



Adirondack Research Consortium

A not-for-profit organization dedicated to research on the Adirondacks

15th Annual Conference on the Adirondacks **Research Paper Abstracts Submitted for Sessions I - III** *In Alphabetical Order by Principle Author*

Eric W. Bouchard

A CCC Inspired Program: Preserving the Adirondacks through an Economic Crisis

Leading economists are observing a mounting economic crisis which many believe will result either in a prolonged recession or a continued decline leading to the first depression since the 1930's. Providing economic stimuli will then become a priority over all other issues, including environmental protections. The Civilian Conservation Corps, however, serves as a salient example of a green employment program which during an economic crisis both provided stimuli and supported land conservation goals. The CCC, whose initiatives were significantly shaped by the conservation and tourist movements of the Adirondack Forest Preserve, verifies that the program's pursuits, despite discrepancies with NYS Constitutional Article 14, can be instructive both positively and negatively. Although the authority of the amendment reigned supreme, Adirondack Forest Preserve decisions regarding CCC projects were based primarily on governmental decisions, compromises and exceptions, an anthropocentric utilitarian vision, a perception of conservation based on scientific forestry innocent of ecological principles and Article 14 in fact loosely interpreted. These factors ultimately made permissible CCC projects including road and dam building, ski area construction and non-native species reforestation all of which today would require close examination, a constitutional amendment and/or a public referendum. However, the potential to develop economically stimulating CCC modeled employment is plausible today without eroding existing protections. Although the Ecological sciences and ongoing human degradations reinforce the constraints of the Adirondack forever wild provisions, labor intensive environmental projects such as species inventory/restoration, reforestation and exotics removal can provide similar benefits within the currently understood constraints of Article 14.

Chiarenzelli, Jeffrey R.¹

Adirondack River Discharge During the Last Century.

Discharge in some Adirondack rivers has been measured for nearly a century. During this period Adirondack rivers show an average increase in annual discharge of ~20%. These increases have occurred largely during the fall (32.4+/-12.4%), winter (23+/-9.1%), and summer (19.6+/-15.8%) months while spring discharge has held steady. It is concluded that enhanced winter discharge is likely caused by the continued, and gradual, release of water stored during the fall. These changes in discharge are driven by real changes in the amount of precipitation in the Adirondack region and beyond. The trends identified are in good agreement with regional discharge trends reported by the United States Geological Survey's HydroClimatic Data Network for small rivers in the Upper Midwest and Northeast. In particular, 30-years cycles of precipitation, punctuated by relatively abrupt increases in discharge, have been identified. In the Adirondack region these cycles appear to have operated since at least the 1940's, perhaps even earlier. The net result of these changes is enhanced Adirondack river flows, particularly from August to December. The various hydrogeological implications of these findings will be discussed.

¹ St. Lawrence University

Danks, Elizabeth¹, William F. Porter¹

Assessment of Extent of Influence Residences Have on Adjacent Mammal Communities in the Adirondacks, New York.

Low-density residential development is increasingly stressing natural ecosystems, and impacts from this exurban development are less obvious, and therefore more difficult to measure than urban or suburban development impacts. I studied the impact of low-density residential development on small mammals using three metrics: total abundance, alpha-diversity, and beta-diversity. I found total abundance and alpha-diversity within each site. I found beta-diversity by doing pairwise comparisons of species richness between sites. My objectives were to: (1) ascertain whether there is an impact that could be directly attributed to human activities at residences adjacent to natural forests, or whether variation is primarily due to natural biotic and abiotic conditions. (2) determine whether there were differences in intensity of anthropogenic impacts that could be measured. I measured nine anthropogenic changes to habitat and seven biotic/abiotic conditions expected to impact small mammals. I used regression and model selection to determine their effect on each metric. I used standardized coefficients to rank the variables in order of importance in predicting each metric. I found that anthropogenic impacts ranked above biotic/abiotic elements in predicting all three metrics. Housing density, occupancy (seasonal vs. year-round), distance from forest-lawn edge, presence of cats, dogs, and birdfeeders, and political land-use classification were particularly predictive. The number of cats and housing occupancy were the most consistent predictors of the level of intensity of these impacts; diversity consistently decreased both with the number of cats at a home and at homes that were occupied year-round rather than only seasonally.

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DeLeon^{1*}, Sara and Dhondt, André A.²

Birdsong: An Indicator of Sublethal Polychlorinated Biphenyl (PCB) Bioavailability in the Environment?

To test the hypothesis that birdsong could be adversely altered by sublethal polychlorinated biphenyl (PCB) levels in the environment and can be used as a behavioral indicator of PCB bioavailability, I performed a two-year survey of Black-capped Chickadee (*Poecile atricapillus*) *fee-bee* songs along a PCB gradient. Comparatively low PCB level sites were found along the Hudson River near its headwaters and in the Adirondack Park, and higher PCB level sites were found along the Hudson River below Hudson Falls and Fort Edward, in eastern New York. In 2006 I recorded a total of 89 *fee-bee* songs from sites with high and low PCB concentrations. And from April-July 2007 I recorded 202 Black-capped Chickadee *fee-bee* songs from the same sites. These songs were analyzed for 1) differences in the interval ratio (a measure of song quality) among locations, and 2) the interval ratio variation within and among individuals. As predicted, characteristics of song quality differed between sites. The average interval ratio was significantly lower in the low PCB site than in the higher PCB site. Furthermore, variation in the interval ratio indicates that song learning, but not production, appears to be affected by PCBs. My results support the hypothesis that non-lethal levels of PCBs in the environment have significant effects on the sensitive song system in common passerines, a finding with implications for the population biology of wild birds in polluted landscapes.

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Celia **Evans**¹, Jonathon Cale¹, Matthew Ayres², Mark Twery³, Jeff Garnas², and Dave Houston⁴

Beech bark disease and forest structure in managed and preserved forest stands

Forest managers and ecologists have become concerned about changes in forest structure as a result of beech bark disease in Adirondack forests. Particular concern has been about increase beech sapling density, particularly root sprouts. We sampled 151, 10m radius plots in managed and preserved forest lands in the Adirondack Park in northern NY State to examine the status of beech bark disease with respect to forest structure and beech regeneration. We predicted that managed plots would likely have higher sapling density, a higher percent of root sprouts due to the combined effects of disease and management. We found no difference in overall sapling density and there were more sprouted beech in preserved than managed plots. We also examined univariate and multivariate relationships between stand structure and disease index to see if different relationships might exist in managed and preserved stands. Differences due to land-use were minimal and suggest that management activities in the Adirondacks have not significantly interacted with disease to increase beech sapling density. Future research will need to examine specific management practices in order to more clearly understand why in some cases managers report very high densities of beech sapling densities on their managed lands.

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Farrell, Michael¹

Growth Potential of the Adirondack Maple Syrup Industry

The effects of climate change, economics, land ownership, government policies, and demographics could have significant effects on the Adirondack maple syrup industry. This presentation will discuss some of the current trends and future outlook for maple production in the Adirondacks. The Adirondacks are blessed with an abundant maple resource that is currently underutilized for syrup production. Although there is some concern that global warming will result in the loss of maple trees in the Adirondacks, other predictions show that maple production will actually benefit from climate change in this region. Currently, of the roughly 164 million potential taps in the 12 counties that include the portions of the Adirondack Park, only ~ 517,000 taps are being utilized each year by maple producers. Considering the fact that Quebec taps 35% of their maple trees whereas we tap less than 1% of ours, the potential for growth is tremendous. New York is a significant importer of maple products from Canada, and now that the exchange rates between the U.S. and Canada have equalized, there is no longer an economic advantage to import Canadian syrup. Given the potential for supplying more of our own markets and the increased focus on local food production/consumption, a large maple syrup packaging and distribution center is being explored for Lewis County. Government policies and landowner objectives also have a significant impact on how we utilize the maple resource, leading to significant differences between the Adirondacks and other states/provinces.

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Glennon, Michale J.¹, Heidi E. Kretser^{1,2}, Jodi Hilty¹, Eric Atkinson³, Brian McAllister⁴

Understanding Spatial Distributions of Species in Exurban Landscapes

Biogeographic theory suggests that spatial structure exerts powerful influences on the adaptations of organisms living within a landscape and that features such as patch size, shape, diversity, and connectivity can profoundly influence an organism's ability to persist within, disperse through, colonize, or recolonize a landscape. Humans often significantly alter landscape elements of pattern. The fastest growing change in land use that alters landscape pattern and contributes to habitat loss and fragmentation in the United States is exurban development. 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; it 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. Only recently have studies begun documenting changes in species distributions due to exurban development and this growing literature suggests that such development may result in altered wildlife behavior, altered wildlife species composition, and decreased biotic integrity. During summer 2007, we examined the impacts of exurban development in the Adirondack Park and Greater Yellowstone Ecosystem (GYE). The GYE is characterized by a heterogeneous mix of shrub-steppe and grassland vegetation, while the Adirondack Park is characterized by extensive forest cover. We hypothesized that exurban developments which closely match the natural pattern of habitat structure will show less magnitude of change in biotic integrity compared to those developments that significantly alter natural habitat structure. We examined biotic integrity of breeding bird communities in existing subdivisions and adjacent control areas in both ecosystems, finding that exurban development does have strong impacts on the structure of bird communities.

¹ Wildlife Conservation Society

² Cornell University, Human Dimensions Research Unit

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⁴ Borealis Nature Tours

Paul B Hai¹ and William F. Porter¹

Development of a Large-scale Conservation-education Institute Serving the Northern Forest Region

Over the past seven years the Adirondack Ecological Center (AEC) of SUNY ESF has been developing a broad new program in educational outreach: the *Northern Forest Conservation Education and Leadership Training Institute* (NFCELT). Our goal is to create a program in the vanguard of professional training for conservation education and leadership. NFCELT is a multi-tiered interdisciplinary educational outreach program emanating from the AEC, and its associated facilities, in Newcomb, NY. A key asset of NFCELT is the Masten House, an 8-bedroom mansion located on Henderson Lake. It is within the state historic district encompassing the former town of Adirondac, situated at the southern entrance to the High Peaks. The Masten House is being conveyed to ESF through a formal agreement between Open Space Institute and the College. The NFCELT program is focused on professional audiences, but will serve students in college and secondary curricula as well as the general public. Faculty and staff of ESF and partnering institutions will bring rich experience to professional development, educational outreach and leadership training in conservation. The programmatic structure of NFCELT will reflect the successful model pioneered by the US Fish and Wildlife Service's National Conservation Training Center (NCTC). This model is predicated on systemic partnerships developed between multiple organizations to collaboratively develop and deliver content, identify and recruit consumers, and submit proposals for financial support. Institutions and agencies participating in NFCELT include state resource management agencies, formal and informal education institutions, and NGOs in NY, VT, NH and ME.

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Landscape characteristics and social survey data as predictors of human-black bear interactions in the Adirondack Park, USA.

As human-wildlife interactions continue to increase globally, we need effective methods to identify areas and people prone to human-wildlife conflicts, and we need interdisciplinary collaboration to develop proactive strategies that minimize unwanted human-wildlife interactions. We combined landscape variables generated using existing data in geographical information systems and data on local land use practices and socio-demographics from a self-administered mail survey of 730 landowners to predict locations of human-black bear (*Ursus americanus*) interactions and perceptions of those interactions in the Adirondack Park in Northern New York, USA. We used logistic regression to determine which landscape and local landowner practices increased the probability of an interaction with bears. Exurban housing densities (2-16 ha per unit) and rural housing densities (>16 ha per unit) near high quality bear habitat increased the likelihood for human-bear interactions compared to urban and suburban housing densities (< 2 ha per unit). Local landowner practices such as engaging in behaviors to attract wildlife, feeding birds, raising farm animals, and maintaining recreation trails also increased the likelihood of an interaction. General linear regression indicated that specific experiences with severe impacts (e.g. bear entering a home), attitudes expressing general concerns about wildlife, and experiencing actual property damage were most closely related to perceiving a negative interaction with black bears. Negative and indifferent perceptions to interactions with bears were associated with less support for wildlife protection programs. While problem prevention education remains an important tool for modifying landowner behaviors that attract bears, our findings suggest an opportunity for collaboration among land-use planners, wildlife managers, and conservation practitioners to effectively link research and policy to influence housing configurations and pro-actively minimize human-bear conflicts.

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The Role of Adirondack North Country Foods in Community and Economic Development

A detailed impact analysis of North Country farm and food businesses that use a direct marketing or 'local foods' approach to selling their agricultural product(s) was obtained through secondary data analysis and direct interviews of North Country food entrepreneurs and organization representatives. Through purposeful sampling of 12 cases across the 6-county northern NY region, food entrepreneur interviews were conducted from January through March 2008. Interviews were conducted to assess the impacts of a local foods approach on: the business of each operation; the community that each is located in; and, the larger implications for the agricultural sector in the North Country. Interviews highlighted how regional/local food production and marketing in the North Country currently affect: 1) agricultural production and farm profitability; 2) community and economic development; and, 3) the environment. Interviews were also conducted with North Country organizations working to support connections between local and regional food producers and consumers. These interviews documented what each organization is doing to explore opportunities for collaboration on a regional basis and the impacts these organizations have on farms and communities in the North Country. Ten organization representatives were interviewed from diverse product associations, public and private community development/non profit agencies, marketing collaboratives and market outlets. While services, programs and approaches varied widely, the organizations share an overarching goal of increasing incomes/economic return within the region and see multiple opportunities for further development of infrastructure and formal support for local farm and food initiatives.

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McNulty, Stacy A.^{1*}, Sam Droege², and Raymond Masters³

Adirondack Forest Birds, Especially Long-Distance Migrants, are Declining Regionally.

We used historical data to identify regional declines in Adirondack forest birds. Breeding birds were studied in an old-growth forest nearly 3 km from any roads in the Natural Area of Huntington Wildlife Forest (HWF), in Newcomb, New York. Birds were sampled in June on point count stations between 1954 and 1963, and between 1990 and 2000. Population trends from 31 species at HWF were compared with data from regional North American Breeding Bird Surveys (BBS) and from a forest plot at Hubbard Brook Experimental Forest, New Hampshire. Trends for 22 species at HWF were negative, eight were positive, and one was zero; all but 2 were significant. Most (15 of 17) long-distance migrants declined, whereas half (7 of 14) short-distance migrants and permanent residents declined. Despite differences in sampling periods and local habitat features, most species matched in sign of trend when HWF data were compared to BBS routes. Three-fourths (74%) of birds at HWF matched Adirondack BBS routes, 61% matched Northeastern BBS routes, 71% matched Eastern United States BBS routes, and 66% matched the Hubbard Brook plot. The agreement in population trends suggests that forest interior birds, especially long-distance migrants, are affected more by regional than local factors. The analysis indicated that bird trends generated from BBS routes may not be as biased toward roads as previously suggested.

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Craig Milewski, Ph.D.¹, Stacy McNulty²

Adirondack Biodiversity Project: Update on Citizen Science Efforts

Collaborators of the Adirondack Biodiversity Project, an all-taxa biodiversity inventory (ATBI), are actively moving the project forward through outreach, education, and participatory science. The project has attracted scientists from the Adirondack region and beyond, who formed taxonomic working groups (TWIGs) to coordinate collection and sharing of data. Discoveries in 2007 included 40 species of stream invertebrates new to the Adirondacks and several water mites, not previously described. In 2007, a BioBlitz at the Paul Smiths Visitor Interpretive Center included over a dozen scientists, scores of volunteers and public participants, and yielded roughly 400 species from 11 taxonomic groups. The benefits from the BioBlitz were many, including student learning of field biology techniques, public outreach skills, and GIS applications, as well as public involvement in scientific inquiry. The BioBlitz served as an opportunity to increase awareness of the project. Results of the BioBlitz are summarized on the website, which has been substantially upgraded with collaboration from the Wild Center. The Adirondack Biodiversity Project has stimulated multiple education efforts. In 2007, the Adirondack Curriculum Project developed K-12 curricula around the theme of biodiversity. The Adirondack Biodiversity Project continues to unfold and develop as a biodiversity inventory and as a model of citizen participation.

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Morrison, Charles C.¹

Forest Preserve At Risk - Indian River, Moreau Lake State Park, Tahawus Railroad

Protecting the Forest Preserve requires experience, knowledge, skill, persistence and, above all, vigilance. The Association for the Protection of the Adirondacks has been at the forefront of this important work for 107 years. Threats to the Preserve often arise unexpectedly and some violations of Article XIV persist for years without remediation. This paper describes three examples of major violations of Article XIV which the Association currently is addressing.

In 1982, a private developer obtained a federal permit to study Indian Lake dam for hydroelectric generation. Research revealed that this is a State-owned Forest Preserve dam. Violations of Article XIV and other State laws were identified, but attempts at resolution over the next decade failed. Last year, the Town of Indian Lake obtained a federal permit on the same dam, and the violations surfaced again.

Saratoga County is constructing a 30-mile water project with an intake on the Hudson River in Moreau Lake State Park. The Park is Forest Preserve and the water facility is a violation of Article XIV. Resolution will be precedential for all State lands in Forest Preserve counties.

In 1941, over strong objections by the State and the Association, the federal government appropriated a 15-mile temporary easement on Forest Preserve land for the right-of-way for a railroad spur from North Creek to Tahawus. Mining at Tahawus ceased in 1982 and the spur was abandoned in 1989. The purpose of the easement has been fully served. Extinguishment will make the Forest Preserve whole again.

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Phillips, Lawrence P.¹

Summary of Soil Investigations Used to Site Onsite Wastewater Treatment Systems

A soil investigation is one part of a site investigation that is needed to determine if a site can support a properly operating Onsite Wastewater Treatment System (OWTS). Soil investigations draw conclusions regarding the depth to bedrock and Seasonal High Groundwater Table (SHGWT) depths from Deep-Hole Test Pits. For proposed OWTS involving new land use and development, Adirondack Park Agency guidance states that depth to SHGWT must be greater than 24 inches and depth to bedrock must be greater than 48 inches. Conventional absorption trench systems can be used when depth to SHGWT is greater than 48 inches deep and depth to bedrock is greater than 72 inches. Shallow absorption trench systems are required when depth to SHGWT is between 24 and 48 inches deep or if bedrock is between 48 and 72 inches deep. Over the past two years, 640 soil profiles have been logged. In 17% of these cases, APA guidance was not met and new locations had to be found for proposed OWTS locations. Shallow absorption trenches were required in 42% of the soil profiles due to SHGWT being less than 48 inches deep and 3% of the soil profiles because bedrock was less than 72 inches deep. Bedrock was deeper than 72 inches and SHGWT deeper than 48 inches in 39% of the soil profile descriptions. Estimating depth to SHGWT is a critical factor in properly siting an OWTS and demonstrates the need to continue describing soils from Deep-Hole Test Pits.

¹NYS Adirondack Park Agency

Phillips, Lawrence P., and Beti Spangel

Reducing Electrical Usage By More Than Half in a Rural Home

The previous five years of electrical bills were summarized to establish baseline electrical usage in an early 1900's farm house with conventional electrical service, wood heat, electric hot water and stove. As a first step, incandescent light bulbs were replaced with compact florescent bulbs. A solar hot water pre-heater was built for spring and summer use and a woodstove hot water pre-heater was built for fall and winter use. Both systems utilize an old hot water heater tank mounted upstairs so the heat from both sources would flow upward to the tank. The system was built from reused building materials such as old windows, used baseboard hot water heating cores, and an old hot water heater. To reduce winter electrical usage for keeping livestock water thawed, a stock tank was outfitted with insulation that included a unique floating roof design. This reduced the need for an electrical stock float to once every 3-4 days. After 6 months, electrical use has been reduced 56%. A future project includes "taking a horse barn off the grid" using a 60 watt photovoltaic panel, 250 amps of 12 volt deep cell batteries (plans to 1,000), a 15 amp output modified sin wave inverter/charger, and a 3500 watt emergency generator. Surplus electricity from this project will be able to be fed back to a low amperage circuit in the house via an emergency generator circuit box.

K.M.Roy¹

Changes in Water Chemistry of Adirondack Lakes in Response to Changes in Acidic Deposition

Long-term changes in the chemistry of wet deposition and lake water were investigated in the Adirondack region by the Adirondack Long-Term Monitoring (ALTM) program. Marked decreases in concentrations of sulfate (SO_4^{2-}) and hydrogen (H^+) have occurred in wet deposition since the late 1970s. These decreases are consistent with long-term declines in emissions of SO_2 in the eastern US. Changes in wet nitrate (NO_3^-) deposition and nitrogen oxide emissions have been minor over the same interval. Virtually all Adirondack lakes have exhibited large decreases in concentrations of SO_4^{2-} , which coincide with decrease in atmospheric S deposition. Since 1992, concentrations of NO_3^- have also decreased in many (27 of 48) Adirondack lakes. As atmospheric N deposition has not changed appreciably over this period (1992-2004), the mechanism contributing to this apparent increase in lake/watershed N retention is not evident. Decrease in concentrations of $\text{SO}_4^{2-} + \text{NO}_3^-$ have resulted in increases in acid neutralizing capacity (ANC) in 37 of 48 lakes and decreases in concentrations of toxic aluminum, particularly in acid sensitive lakes. Concentrations of dissolved organic carbon (DOC) have also increased in some (15 of 48) lakes coinciding with decreases in acid deposition. Examination of changes in lake chemistry by hydrologic classes showed that drainage lakes in watersheds with thin deposits of glacial till and mounded seepage lakes have generally been the most responsive to decreases in acidic deposition. While an increasing number of lakes exhibit positive responses, the trend rates (slopes) have slowed indicating a full chemical recovery from acidification will be on the order of decades. For example, using the 1992-2000 data, the projected ANC target of 50 micro-equivalents per liter (μeqL^{-1}) for Big Moose Lake is 25 years, or 2025. However, when the trends slope for 1992-2004 is applied, the target ANC for this lake is 39 years, or 2043. Currently, critically high levels of toxic aluminum continue to impact the region. During the 2007 springmelt, over 40% of lakes continued to show aluminum levels above values toxic to juvenile brook trout. In addition, annual sampling of 43 Adirondack lakes within the Temporally Integrated Monitoring of Ecosystems (TIME) project has been ongoing since 1997. Preliminary chemistry patterns from these statistically selected waters show similar patterns with a majority of these lakes showing ANC values below 50 micro-equivalents per liter indicating the likelihood of seasonal acidification.

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Naj Wikoff¹

The Arts: The Robins of the Adirondacks

Are the arts the Robins of the Adirondacks – the signs of a new economic and social spring? Often it is the arts that first take seed in economically distressed neighborhoods that, in time, become vibrant as people, restaurants, shops and apartments follow. New York City’s Soho and West Side (centered around Lincoln Center) are but two examples.

In the Adirondacks signs of the growth of the arts is all over. New cultural centers developing along the Ausable River in Upper Jay (Recovery Lounge), Jay (JEMS), Ausable Forks (Tahawus Cultural Center), the expansion of the Adirondack Museum into Lake Placid and the creation of the Wild Center in Tupper, the expanded cultural center in Old Forge, new galleries in Keene Valley and Lake Placid, and the 10th anniversary of the Guild in Saranac Lake plus the creation of Blue Seed Studios. In town after town a quiet revolution is going on nearly under the economic development radar.

A panel of experts will discuss the economic and community value of the arts to the Adirondacks, the challenges and opportunities they face, and what we can do to help nurture their growth. Panelists: Caroline Welsh, director of the Adirondack Museum in Blue Mt Lake, Nadine Duhaime, director of the Lake Placid Center for the Arts, Scott Renderer, artist, actor, screenwriter and director of the Recovery Lounge in Upper Jay.

Moderator Naj Wikoff, artist and co-founder or founder of five Adirondack cultural organizations.

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Wilson, Josh¹; Kate Fish²

The Wild Center’s Preliminary Inventory of Greenhouse Gas Emissions for the Adirondacks

As part of ongoing efforts to translate the scientific impacts of carbon on climate change to lay language, The Wild Center is communicating with organizations in the Adirondacks about how to help the Park become carbon neutral by 2015. The Wild Center embarked this year on “step 1,” conducting an initial baseline audit of the Park’s greenhouse gas (GHG) emissions. Next steps will include conducting a feasibility study for a carbon offset project, procuring Voluntary Emission Reduction verification, developing a marketing plan, and putting the offering on the market.

Josh Wilson from E&E will present on the recent efforts to quantify GHG emissions from within the Blue Line, and will share interim findings. This will include efforts underway to gather information on GHG emissions related to land use, space heating, mobile sources, electricity use among other sources, and possible inclusion of tourism related travel emissions from outside the park. Region specific challenges, such as quantifying emissions from delivered fuels, will be explored.

The inventory is expected to be complete this summer and results will be shared in more detail around The Wild Center climate change conference in June 2008. Results will feed into other initiatives, such as the Energy Smart Park Initiative “benchmarking” of Park energy and carbon status and improvements in coming years. The planned Adirondack Carbon Offset Program will directly benefit local communities and mitigate GHG emissions by supporting energy efficiency, renewable energy production, sustainable biofuel use, and other offset options, as well as green building capacity within the Adirondack Park.

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Woods, Anne M.^{1*}, and William F. Porter¹

Species Richness in the Adirondacks: the More the Better?

Some current conservation and management efforts are guided by the protection of places with high species richness (i.e., the total number of species living within a given area). The assumption is that species richness is an efficient way to conserve overall biodiversity and ecological values. By using the Wildlife Society's Human Influence Index to quantify ecosystem disturbance, and data from the 2000-2005 New York State Breeding Bird Atlas, we found that bird species richness was lowest in the parts of the Adirondack Park least influenced by humans and highest in the places most influenced by humans. Our results support the intermediate disturbance hypothesis (Connell 1978), which suggests that species richness should be low at high levels of disturbance because of stress intolerance, high with intermediate disturbance as habitat diversifies, and low in the absence of disturbance because the community becomes dominated by superior competitors. In a minimally disturbed forest ecosystem like the Adirondacks, disturbance of the ecosystem by humans has likely increased species richness from the low levels that would naturally be found in this region, but has not been severe enough to drive species richness to the low levels expected with extreme disturbance and ecosystem stress. These results suggest that managing the Adirondack Park to maintain high species richness may not be an appropriate goal because high species richness is associated with high human influence.

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