. ANOVA indicated that there was significantly greater bee species richness ($p < 0.05$) in kitchen gardens as compared to forage crop fields. Though total wild bee abundance was consistent through the growing season, some genera fluctuated in numbers. Bee abundance could be influenced by both floral diversity and floral resource density. Further, additional parameters such as availability of nesting sites may also determine wild bee diversity. This study has implications for long term management of wild pollinators and crop diversity in the region.

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