2006 Adirondack Research Consortium Conference - Abstracts
Table of Contents

Day 1 –Wednesday, May 24th

PLENARY SESSION I.

Long Term Assessment of Mercury through Sampling of Loons, Fish, Water and Sediment

Nina Schoch (presenter), Adirondack Cooperative Loon Program, *David Evers* and *Melissa Duron,* BioDiversity Research Institute, *Michale Glennon,* Wildlife Conservation Society, *Howard Simonin* and *John W. Ozard,* NYS Department of Environmental Conservation, *Charles Driscoll,* Syracuse University, *Amy K. Sauer,* Adirondack Cooperative Loon Program

Abstract

The Adirondack Cooperative Loon Program, a partnership of the Wildlife Conservation Society, Natural History Museum of the Adirondacks, NYS Department of Environmental Conservation, BioDiversity Research Institute, and the Audubon Society of New York, is using the common loon (Gavia immer) as an indicator species to assess the mercury exposure and risk in aquatic ecosystems in the Adirondack Park of New York State. As part of a long-term study examining loon survival and reproductive success in relation to mercury, abiotic (water and sediment) and biotic (loon, prey fish, crayfish, and zooplankton) samples were collected from 44 lakes in the Park from 2003-2004. Mercury analysis of these samples was used to develop a mercury exposure profile to evaluate the ecological risk that mercury deposition poses to Adirondack waterbodies and loon populations. Ecological risk was quantitatively assessed using a formula for a wildlife criterion value to determine if the water column mercury concentration is protective of wildlife at the population level in the Adirondack Park. The differences in reproductive success and survival in common loons in relation to their mercury exposure were used to develop a mercury hazard profile. A population model was also developed to determine if mercury contamination is affecting the population growth rate of loons in the Adirondacks. Results of this project will enable researchers, regulatory agencies, and policy makers in New York State to make informed decisions regarding regulation of airborne pollutants and management of wildlife species and freshwater ecosystems.

Dr. Nina Schoch
Adirondack Cooperative Loon Program
P.O. Box 195
Ray Brook, NY 12977

518-891-8836
aclp2@juno.com

Growth in the Adirondack Park: Fifteen Years of Development Trends in the Adirondack Park, 1990-2004

Peter Bauer, Residents Committee to Protect the Adirondacks

Abstract

Growth in the Adirondack Park has been persistent since 1990. Over the past 15 years, there have been 13,500 new houses permitted to be built across the Adirondack Park, 5,000 in the years 2000-2004. Of this, just 33% have been regulated by the Adirondack Park Agency, the majority have been regulated by local governments. The impacts of development are different in the 103 towns and villages across the Adirondack Park, but many communities have experienced a 400% to 500% increase in the total taxable assessments in their communities, lack of affordable housing, and growth in the development impact zones that displace wildlife, change ecological communities, and degrade water quality. A presentation of development trends, build-out analysis, rates, patterns and impacts in the Adirondack Park, 1990-2004 will be provided.

Mr. Peter Bauer
Residents' Committee to Protect the Adirondacks
PO Box 27

7 Ordway Lane
North Creek, NY 12853

(518) 251-4257 ext 13
rcpa.peter@frontiernet.net

Impacts to Wildlife from Low Density Exurban Development Part II. Tools for Local Planning

Michale Glennon, Wildlife Conservation Society

Abstract

Exurban development is defined as development in semi-rural areas outside of urban and suburban zones and is characterized by low density (5-40 acres or more) and large lot size. Exurban development is one of the primary causes of loss of land and habitat, resulting in 10 times the amount of land-use change attributed to urban and suburban development, and growing faster than any other type of residential area in the U.S. At last year's conference, we highlighted the potential negative effects to wildlife from exurban development in the Adirondacks. This year we will expand upon our work to bring examples of tools for local land use planning that can be used to guide development in the most ecologically and aesthetically sensitive ways. We will give examples of approaches being employed in other regions to visualize and evaluate planning alternatives while taking into account critical habitats and potential effects to plants and animals. We will highlight regions of the Park where development has occurred most rapidly in the last few years and use a local example to demonstrate potential approaches to planning for development. An effective approach will require considerable stakeholder involvement and collaboration among decision makers, planning and zoning board members, and citizens, but can go well beyond zoning alone in protecting human and biotic values on the landscape.

Dr. Michale Glennon
Wildlife Conservation Society
Adirondack Communities & Conservation Program
7 Brandy Brook Avenue, Suite 204
Saranac Lake, NY 12983

518.891.8872
mglennon@wcs.org

CONCURRENT BREAKOUT SESSION I.

A. Forest Ecology

Impact of Silvicultural Practices on Leaf Litter Amphibians in the Adirondacks

Malaret, Luis (presenter), Community College of Rhode Island, *Gary Wade* and *Marla Emery*, USDA Forest Service, *Monika Szymurska, Rachel Regeczi* and *Dianne Rocheleau,* Clark University

Abstract

Impact of silvicultural practices on leaf litter amphibians was studied at two sites in the north central section of the Adirondacks State Park. Four 22.56m diameter circular plots at the center of two-hectare control (C), clear cut (CC) and single-tree cut (SC) experimental blocks at each site were surveyed prior to treatment (6/30–7/14/99) and after treatment (6/23–7/8/00, 6/19-27/01 and 7/3-6/03). The leaf litter community consisted of five species of salamanders (redback salamander, mountain dusky salamander, spotted salamander, 2-lined salamander and the red eft) and three species of frogs/toads (American toad, wood frog and the spring peeper). The total number observed declined from 267 in 1999, to 210, 215 and 173 in 2000, 2001 and 2003, respectively. Both CC blocks combined exhibited the greatest reductions: representing 33% of the total in 1999, 17% in 2000, 10% in 2001, and 3% in 2003. SC blocks, in contrast, represented 45% in 1999, decreased to 40% in 2000, but increased to 50% in 2001, and 53% in 2003. C blocks represented only 24 % in 1999 but increased to 42% in 2000, 40% in 2001 and 43% in

2003. Species diversity in CC and SC blocks decreased significantly, between 1999 and 2000 and remained significantly lower in the CC blocks in 2001 and 2003. In contrast species diversity in the SC blocks bounced back.

Mr. Luis Malaret
Community College of Rhode Island
1762 Louisquisset Pike
Lincoln, RI 02865

401-825-7295
lmalaret@ccri.edu

Examining the Relationships Among Density of Beech Saplings, Forest Structure and Composition, and Beech Bark Disease in the Adirondacks: Differences between managed and preserved forest stands

Jennifer Lucas and *Celia Evans (presenters),* Paul Smith's College, *Matt Ayres,* Dartmouth College, *Mark Twery,* USDA Forest Service

Abstract

Both beech bark disease (BBD) and timber management activities have been shown to increase root sprouting in American Beech (Fagus grandifolia). We examined forest structure and composition with respect to density of beech saplings in a large Adirondack forest data set collected in 2002-2004 that included managed and preserved watersheds. We also collected preliminary data that include BBD index and sapling origin (seed, root sprout) in a subset of those watersheds, and others in 2005. Preserved watersheds had higher density of beech saplings than managed watersheds. We used principle components analysis to collapse our many variables into condensed forest structure and topographic components and developed 'mixed' regression models using those condensed variables as well as meaningful individual variables to determine which of these aspects could explain the most variance in beech sapling density. In managed stands, neither topography nor forest structure variables explained any significant variance in saplings/m2. However, in preserved stands beech-specific PC1 (number/BA of beech trees) and beech-specific PC2 (average size of beech trees) and slope explained 29% of variance in sapling density. We used the same modeling techniques with the 2005 data set to gain preliminary information on forest structure, topography, and disease index that correlated with saplings/m2 and % of saplings from sprout origin. Our data show that different aspects of forest structure and topography combined with disease, influence sapling and sprout densities, and that the models that best describe the variance in these densities are different between managed and preserved plots.

Dr. Celia Evans
Paul Smith's College
Routes 86 and 30
Paul Smiths, NY 12970

518-327-6460
evansc@paulsmiths.edu

Japanese Knotweed Control Using Herbicides Along Roadsides in Blue Mountain Lake, NY

Erik B. Lema (presenter) and *Christopher A. Nowak,* SUNY College of Environmental Science and Forestry

Abstract

Japanese knotweed (Polygonum cuspidatum Seib. & Zucc.) is a critically important, non-native, invasive plant that is spreading throughout the Adirondack Park. Knotweed appears to be in an early stage of invasion and therefore may be controllable with intensive management. An integrated strategy is clearly needed, especially given the complex of environmental and social concerns in the Park. Herbicides are an important treatment for controlling knotweed. Site-specific research will be needed in order to minimize direct costs and environmental impacts associated with herbicides and other control treatments. Such research began in part in summer 2004. A select set

of knotweed clumps on roadsides in Blue Mountain Lake were treated by The Nature Conservancy's Adirondack Chapter and the New York State Department of Transportation. Two different herbicide methods were compared: cut-stump (glyphosate) and foliar (mix: glyphostate, imazapyr, and metsulfuron). One-year post-treatment, knotweed was controlled, but not eradicated by the herbicide treatments. Knotweed cover was reduced with both herbicide treatments as compared to untreated controls (2–3% cover for herbicide, 80% for untreated control), but only the foliar treatment reduced stem density (7,000 stems per hectare for foliar, compared to 54,000 and 47,000 for cut-stump and untreated control, respectively). Percent cover of other plants was not different among treatments, averaging less than 15%. Monitoring will continue for at least one more year to elicit full treatment effects. Subsets of clumps may have follow-up treatments. Research should be expanded to other populations of knotweed in the Park.

Mr. Erik Lema
SUNY ESF
320 Bray Hall
One Forestry Drive
Syracuse, NY 13210

315-470-4877
eblema@syr.edu

Biodiversity, Species Composition, and Land Use Categories in Tupper Lake, Adirondacks: People, Plants and Animals in Residential, Recreational, and Working Forest Ecologies

Dianne Rocheleau (presenter), Clark University, *Marla Emery, Luis Malaret, Robin Roth, Alice Hovorka, Gary Wade* and *Monika Szymurska*

Abstract

Do people merely destroy forest ecologies or can they form new assemblages with plants and animals in complex landscapes? Does the diversity and composition of such assemblages depend more on human population density, or land management practices? What role do residential status, wealth, occupation, personal history and values play? These questions framed the study on Social Constituencies of Adirondacks Ecologies conducted by a team from Clark University and the Aiken Research Laboratory (USDA Forest Service). Integrated multi-taxa biotic surveys and social surveys in 1999 and 2000 began with a stratified random sample of 48 circular plots and surrounding land management units, distributed across six APA land use categories in the Town of Tupper Lake, and Fish Creek and Rollins Pond Campgrounds. Field teams identified, counted and measured trees and shrubs, as well as reptiles, amphibians, and ant species in a series of nested plots at each sample point. Questionnaire surveys of the owners and residents at the sample sites provided a history of use and occupation of the property (land management unit) surrounding each plot, as well as explanations of land use and management practices, and values attached to specific places and species (plants and animals). The species richness of trees and shrubs in the sample plots did not vary significantly according to the APA land use categories or to the size of the surrounding landholdings, but rather according to the values and preferences of the land owners and occupants. In the questionnaire and qualitative social surveys we found variation not only in the importance of forests and species diversity, but also a multiple scale and complex pattern of people's connection to forest plants and animals, from home sites, camps and workplaces to hunting grounds, walking trails and canoe trails. Full time, seasonal and vacation residents all exhibited attachment to the land, forests and particular species, but with distinct temporal and spatial scales of relationship to specific kinds of forests, and combinations of plant and animal species. Results indicate pathways for biodiversity conservation in a variety of residential landscapes.

Dr. Dianne Rocheleau
Clark University
Jefferson Academic Center Room 201B
Worcester, MA 01610

508-887-5001
drocheleau@clarku.edu

B. Education and Community Development

Place Based Education Within the Adirondack Park

Sandra Hildreth, Adirondack Curriculum Project

Abstract

The Adirondack Curriculum Project is a not-for-profit organization dedicated to fostering better public understanding, appreciation and stewardship of the Adirondack region's natural and cultural resources by providing educational resources and training opportunities for teachers.

Our presentation is a powerpoint that will illustrate who we are, what we do, why, when and how we do it.. The ACP consists of volunteer educators who have recognized the value of place-based education and have collected over 80 lesson plans, called "Adirondack Challenges", that are available to teachers, for free, on our web site, www.adkcurriculum.org.

The ACP has conducted a number of teacher workshops and programs and while relatively successful, feel there is still a much greater need to reach educators in the public schools in and near the Adirondack Park. It is the children in those classrooms who will determine the future of the Adirondacks. If they are to be well informed, their teachers need to be knowledgeable about the history and culture of the region.

After showing our 10 minute powerpoint, we would like to host a discussion on how we might get more teachers involved, using the Adirondacks as a way to teach their own content material and meet New York State Learning Standards.

Ms. Sandra Hildreth
Adirondack Curriculum Project
182 Lake Street
Saranac Lake, NY 12983

518-891-1388
shildreth@adelphia.net

Science on the Fly, Loon Migration Linking People and the Environment

Nina Schoch (presenter) and *Amy K. Sauer,* Adirondack Cooperative Loon Program, *Rick Godin,* Natural History Museum of the Adirondacks, *Michale Glennon,* Wildlife Conservation Society, *David J. Adams* and *John W. Ozard,* NYS Department of Environmental Conservation, *David Evers* and *David Yates,* BioDiversity Research Institute, *Fredrik Realbuto,* Audubon Society of New York State, *Inc., Kevin Kenow,* U.S. Geological Survey

Abstract

In 2005, the Adirondack Cooperative Loon Program (ACLP) introduced "Science on the Fly! Loon Migration: Linking People and the Environment," an innovative middle-school curriculum. This new curriculum builds upon research conducted by the ACLP and the U.S. Geological Survey (USGS) that uses satellite telemetry techniques to identify areas in eastern North America important to common loon (Gavia immer) populations for migration and wintering habitats. Scientific inquiry learned through "Science on the Fly!" promotes student centered, open-ended explorations into the dynamics of freshwater aquatic environments. By connecting classroom activities and investigations to the ACLP-USGS's loon migration research, students gain an understanding of the ecological links between people, the environment, and its wild inhabitants. The Teacher's Manual provides guidance to educators to utilize the unique training video, classroom activities, and interactive website, www.scienceonthefly.org, to teach students how to design and conduct their own scientific studies. Initially piloted in Adirondack middle school classes during the winter of 2004-2005, Science on the Fly! is now available to students and educators worldwide via ACLP's website, www.adkscience.org/loons. ACLP's education programs bring the results of its research to the public, increasing awareness of the connections between habitats utilized by wildlife year-round, and resulting in a better understanding of how conservation concerns in one area affect a wildlife species throughout its range. This knowledge enables students and the general public to make informed decisions about their use of environmental

resources and better appreciate how people affect the environment and its wild inhabitants on local, regional, and national scales.

Dr. Nina Schoch
Adirondack Cooperative Loon Program
P.O. Box 195
Ray Brook, NY 12977

518-891-8836
aclp2@juno.com

Lessons Learned from Adirondack Community Exchange Days

Zoe Smith (presenter), Wildlife Conservation Society, *Leslie Karasin*

Abstract

Many Adirondack towns and villages initiate innovative locally based projects that support community improvement and promote the natural environment as an asset. Because of communication limitations and remote geographic conditions, however, many residents and leaders of the Adirondack Park are often unaware of projects in neighboring towns. Building these connections, sharing knowledge, and celebrating success are all components of the Wildlife Conservation Society's Community Exchange Day (CXD) program.

At the Adirondacks Gateways Exchange in 2002, connecting communities was one of many regional strategies identified to help Adirondack communities bridge environmental, economic, and community interests in the Park. WCS is contributing to this effort through its Community Exchange Days. WCS' exchanges allow local leaders, planners, residents, and local governments to learn about planning and implementing community-based projects. These events bring residents together to share experiences and innovative approaches to community development and promote linkages that connect people and communities of the Adirondacks.

Since the fall of 2000, over 100 Park residents from dozens of communities have participated in WCS' Community Exchange Day series. WCS structures the exchanges to focus on a theme chosen by the community. To date, CXDs have brought together a diverse group of participants including municipal leaders, local non-elected leaders such as directors of non-profit organizations, Chambers of Commerce, various community development committee volunteers, second home owners, business owners, artists, retirees, and local residents for lively discussions about community projects.

WCS will highlight successful community initiatives; share lessons learned from the exchanges; and propose new activities to enhance the program.

Ms. Zoë Smith
Wildlife Conservation Society
Adirondack Communities & Conservation Program
7 Brandy Brook Avenue, Suite 204
Saranac Lake, NY 12983

518.891.8872
zsmith@wcs.org

New Developments in the use of the Zooplankton Community Index as a Tool for Measuring Zooplankton Recovery in Chemically Recovering, Acidified, Adirondack Lakes

William H. Shaw (presenter), Institute of Ecosystem Studies, *James W. Sutherland,* NYS Department of Environmental Conservation, *Charles W. Boylen and Sandra A. Nierzwicki-Bauer,* Darrin Freshwater Institute

Abstract

We examined 30 lakes in the Adirondacks, ranging in pH from 4.5 to 7.1 in 1994, for evidence of chemical and biologic recovery during the 10-year period concluding in 2003. We looked for indicator species (defined) that

could reliably predict biotic recovery and could find none. Instead, rotifer and crustacean species were assembled into 3 groups, acid sensitive (>pH 5.6), acid resistant (pH 5.0-5.6) and acid tolerant (<pH 5.0). As lakes acidify, acid sensitive species drop out of the community early in the process and acid resistant species become progressively less abundant while acid tolerant species progressively dominate as acidification becomes extreme. We used abundance of species relative to pH to produce a community index (defined) for crustaceans, rotifers and combined zooplankton to quantify changes in relative abundance that should accompany biotic recovery, i.e. a decline in acid tolerant species, increase in acid resistant species and the return of acid sensitive species. We used statistical methods to assess changes in the community indices for each of the 30 lakes for the 10-year period. We compare biological indices of lakes showing chemical recovery with those that do not and identify those lakes showing the greatest rate of recovery. The zooplankton community index is a promising tool for the evaluation of zooplankton recovery over the entire pH spectrum found in acidified lakes and should have broad application in acidification studies.

Dr. William H. Shaw
Institute of Ecosystem Studies
Millbrook, NY 12545

CONCURRENT BREAKOUT SESSION II

A. Wildlife

Using Spatial Point Processes to Assess Distribution of Human-Wildlife Interactions in Northern New York

Heidi Kretser (presenter), Cornell University and the Wildlife Conservation Society, *Barbara Knuth,* Cornell University, *Pat Sullivan,* Cornell University

Abstract

Patterns among spatially organized points can be detected in a variety of situations. Spatial patterns become important when point locations and the relationships of those points to other data are the variables of interest. Identifying the degree of clustering, repelling, or randomness is the first step to understanding spatial point processes. Human-wildlife interactions can be considered point locations across the landscape. How human-wildlife interactions relate spatially across all species, within one species, and between species can elucidate interesting patterns pointing to further research questions. Of particular relevance is how human-wildlife interactions relate spatially to varying intensities of development on the landscape. This presentation will explore whether exurban landscape attributes are useful predictors of spatial patterns of human-wildlife interactions. The analysis was conducted for the 13 county Northern New York region, including the Adirondack Park. The researchers used wildlife complaints reported to the New York State Department of Environmental Conservation and to Nuisance Wildlife Control Operators from 2001-2003, and housing data from the 2000 Population and Housing full-count data. Land-use intensities were defined as urban, suburban, exurban, rural1, rural2, and wildlands in 5km2 grids. Spatial point processes were used to test hypotheses on the relationships of locations and clustering of wildlife interactions in the Northern New York State to different intensities of land use. The broader context for this research will be discussed.

Ms. Heidi Kretser
Cornell University and the Wildlife Conservation Society
271 Forest Hill Avenue
Saranac Lake, NY 12983

518-891-0759
hek1@cornell.edu

Ecology and Distribution of American Marten in New York State

Paul Jensen, NYS Department of Environmental Conservation

Abstract

In New York State, American martens (Martes americana) occur primarily within Adirondack Park, represent the southernmost population in the northeast, and are geographically isolated from all other marten populations in the U.S. and Canada. Despite periods of habitat loss and possible overexploitation in the 1800's, marten populations have persisted in the Adirondacks and have been expanding their range in this region since the mid-1930's. Since 1978, we have been collecting biological and harvest data on trapped martens. Currently, our GIS database includes approximately 2,000 marten locations from 1975-2005, representing harvest records (n = 1,600), results of live-trapping efforts (n = 125), and marten sightings (n = 270). A preliminary analysis of these data indicates that martens occupy an area of approximately 6,100 mi2 in northern New York. While these data have provided considerable insight into marten range and distribution, they have also allowed us to identify data gaps. In particular, we lack harvest information from the western Adirondacks and robust data on marten occurrence and distribution in the northern and eastern Adirondacks where the marten trapping season is closed. To address these data gaps, we are conducting a long-term study to document marten distribution using photographic bait station and snow-tracking survey techniques. Additionally, we recently initiated a project in the southwestern Adirondacks to live-trap and radio-collar martens. The objectives of this project are to better understand marten home range dynamics, habitat selection, juvenile dispersal, and mortality factors. I will present preliminary results of our survey and telemetry projects and highlight future research on martens in the Adirondacks.

Mr. Paul Jensen
NYS Department of Environmental Conservation
232 Hudson Street Extension
PO Box 220
Warrensburg, NY 12885

(518) 623-1200
pgjensen@gw.dec.state.ny.us

Can Atlas Data be Used to Monitor Avian Population Change?

Benjamin Zuckerberg (presenter) and *William F. Porter*, SUNY College of Environmental Science and Forestry, *Kimberley Corwin*, NYS Department of Environmental Conservation

Abstract

Ecological processes, such as extinction and invasion, are often the culmination of years and decades of population change. Consequently, long-term population monitoring represents an essential component of conservation. Agencies involved in monitoring often collect distributional data, however, little is known about whether these data accurately reflect changes in regional abundance. New York is the first state to have completed two statewide Breeding Bird Atlases. Our objective was to determine if distributional changes are correlated with changes in relative abundance using two independent data sets: the Breeding Bird Atlas (BBA) and the Breeding Birds Survey (BBS). The BBA is a comprehensive, state-wide survey documenting the distribution of breeding birds in New York. The 1980 BBA was conducted between 1980-1985 and the 2000 BBA was conducted between 2000-2005. Over the same time period, the BBS has collected bird abundance data on 198 roadside routes randomly distributed throughout the state. For 110 species, we found that there is a positive interspecific relationship between statewide abundance and distribution in the two independent sampling periods of 1980-1985 ($R2 = 0.59$, $p < 0.001$) and 2000-2005 ($R2 = 0.52$, $p < 0.001$). For those species demonstrating significant changes in abundance ($N = 68$), we found that distributional changes were highly correlated, in both direction and magnitude, with changes in state-wide abundance ($R2 = 0.86$, $p < 0.001$). These findings suggest that changes in Atlas data accurately reflect changes in relative abundance, and that distributional surveys offer a powerful tool for measuring avian population change within New York State.

Mr. Benjamin Zuckerberg
SUNY ESF
College of Environmental Science and Forestry
1 Forestry Drive
Syracuse, NY 13210

bzuckerb@syr.edu

B. Geographic Information Systems

An Explanation of the Various Wetlands GIS Data available for the Park

Sunita Halasz (presenter), NYS Adirondack Park Agency, *John Barge* and *Dan Spada,* NYS Adirondack Park Agency

Abstract

A variety of wetlands GIS data are available for the Park from different originators, dates, and at different scales, geographic extents, and accuracies. This paper describes and compares NWI maps, APA Regulatory maps, APA Cover Type maps, USGS NAPP data, and more, and discusses the appropriate use of each.

Mr. Sunita Halasz
NYS Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

518.891.4050
sshalasz@gw.dec.state.ny.us

Mapping Historic Photos with GIS

John Barge, NYS Adirondack Park Agency

Abstract

The Town of Day in Saratoga County wanted to protect visually significant resources in their town. They requested GIS assistance from the Adirondack Park Agency where they have an Approved Local Land Use Plan on file. The GIS analysis helped the town create the "Town of Day Viewshed Protection Area" map which became incorporated into local Zoning Law in June 2005. This paper will briefly cover existing town development, intent of the amended Land Use Law, elements of the GIS process including running the visibility analysis, filtering raster data, vector conversion, and a review of the final map. Suggestions for documenting a GIS analysis process will be provided.

Mr. John Barge
NYS Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

518.891.4050
jwbarge@gw.dec.state.ny.us

Using GIS to Map Viewshed Protection Areas for Local Land Use Law

John Barge, NYS Adirondack Park Agency

Abstract

GIS can be used to document where photographers stood and the direction they faced when taking what are now considered valuable historic photographs. Using images available at the Library of Congress website, Adirondack

Park Agency staff developed a method to link these photos to a regional spatial database. This paper will discuss the rich content available at the Library of Congress website, the design of a prototype GIS point database to locate and inventory photographs, challenges of approximating observer points, and how to establish hyper links to web content within GIS software. I hope to initiate an open discussion of any existing methods used to capture and document location information with photo inventories. A call for willing participants to assist in mapping hundreds of unmapped historic Adirondack photos will be made.

Mr. John Barge
NYS Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

518.891.4050
jwbarge@gw.dec.state.ny.us

DINNER SPEAKER

Ross Whaley, Chairman, NYS Adirondack Park Agency

Research, Policy and a Sustainable Adirondack Park

Dr. Ross Whaley
NYS Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

518-891-4050
rswhaley@gw.dec.state.ny.us

Day 2 – Thursday, May 25th

PLENARY SESSION II. ADIRONDACK PARK: THE BIG PICTURE

The Adirondack All-Taxa Biodiversity Inventory: Surveying life and involving citizens.

Moderator*: Craig L. Milewski,* Paul Smith's College
Panelists: *Carl George,* Union College, *Stacy McNulty,* SUNY Environmental Science and Forestry, *Lee Ann Sporn,* Paul Smith's College, *Sandra Hildreth,* Artist

Abstract

Conservation of biodiversity in the Adirondacks is becoming increasingly relevant to the community as air and water quality, climate change, land use and development, and invasive species continue to be threats. However, more reliable and detailed biological knowledge is needed for informed conservation of biodiversity and there exists a clear understanding that citizen support is critical to that outcome. Undoubtedly, an All-Taxa Biodiversity Inventory (ATBI) is essential to both increasing biological knowledge and increasing citizen support for sustained conservation of Adirondack biodiversity. Acknowledging the comprehensive nature of an ATBI, a diverse community of public, private, academic, and governmental individuals and groups has come together with the intention of initiating an Adirondack ATBI. A thorough discussion about planning, implementing and maintaining an Adirondack ATBI concluded that several critical elements are essential to success. Foremost, the ATBI will focus on all taxonomic groups, encourage citizen participation, create multi-faceted educational opportunities, and seek public/private collaboration. The mission of the Adirondack ATBI is: Surveying the diversity of life and connecting people to the natural world through participation in biological inventories and related activities in the Adirondack Park of New York State. Given the magnitude of this mission and the diversity of stakeholders, the panelists will go beyond a simple discourse on the rationale and needs for an ATBI and stimulate and encourage discussion, illustrate the positive cultural aspects of instilling an awareness and appreciation of local biodiversity, and most importantly, create a compelling case for conference attendees of all backgrounds to join and support this innovative and adventurous ATBI.

Climate Change and the Biology of the Adirondacks: What Will the 21st Century Be Like

Jerry Jenkins, Wildlife Conservation Society and Nature Conservancy

Abstract

Much recent research suggests that the world in general and higher latitudes in particular are now warming rapidly because of increasing concentrations of greenhouse gasses. Because slowing the accumulation of greenhouse gasses will require developing a very large investment in carbon-neutral generators and engines (on the order of 1-3 x 1013 watts), and because the technologies required to do this are not yet commercially available, it is likely that greenhouse gases will continue to increase for much of the next century, and that our climate will warm significantly.

In this talk I examine, based on my own research and that of others, the kinds of biological changes that warming may produce in the Adirondacks. I will argue that, based on current warming rates, the Adirondacks may have a climate like that of the southern Appalachians within the next century and that Adirondack biology will be both sensitive to and resilient in the face of these changes. I will propose that the response to increasing temperature will occur in four stages, involving first changes of phenology and local ranges, second the addition of mobile species, third the decrease and local extinction of northern species, and fourth changes in the composition and ecological functioning of communities. And finally I will suggest that in our biota there will be relatively few outright extinctions, and it will be the community and diversity changes, and not an increase in extinctions, that will be the most striking.

Mr. Jerry Jenkins
Wildlife Conservation Society and Adirondack Nature Conservancy
153 Shaftsbury Hollow

Eagle Bridge, NY 12057

518 686 7208
jcjenkins@direcway.com

Climate Change and the Adirondack Park: What Can/Should We Do About It?

Moderator*: Elizabeth Thorndike,* Adirondack Research Consortium
Panelists*: Mike DiNunzio,* The Assoc. for the Protection of the Adirondacks, *Ann Heidenreich*, Community Energy Services, Inc. , *James McKenna,* Lake Placid/Essex County Visitors Bureau, *Connie S. Prickett,* Adirondack Nature Conservancy

Abstract

Global climate change is the cumulative impact of countless local decisions about how we use energy and allocate resources within our state, our counties, and our towns and villages. The history of science is a history of skepticism and the climate change problem is no exception. But the level of consensus among scientists, not just that average global temperatures are rising, but that there is a "discernible human influence" involved, is remarkable. There are still many uncertainties about how soon or how severe various impacts will be, but uncertainty can go in both directions, as Robert Watson, former head of the scientists' Intergovernmental Panel on Climate Change, has noted. Meanwhile, prudence and foresight would seem to be most valuable strategies.

Reducing and making more efficient our use of fossil fuels, the major source of excess CO2 in the atmosphere, will not only reduce pollution, but also save us money. The Regional Greenhouse Gas Initiative (RGGI), initiated by New York's Governor Pataki and adopted by most of the northeastern states, is one significant step toward a trading program, similar to the one that has proved effective in reducing acid rain impacts. And a "no regrets" strategy, as EPA has defined the term, would encourage us to take action to reduce our dependence on fossil fuel for reasons that are beneficial in their own right—helping our environment and our pocket books—whether or not there are noticeable regional impacts of climate change. Our panel will provide us with recommendations on how the Adirondack region can respond and take affirmative action.

CONCURRENT SESSION III

A. Tourism

Cultural Heritage Tourism in the Adirondacks

Susan Fuller, Fuller Communications

Ms. Susan Fuller
Fuller Communications
P.O. Box 310
468 E. Main St., Suite B
Malone, NY 12953

518-483-7154
sdfuller@fullerventures.com

The Northern Forest Canoe Trail: Implications for Sustainable Community Development

Noah Pollock, University of Vermont, *Kate Williams,* Northern Forest Canoe Trail

Abstract

Rural communities are increasingly turning toward tourism as a means of diversifying their economies. Recreational trails are one tool promoted as a means of directing visitors to rural communities often overlooked as tourism destinations. Yet little literature exists quantifying the economic impacts of recreational trails, and their implications for community development. To understand these impacts, University of Vermont researchers have

initiated a study of the Northern Forest Canoe Trail (NFCT), a 740 miles long route that traverses New York, Vermont, Quebec, New Hampshire, and Maine.

The study's objectives are to:

• Synthesize information on community impacts of trails similar to the NFCT.
• Quantify the economic impact of paddlers in the region.
• Highlight current success stories and challenges.

The proposed research methods include:

• A review of studies assessing recreation trails as tools for community development
• A quantitative survey of paddlers during the summer of 2006
• Surveys of businesses and landowners directly impacted by the NFCT
• The creation of an spatial, economic model to summarize economic implications

This panel discussion is designed to aid this research project by facilitating a brainstorming session around the following questions: What impact do paddlers really have on trailside communities? How can this best be measured? And most importantly, how can the Northern Forest Canoe Trail best stimulate sustainable community development?

Mr. Noah Pollock
University of Vermont
George D. Aiken Center
81 Carrigan Drive
Burlington, VT 05405

802-656-4280
noah.pollock@gmail.com

Ms. Kate Williams
Northern Forest Canoe Trail
P.O. Box 565
Waitsfield, VT 05673

802-496-2285
kate@northernforestcanoetrail.org

Tourism Marketing Expenditure Accountability and Visitor Profile Analysis for the Adirondacks Region of New York.

John C. Parmelee (presenter), Mark M. Gultek (presenter), and *Raymond M. Guydosh,* SUNY Plattsburgh, *Tim H. Dodd,* Texas Tech University

Abstract

Determining return on investment and conversion rate for marketing expenditures is a difficult endeavor in any industry, and it is particularly a challenge for the tourism industry. Tourism officials of particular regions would like to be able to correlate marketing expenditures with the sales resulting from those expenditures and the number of actual visitors that visit a region as a direct result of the region's marketing efforts. The purpose of this study was to determine the conversion rate factor as well as the return on investment ratio for the destination marketing expenditures expended for the Lake Placid/Essex County regions of New York by the County Visitors Bureau. The Bureau is responsible for marketing Essex County's tourism assets, and the primary focus of the study was to determine the effectiveness of the public marketing dollars expended during 2004 through conversion rate and return on investment ratios. In addition, the study analyzed other key visitor profile information.

Dr. Mark M. Gultek
SUNY Plattsburgh
Sibley 403I

101 Broad Street
Plattsburgh, NY 12901

518-564-4207
Mark.Gultek@plattsburgh.edu

Dr. John Parmelee
SUNY Plattsburgh
101 Broad Street
Sibley 403 I
Plattsburg, NY 12901

(518) 564-4261
john.parmelee@plattsburgh.edu

B. De-icing Salt

Long Term Consequences of Winter Road Management Practices to Water Quality at High Altitude Lakes within the Adirondack State Park

Tom A. Langen (presenter), Michael Twiss, Thomas Young, Kerop Janoyan, Joseph Osso Jr., and *Hanna Prutzman*, Clarkson University, *J. Curtis Stager*, Paul Smith's College

Abstract

Upper Cascade and Lower Cascade Lakes are two hydrologically connected water bodies in the Adirondack Park that are bordered by NYS Route 73, the primary transportation route for visitors to the tourist center of Lake Placid. We have been funded by NYSDOT to assess the impacts to soil, vegetation, lake water quality, and lake biota at the Cascade Lakes caused by use of deicing road salt (mainly sodium chloride) and sand abrasive.

Upper and Lower Cascade Lakes now have chloride levels 100 to 150 times higher than a typical Adirondack Lake. Within the last five years, there has been a 250% increase in chloride concentrations within the Cascade Lakes, which has been caused by the recent dramatic increase in road salt applications.

Twenty years of data on watershed loadings of sand and road salt and water quality indicate that lake chloride levels closely match loadings. Based on the mass balance model of chloride transport through the Cascade Lakes, simulated over a period of 20 years, chloride concentrations are predicted to rise over the next five years in the Cascade Lakes, with the biggest increases in the Lower Cascade hypolimnion (a 40% increase). Under present salt loadings, peak chloride concentrations in the Lower Cascade Lake hypolimnion are predicted to approach the USEPA recommended maximum limits for chronic exposure to aquatic life. Lower Cascade Lake also remains at risk of becoming meromictic. Changes in salt loadings result in a new equilibrium concentration of chloride within about seven years.

Mr. Tom Langen
Clarkson University
Depts. of Biology & Psychology
Box 5805
Potsdam, NY 13699

315 268 7933
tlangen@clarkson.edu

Impacts of De-icing Salt on the Demography of Vernal Pool-breeding Amphibians

Nancy E. Karraker (presenter) and James P. Gibbs, SUNY College of Environmental Science and Forestry

Abstract

De-icing agents, primarily road salt, are applied to roads in 26 states in the United States and in a number of European countries, yet the impacts of road salt on aquatic organisms remain largely unstudied. The issue is germane to amphibian conservation because both adult and larval amphibians are known to be particularly sensitive to changes in their osmolar environments. In a field study in the Adirondack Mountain Region of New York, road salt traveled at least 172 m from a highway into wetlands. Conductivity levels in roadside vernal pools in this relatively pristine environment were comparable to those in urban wetlands elsewhere in the region. Density of egg masses of spotted salamanders (A. maculatum) and wood frogs (R. sylvatica) was more than two times higher in forest pools than roadside pools, a pattern attributable directly to proximity to roads rather than water chemistry. Survival in embryonic and larval A. maculatum was reduced at moderate (500 µS) and high conductivity (3000 µS) levels, but those in R. sylvatica were affected only at the high level. A sensitivity analysis indicated that only at high conductivity would decreases in larval survival in A. maculatum and hatching success and larval survival in R. sylvatica be sufficient to strongly influence population dynamics of both species. Efforts to protect local populations of A. maculatum and R. sylvatica in roadside wetlands should, in part, be aimed at reducing application of road salt near wetlands with high conductivity levels.

Ms. Nancy Karraker
SUNY ESF
Syracuse, NY 13210

315-470-6783
nekarrak@syr.edu

Evaluation of the Impact of De-Icing Salt on the Environment – Case Study at Huntington Wildlife Forest

Charlotte L. Demers, SUNY College of Environmental Science and Forestry

Abstract

In the late 1980's, three projects investigated the impacts of a chemical de-icer, sodium chloride, on the environment. A two year study was conducted to determine the effects of road salt run-off from New York State Highway 28N on the chloride concentration of four tributary streams to Rich Lake, located in Newcomb New York. All four study streams exhibited significant increases in chloride level concentrations at both 50 and 100 meter sampling stations located downstream from the highway. Elevated chloride levels continued throughout a six month period following the termination of the previous winter's salt applications. Artificial substrate samplers placed in the streams to investigate the elevated chloride level's impact on aquatic invertebrates resulted in diversity indices of 0.87 and 0.53 for the upstream and downstream samples, respectively. The horizontal dispersal of de-icing salt along the sampled section of 28N was monitored using plastic buckets placed up to 100 meters perpendicular to the road. More than 92% of the dispersed salt sampled was collected at 2 and 4 meter sampling stations. Salt was sampled as far away as 100 meters from the road edge.

Ms. Charlotte Demers
SUNY ESF
Adirondack Ecological Center
6312 State Route 28N
Newcomb, NY 12852

(518) 582.4551
cdemers@esf.edu

C. Aquatic Science

Mercury in Fish from New York State Lakes and Reservoirs

Howard Simonin (presenter), Jeff Loukmas, and *Larry Skinner,* NYS Department of Environmental Conservation

Abstract

Atmospheric deposition of mercury is recognized as the primary source of this toxic chemical to many remote lakes and ponds. Both human health and environmental risks occur when mercury concentrations in fish are high. We began a 4-year project in June 2003 to improve our understanding of mercury in New York State, and fish from 131 lakes have been analyzed as part of this project. We focused on collecting largemouth and smallmouth bass, walleye and yellow perch, since these piscivorous fish have been shown to accumulate high mercury concentrations. Data from the study show that fish from the Adirondack and Catskill Forest Preserve lakes have higher mercury concentrations than fish from other regions of the state. This may be due to differences in water chemistry, lake productivity or wetlands in the watershed and will be tested using multivariate statistics. Initial analyses indicate that lake pH and lake water mercury concentration are both important variables correlated with mercury in fish. When comparing concentrations from this study to data collected 12-17 years ago, we found variable responses among lakes. Several lakes showed little change in mercury concentration in similar size and age fish, while other lakes showed either positive or negative changes. Data collected by the project have been used by the New York State Department of Health to issue new fish consumption advisories on numerous lakes. These monitoring efforts and advisories provide further evidence for policymakers to pass regulations which would lead to reduced levels of mercury in the environment. We thank the New York State Energy Research and Development Authority for substantial funding for this project.

Mr. Howard Simonin
NYS Department of Environmental Conservation
Rome Field Station
8314 Fish Hatchery Road
Rome, NY 13440

315/337-0910
hasimoni@gw.dec.state.ny.us

Regional Planning for Aquatic Nuisance Species Management in the Adirondack Park

Dan M. Spada (presenter), Adirondack Park Agency*; **Authors:** Daniel L. Kelting,* Adirondack Watershed Institute, *Mark Malchoff,* SUNY Plattsburgh, *Hilary A. Oles,* Adirondack Nature Conservancy

Abstract

The proliferation of aquatic nuisance species (ANS) is a top threat to water quality, ecosystem health, and the economy of the Adirondack State Park, a 2.4 million hectare park in upstate New York. In 2005, at least 49 waters were reported with aquatic invasive plant infestations, and efforts to track other ANS have been limited. Impacts of ANS will continue to increase if current populations of ANS are left unchecked and new species of ANS enter the Park. The Adirondack Park Aquatic Nuisance Species Management Plan (the Plan) was drafted to facilitate the coordination and enhancement of ANS management efforts throughout the Park. Developed by 11 cooperating organizations, peer reviewed, and vetted at the Paul Smith's College 2005 Adirondack Water Quality Conference for public comment, the Plan identifies three goals: 1) preventing new ANS introductions, 2) limiting the spread of established ANS populations, and 3) abating negative impacts resulting from existing infestations. Implementation components of the Plan include coordination, enforcement, legislation, education and outreach, early detection and monitoring, management, restoration, and research. It is estimated that $8.5 million will be needed per year to implement the Plan. Implementation strategies and progress to-date will be discussed.

Mr. Dan Spada
NYS Adirondack Park Agency

Box 99
Ray Brook, NY 12977

518.891.4050
dmspada@gw.dec.state.ny.us

Defining and Assessing Ecosystem Integrity in Adirondack Upland Headwater Catchments

Timothy Mihuc (presenter), Thomas Woodcock, Edwin Romanowicz, Eileen Allen, Robert Fuller, and *David Franzi,* Lake Champlain Research Institute and Center for Earth and Environmental Science, *Janet Mihuc, Celia Evans,* and *James Allen,* Paul Smiths College, *Chris Cirmo,* SUNY Cortland

Abstract

Catchment scale characteristics and land use practices were used to define and assess physical, chemical and biotic ecosystem integrity in Adirondack upland headwater catchments. A suite of physical-chemical variables in systems managed for timber harvest and reference sites located in the New York State Forest Preserve were compared to biotic response variables in these systems. Integrity was defined using multivariate comparisons of "reference" variable sets to standardized variable sets from managed systems. Results illustrate that most physical parameters are similar between Preserve catchments and managed catchments. Water chemistry, terrestrial plants, and aquatic biota variable sets, however demonstrated responses that allowed differentiation between Preserve and managed ecosystems. These patterns were used to define ecological integrity for Upland catchments. Streams in logged watersheds had more stored organic matter and finer substrate. Stream hydrology showed a higher baseflow maximum discharge in Preserve systems. Several water chemistry variables differed between logged and Preserve systems with seasonal increases in nitrate and soluble reactive phosphorus in Preserve systems and TSS in managed systems. Over 175 macroinvertebrate taxa were recorded with observed shifts in community composition between Preserve and managed systems. Fish (Brook trout) had higher biomass and density in managed sites. Forest community composition and riparian plant communities also showed compositional differences between managed and Preserve catchments. Our results suggest that catchment-scale variables are important drivers for many biotic and chemical responses in small Adirondack headwater systems and are critical to defining ecosystem integrity.

Dr. Timothy Mihuc
Lake Champlain Research Institute and Center for Earth and Environmental Science
102 Hudson Hal
SUNY Plattsburgh
Plattsburgh, NY 12901

518-564-3039
mihuctb@plattsburgh.edu

Climatological Study of Lake Champlain Lake Effect Snows in Northern New York and Vermont

Jared A. Desrochers (presenter) and *Neil Laird,* Hobart and William Smith Colleges

Abstract

A number of recent studies have indicated that lake-effect snows can occur in association with lakes of significantly smaller size than the Great Lakes. As an example, Lake Champlain lake-effect storms can generate snowfalls as great as large-scale winter storms and on rare occasions produce snow squalls with visibilities less than ¼-mile and up to 33-cm (13 inches) of snow in a 12-hour period. To establish a more complete picture of the lake-effect snows in the vicinity of Lake Champlain, a climatological study has been undertaken to determine the frequency and environmental conditions favorable for these events. Additionally, the complex topography of the Adirondacks to the west and the Green mountains to the east of Lake Champlain provides a natural laboratory to investigate the influence of terrain variations on the development of lake-effect systems in this important region.

The current study used Burlington, VT Weather Surveillance Radar 88 Doppler (WSR- 88D) radar data to examine lake-effect events for winters (October – March) beginning in 1997; the deployment date of the Burlington WSR-

88D radar. Intense coherent lakeeffect snow bands and widespread lake-effect snowfall patterns were observed during the climatological analyses with identified events occurring most frequently during the months of December and January. The majority of lake-effect systems developed independent of larger-scale weather systems and events were found to occur during time periods of northerly or southerly flow environments. Southerly flow events were a unique finding since lake-effect systems on other small and large lakes throughout the United States typically only occur during northerly flow regimes.

Mr. Jared Desrochers
Hobart and William Smith Colleges
Department of Geoscience
Geneva, NY 14456

(315) 781-3603
jared.desrochers@hws.edu

Dr. Neil Laird
Hobart and William Smith Colleges
Department of Geoscience
Geneva, NY 14456

(315)781-3603
laird@hws.edu

KEYNOTE SPEAKER

William G. Howland, Executive Director, Lake Champlain Basin Program

The Role of Research and Monitoring in Adaptive Management Policy – The Lake Champlain Basin Program Experience

Dr. William Howland
Lake Champlain Basin Program
54 West Shore Road
Grand Isle, VT 05458

800/468-5227
whowland@lcbp.org

CONCURRENT SESSION IV.

A. Local Communities – Workshops

Assessing Rural Community Infrastructure to Cut Costs and Protect the Environment

Shanna Ratner, Yellow Wood Associates

Abstract

Using alternative technologies in municipal infrastructure may result in cost savings, avoided cost, and employment creation, and will also demonstrate the effectiveness of alternative approaches to the community. Through its Green Community Technologies (GCT) program, Yellow Wood is now working with eight communities throughout New England in conducting inventories and assessments of municipally owned infrastructure and researching alternative technologies that could address current infrastructure needs. Yellow Wood's GCT pilot project in Richmond, Vermont and its more recent work with Hinesburg, Vermont provide interesting case studies that show how the program works to help small communities inventory and assess municipal infrastructure as well as research alternatives for particular infrastructure assets that can also save money. Hinesburg asked Yellow Wood to

research alternative ways of increasing their wastewater capacity beyond expanding the plant; the options arrived at will avoid the need to enlarge the existing footprint of the plant.

Ms. Shanna Ratner
Yellow Wood Associates, Inc.
228 North Main St.
St. Albans, VT 05478

(802) 524-6141
shanna@yellowwood.org

Hometown Competitiveness

Shanna Ratner, Yellow Wood Associates

Abstract

Learn about Home Town Competitiveness, an Award-winning Community Development Approach that earned the 2004 Innovative Program Award from the International Community Development Society.

What differentiates Home Town Competitiveness (HTC) from many other development efforts is its primary focus on internal resources and assets. The goal is to assess where a community is, here and now, and to build on the current capacity of each of the four elements: mobilizing local leaders, energizing entrepreneurship, engaging and attracting young people, and capturing wealth transfer. HTC is not a cookie-cutter approach; rather, it is a dynamic framework within which communities engage to identify approaches and actions appropriate to their goals. HTC, which originated with five community clusters in Nebraska, is now drawing significant national attention in many regions of the country. Session participants will learn more about HTC, hear about its success in Nebraska, and explore ways in which it can be used in their own communities. This interactive session will engage participants by bringing the subject matter into their own communities. Rural practitioners across the nation are calling HTC "the best on-the-ground development model for today's rural communities." This session is an opportunity for development practitioners to explore the potential value of this powerful approach to the issues and opportunities facing their communities.

Ms. Shanna Ratner
Yellow Wood Associates, Inc.
228 North Main St.
St. Albans, VT 05478

(802) 524-6141
shanna@yellowwood.org

B. Place, Politics, and Poets

Women Poets in the Adirondack Tradition

Panelists: *Kate Winter*, SUNY Albany, *Mary Sanders Shartle*, Poet, *Marilyn McCabe*, Poet, *Elaine Handley*, Empire State College

Abstract

Three contemporary poets will discuss and illustrate their individual poetics as each defines her Adirondack aesthetic. The ways in which culture, history and the mountain environment intersect in their poetics and poems will frame a discussion by Professor Kate H. Winter about what the tradition of the Adirondack woman writer incorporates. Winter, author of The Woman in the Mountain: Reconstruction of Self and Land by Adirondack Women Writers, will describe the literary context for the three poets' work. Historically and culturally, the Adirondacks were - until the early 20th century- a masculine domain that reflected the gender politics and environmental consciousness of the rest of America. This panel will explore some of the ways women writers

inscribe the Adirondack landscape and character differently from men. Bringing to the fore the distinctions between the conventions of male writing about the mountains and women's discourse, the group will examine aesthetic responses to the wild and not-so-wild mountain environment. In their collection, Notes from The Firetower, the three poets construct nature in ways that make it accessible to and expressive of women's experience - a sort of feminine analog for the female Self: wild, reproductive, ungovernable and focused on what may be identified as "domestic." Integrating the ethos of Thoreau, this panel will demonstrate a feminist reading of the Adirondack landscape as body and female.

Dr. Kate Winter
SUNY Albany
1400 Washington Avenue
Albany, NY 12222

315-442-4071
kwinter@nycap.rr.com

C. Field Trip Tupper Lake (off-site)

Preview of the Wild Center, Adirondack Natural History Museum, Tupper Lake.

Stephanie Ratcliff (presenter), Natural History Museum of the Adirondacks

Abstract

Pre-view video, presentation and special tour of the Adirondack Natural History Museum, Tupper Lake which will open on July 4, 2006.

Ms. Stephanie Ratcliff
Natural History Museum of the Adirondacks
PO Box 897
Tupper Lake, NY 12986,

518.359.7800
sratcliffe@wildcenter.org

Abstracts and related post-conference information will be available on our website at:

www.adkresearch.org

Posters

Liming and Bioavailability of Calcium in Soil Moisture

Martha Joy Buckwalter-Davis, Alfred University

Abstract

Liming is the topical application of calcium carbonate to neutralize acid waters and raise soil pH. It supplies calcium, which is a macronutrient for trees and other biota. The uptake of calcium available in soil water by plants in the unsaturated, or vadose, zone is an important parameter in the cycling of calcium through an ecosystem. In the Adirondack State Park, the effects of acid deposition are particularly severe and concentrations of calcium in soils have decreased greatly in the past six decades. The immobile, adsorbed water in micropores and thin films around soil aggregates is that which is taken up by plants, and porous cup lysimeters were installed in the E and B2 horizons of the soil profile in several soil pits near Old Forge, NY to analyze this water in the upper soil profile. Wick samplers sample mobile water in macropores, and vertical downward macropore flow quickly recharges the groundwater zone after a precipitation event. Wick lysimeters were also installed in the E horizon of soil pits excavated in the park. Both lysimeters were installed in an experimental plot where calcium carbonate was applied and a in nearby control plot with no modifications. These two samplers collect different soil moisture fractions with different ionic concentrations, and collected water samples were analyzed for calcium. The response of calcium concentrations in soil moisture to liming will indicate how topically applied calcium moves through the vadose zone and its relative availability to biota.

Ms. Martha Joy Buckwalter-Davis
2 Sayles Street
Alfred, NY 14802

MJB6@alfred.edu

Changes in Relative Water Content in Four Adirondack Conifers in Winter

C. Pannebaker (presenter), A. Mishler, C. Audette, A Baldwin, A. Hunt, M. Jones, B. Kurta, C. Lewis, J. Miller , T. Paddock, S. Preston, C. Stokes, A. Stredny, T. Thomson, K Weed, J. Whipple, M Zynda, C. Evans, Paul Smith's College

Abstract

In the Adirondacks, many conifer species sustain winter injury. Winter injury is, at least partially, due to desiccation at a time when trees cannot access soil water. We conducted an experiment to examine the change in Relative Water Content (RWC) in different coniferous species on the Paul Smith's College campus across the winter months of 2006. Pinus strobus, Tgusa Canadensis, and Abies balsamea species have been shown to be susceptible to such winter injury. Our research included these species (Pinus strobus, Tgusa Canadensis, Abies balsamea) as well as Pinus sylvestris. Once a month, for three months, four sub-samples were taken from North, South, East and Western aspects off the 4 sample trees within each species (on similar aspects). RWC apparently decreased within all the species during our research period; however the decrease was not significant in P.strobus due to higher variance among individual trees. In January P. sylvestris had a lower RWC than the other three species. In February and March there were no significant differences among species in RWC. Our study suggests that all conifer species we studied may be equally susceptible to desiccation and potential winter injury during winter.

Dr. Celia Evans
Paul Smith's College
Routes 86 and 30
Paul Smiths, NY 12970

evansc@paulsmiths.edu

Understory Plant Community Response to Silvicultural Treatments in Northern Hardwood Forests of Northern New York

Mark Twery (presenter) and *Gary L. Wade,* USDA Forest Service

Abstract

The USDA Forest Service, Paul Smith's College, and the New York Adirondack Park Agency Visitor Information Center (VIC) are cooperating in a public education project to demonstrate six forest management silvicultural systems : (1) single tree selection, (2) group selection, (3) shelterwood, (4) two-age management, (5) clearcut, and (6) no cutting. Part of that project is a study of the effects of a variety of silvicultural treatments on the diversity and abundance of vascular flora within the treated areas. In each of the seven 2-ha blocks delineated within each of two replicated northern hardwood stands, an extensive inventory of the flora has been conducted each year since 1998. The treatments were applied during the winter of 1999-2000. Overall species richness is affected little by treatments, except to add new species in areas with greater disturbance. The primary effects to date appear to be in relative abundance of species already present. Almost all species persist in at least small numbers in all treatments.

Dr. Mark J. Twery
USDA Forest Service
705 Spear St
PO Box 968
Burlington, VT 05402

802-951-6771x1040
mtwery@fs.fed.us

New Heritage Lake in the Adirondacks

Daniel J. DeSorcy (presenter) and *J. Curt Stager*, Paul Smith’s College

Abstract

In order for a lake to qualify for "Heritage" status, it must contain only native fish species and show little or no evidence of human impacts such as reclamation, stocking, limning, road salt contamination, acidification, or eutrophication since 1800 AD. Four Adirondack lakes were studied in this context during the summer and fall of 2005; Windfall and Ledge Ponds (Franklin County), Dix Pond (Essex County) and Stink Lake (Herkimer County). A paleolimnological analysis covering the last ca. 200 years of environmental history was conducted for each lake using diatoms and chrysophytes in sediment cores. Alone out of the four lakes examined, Stink Lake contains no invasive fish species and it has experienced no major changes in sediment diatom assemblages. It therefore fits the current definition of a Heritage Lake. This represents only the second Heritage Lake to be documented thus far in the Adirondack Park, and the first one to be identified on state land. The work presented here was conducted as a Senior Capstone project at Paul Smith's College.

Mr. Curt Stager
Paul Smith's College
Routes 86 and 30
Paul Smiths, NY 12970

stagerj@paulsmiths.edu

Biological Inventory, Small Mammal and Amphibians: A Model for Student Participation 2 Posters

Sandra Bureau, Sally Stanton, and *the Indian Lake Central School 9th grade Living Environment and English Language Arts class*

Abstract

A recent article in the Adirondack Journal of Environmental Studies prompted interest in participation in a Biological Inventory of the Adirondack Park by students at Indian Lake Central School. Students learned that the project was still in the development stages but decided to test a student participation model for inventorying small mammals and amphibians along the nature trail property of Indian Lake Central School. Students were assigned individual small mammals and amphibians to research and become experts on, learning about field id, habitat and life history. Paul Hai from Roosevelt Wildlife Station at Huntington Wildlife Forest met with the students to talk about research methods for these animals. Later, student traveled to the Adirondack Ecological Center to see already established research plots and to discuss their model. This April and early May students will establish their plots and inventory small mammals using tracking tubes, and possibly live trapping. Amphibians will be inventoried by using drift fences around vernal pools. Student poster presentations will focus on the results of their inventory and the ease of use for their model.

Ms. Sandra Bureau
Indian Lake Central School
Route 28
Indian Lake, NY 12842

648-5024
BureauS@ilcsd.org

Five Years Counting Loons in the Adirondacks—Preliminary Results of Adirondack Cooperative Loon Program Census

Amy K. Sauer (presenter) Nina Schoch, Adirondack Cooperative Loon Program, *Michale Glennon,* Wildlife Conservation Society, *Rick Godin,* Natural History Museum of the Adirondacks, *David J. Adams* and *John W. Ozard,* NYS Department of Environmental Conservation, *David C. Evers* and *David Yates,* BioDiversity Research Institute, *Fredrik Realbuto,* Audubon Society of New York State, Inc.

Abstract

The Adirondack Cooperative Loon Program (ACLP) is dedicated to improving the overall health of the environment, particularly the protection of air and water quality, through research and education efforts focusing on the common loon (Gavia immer) and regional conservation issues affecting wildlife and their habitats in the Adirondack Park. A Species of Special Concern in New York State, the common loon breeds in the 6 million acre Adirondack Park, which is in the southernmost extent of its breeding range. From 2001-2005, the ACLP has conducted a citizen science survey, using single-survey point counts, to record the presence and absence of adult and juvenile loons on waterbodies in and around the Adirondack region. Information has been collected from 337 lakes and ponds, 223 of which have had repeat surveys for 2 or more years. Preliminary analysis of the results from the Annual Loon Census enables the ACLP to estimate population status and examine the distribution, age class and long-term trends in the Adirondack breeding loon population. This information has been utilized by the NYS Department of Environmental Conservation in the development of Unit Management Plans, the NYS Natural Heritage Program, Audubon New York for identification of Important Bird Areas, the Adirondack Park Agency for evaluation of potential shoreline development sites, and has contributed to the NYS Breeding Bird Atlas.

Ms. Amy Sauer
Adirondack Cooperative Loon Program
PO Box 195
Ray Brook, NY 12977

(518) 891-8836
aclp2-prgm-mgr@juno.com

A Study of the Chaoborus Population of Lower St. Regis Lake: Implications for Bioaccumulation

Christopher Audette, Paul Smith's College

Abstract

During the fall of 2005, a study was conducted on the Chaoborus population of Lower St. Regis Lake, located on the Paul Smith's College campus in Franklin Co., NY. Chaoborus sp. (Diptera Chaoboridae) larvae are an important link to zooplankton for larger predatory fish, occupying a central role in many lake ecosystems.

In a preliminary study on Lower St. Regis Lake, high densities of Chaoborus were found, and diurnal vertical migration (DVM) of Chaoborus appeared to be correlated with zooplankton. These observations suggest that Chaoborus is a very important predator of zooplankton in Lower St. Regis Lake.

Recent work by C. Driscoll concerning mercury levels in the Adirondacks and the fact that Chaoborus bioaccumulates toxic metals such as mercury and cadmium adds a human dimension to this study: If Chaoborus plays a central role in Lower St. Regis Lake's ecosystem; there are ramifications for bioaccumulation of mercury in game fish.

In this study, the DVM of Chaoborus was examined alongside two plankton taxa (Cladocera and Copepoda) that are potential chaoborid prey; Chaoborus' preference between littoral and pelagic habitats was determined; and C13/N15 stable isotope analysis was used to determine Chaoborus' position in Lower St. Regis Lake's pelagic food web. The highest Chaoborus densities were found in pelagic habitats. Isotopic analysis shows Chaoborus preys upon copepods most heavily and is preyed upon by moderately sized (13-30 cm) fish (Lepomis gibbosus, Notemigonus crysoleucas, and Perca flavescens). Data suggest that Chaoborus links zooplankton with game fish in Lower St. Regis Lake with definite implications for bioaccumulation.

Mr. Christopher Audette
133 Broadway Ave.
Apt. 8
Saranac Lake, NY 12983

audettc@paulsmiths.edu

An Investigation of Optimal Foraging Behavior in Black-Capped Chickadees in the Adirondacks

C. Audette (presenter), B. Kurta, M Zynda, A Baldwin, A. Hunt, M. Jones, C. Lewis, J. Miller, A. Mishler, T. Paddock, C. Pannebaker, S. Preston, C. Stokes, A. Stredny, T. Thomson, K Weed, J. Whipple, C. Evans, Paul Smith's College

Abstract

Black-capped chickadees (Poecile atricapilla) select seeds based primarily on heft, and while food is scarce, will venture further into high-risk (open) areas to forage. In the mid-winter of 2006, we conducted two experiments that examined (1) whether or not P. atricapilla selects seeds based on perceived quality as well as heft, and (2) whether or not P. atricapilla will venture further into a high risk area for higher quality seeds.

The first experiment involved presenting a P. atricapilla population with two types of seeds (black oiled and striped sunflower seeds) of which half of each seed type were emptied and re-assembled to reduce mass. P. atricapilla preferred black oiled seeds to the inherently heavier striped seeds, yet selected the heavier of the black oiled seeds over the lighter. This suggests that P. atricapilla selects seeds primarily based on quality, and secondarily based on heft. The second experiment confirmed the results of the first because P. atricapilla ventured further away from the forest edge for black oiled seeds than for striped seeds or millet. Also, overall visits per minute at 0 m from the

forest edge decreased with perceived seed quality. Since we were unable to replicate the second experiment, we present these results as preliminary. Overall, we conclude that P. atricapilla selects seeds both by quality and heft; that black oiled sunflower seeds are higher quality than striped sunflower seeds or millet; and that P. atricapilla will venture further into a high risk area for higher quality seed in winter.

Dr. Celia Evans
Paul Smith's College
Routes 86 and 30
Paul Smiths, NY 12970

evansc@paulsmiths.edu

Sustainable Forest Product Use by Institutions

David Giuliani, University of Vermont

Abstract

I intend to give a presentation outlining my graduate research at the University of Vermont. My project deals with the management, stewardship and benefits of forest land owned by institutions. I am proposing that the University of Vermont make available a portion of its local resource base for use as building materials and other forest products. By accessing these resources under the guidelines of a thorough management plan, the university will minimize its ecological footprint, promote sustainability and demonstrate social responsibility in the community.

Many colleges and universities in the U.S. own forest land either as an investment or for demonstration and research. This land has the potential for supplying necessary items that are usually acquired from unknown sources. I have selected a portion of the University of Vermont's Jericho Research Forest to conduct an inventory of available timber and non-timber forest products. My results will be published and displayed electronically for reference by project managers, faculty/staff, students and the general public.

The ultimate goal of this project will be to provide a useful resource to the community without compromising the health of the forested ecosystem. This topic is of considerable interest in the Northern Forest region and my project has many useful implications outside of the institutional setting. By practicing sustainable forest product use on this campus, I hope to provide a model by which other schools, community forest managers, and private forest owners can learn from.

Mr. David Giuliani
University of Vermont
Aiken Center,
81 Carrigan Drive
Burlington, VT 05405

802-272-6009
dgiulian@uvm.edu

Impacts of Streamside Seeps on Streamflow During Different Hydrologic Conditions

Jon-Dimitri Lambrinos

Abstract

Measurements of groundwater – stream water interactions can and have been used to study a variety of natural and human induced stream conditions. The natural conditions describe and support aquatic species, and nutrient cycling within streams and forests. The measurements of groundwater – stream water interactions can also assess conditions that are human induced such as stream contamination from acid mine drainage and road salt. Where the water comes from and how much comes from which sources are essential in understanding what causes certain stream conditions. Sources of stream flow include groundwater, surface runoff, and throughfall. The sources of stream flow can vary depending upon different hydrologic conditions as shown by Dewalle, D.R., B.R. Swistock,

and W.E.. Sharpe(1988). Their study showed that during a low intensity rainfall event there was varying degrees of input to the stream channel from each water source. It is understood that under low intensity rainfall events and during the summer, ground water will make up a large amount of the stream flow. A contributing source of groundwater – stream water interaction comes from stream side seeps. The degree of ground water inputs from 4 seep locations during different hydrological events was assessed using a salt tracer in a sub watershed of the Smitty Creek watershed, which is on the north side of St. Regis Mountain in the Adirondack region of New York. In general there was some type of groundwater interaction to stream flow as seen through the difference in electrical conductivity (EC) of stream water above and below the seeps. The varying degree of groundwater input was dependent upon a variety of hydrologic factors as well as the physical and spatial characteristics of the seep. The data establishes a baseline against which to compare future seep studies, stream ecology studies, and to understand specific seep characteristics that affect seep discharge of ground water.

Mr. Jon-Dimitri Lambrinos
364 Beverly Rd.
Douglaston, NY 11363

jdlambrinos@yahoo.com

Mapping Potential Wetlands in a Geographic Information System: Implications for Restoration and Conservation

Ariel Diggory (presenter), SUNY College of Environmental Science and Forestry and NYS Adirondack Park Agency, *Sunita K. Halasz,* NYS Adirondack Park Agency

Abstract

Using aerial photography to locate and map wetlands is a common practice, but this method only maps wetlands that exist at the time the aerial photo is taken. We use a Geographic Information System (GIS) to map and predict where wetlands could be ("potential wetlands") based on permanent land features: land position, elevation, slope, moisture, soil, and geology. Each location is given an Ecological Land Unit (ELU) based on its characteristics – a method modified from the Nature Conservancy. Whether an ELU is currently a wetland depends on the influence of humans and beavers, but can be verified using aerial photos or field observations. Having GIS maps of potential wetlands and current wetlands allows for many analyses. Conservation planners or wetland regulators can look at wetland area, wetland community type, spatial distribution, proximate land uses, land ownership, and changes in wetland coverage (loss or gain). This knowledge will also support decisions for wetland mitigation – a created or restored wetland is more likely to succeed if it is sited where the underlying features are supportive of a wetland. The areas used for this project are the Ausable and Boquet watersheds of the Adirondack Park, New York.

Ms. Ariel Diggory
63 Park Avenue
Apt#4
Saranac Lake, NY 12983

518-891-4837
aadiggor@syr.edu

Regional Planning for Aquatic Nuisance Species Management in the Adirondack Park

Dan M. Spada (presenter), Adirondack Park Agency*; **Authors:** Daniel L. Kelting,* Adirondack Watershed Institute, *Mark Malchoff,* SUNY Plattsburgh, *Hilary A. Oles,* Adirondack Nature Conservancy

Abstract

The proliferation of aquatic nuisance species (ANS) is a top threat to water quality, ecosystem health, and the economy of the Adirondack State Park, a 2.4 million hectare park in upstate New York. In 2005, at least 49 waters were reported with aquatic invasive plant infestations, and efforts to track other ANS have been limited. Impacts of ANS will continue to increase if current populations of ANS are left unchecked and new species of ANS enter the

Park. The Adirondack Park Aquatic Nuisance Species Management Plan (the Plan) was drafted to facilitate the coordination and enhancement of ANS management efforts throughout the Park. Developed by 11 cooperating organizations, peer reviewed, and vetted at the Paul Smith's College 2005 Adirondack Water Quality Conference for public comment, the Plan identifies three goals: 1) preventing new ANS introductions, 2) limiting the spread of established ANS populations, and 3) abating negative impacts resulting from existing infestations. Implementation components of the Plan include coordination, enforcement, legislation, education and outreach, early detection and monitoring, management, restoration, and research. It is estimated that $8.5 million will be needed per year to implement the Plan. Implementation strategies and progress to-date will be discussed.

Mr. Dan Spada
NYS Adirondack Park Agency
Box 99
Ray Brook, NY 12977

518.891.4050
dmspada@gw.dec.state.ny.us

Long-Term Monitoring Program for Evaluating Changes in Water Quality in Adirondack Lakes

Phil Snyder (presenter), James Dukett, Nathan Houck, Sue Capone, Adirondack Lakes Survey Corp., *Karen Roy and Kevin Civerolo,* NYS Department of Environmental Conservation, *Charles Driscoll and Kimberley Driscoll,* Syracuse University

Abstract

The Adirondack Long-Term Monitoring (ALTM) Program was established in 1982 to assess seasonal and long-term patterns in the chemistry of lakes in the Adirondack region of New York. The monthly sampling program, initiated with 17 lakes, was expanded in 1992 by an additional 35 lakes, which were considered as being representative of lake classes across the Adirondacks. In this study, we report on time-series analyses on the acid-base status of ALTM lakes relative to changes in acidic deposition as a function of different sampling periods. Time-series analyses were performed for 16 non-limed lakes covering the sampling periods of 1982-2000 and 1992-2000 (Driscoll et al. 2003) and 48 non-limed lakes over 1992-2000 and 1992-2004 (Driscoll et al. 2005). Results indicate decreasing concentration trends in sulfates, and increasing trends in ANC and pH, but not necessarily uniform over the monitoring periods. Lake nitrate changes have varied along with pH and acid neutralizing capacity (ANC) but are not explained by nitrate deposition changes. Dissolved organic carbon (DOC) increases have also been detected in a number of lakes. Low levels of pH and ANC with corresponding high levels of toxic inorganic monomeric aluminum (Alim) continue to occur particularly during springmelt. Year-round levels of Alim remain high in several ALTM lakes. Preliminary results from lakes sampled more intensively during springmelt indicate that weekly sampling is more efficient at capturing spring depressions in pH and ANC.

Regional comparisons with other sensitive lakes and streams for 1990-2000, found that lakes in the Adirondacks responded similarly to New England and the Northern Appalachian Plateau with substantial declines in sulfate and base cations and small increases in pH, ANC and DOC (Kahl et al. 2004).

Mr. Philip Snyder
Adirondack Lakes Survey Corporation
Rt. 86
Ray Brook, NY 12977

(518) 897-1252
pxsnyder@gw.dec.state.ny.us