



16<sup>TH</sup> ANNUAL CONFERENCE ON THE ADIRONDACKS  
PAPER PRESENTATION ABSTRACTS

RESEARCH PAPERS GROUP 1 - SESSION 2.4

1. Mara Moser, Paul Smith's College, Major Professor, Celia Evans, cevans@paulsmiths.edu

**Moser, Mara<sup>1</sup>, Evans, Celia<sup>1</sup>, Randall, Tara<sup>1</sup>, Brennan, Michael<sup>2</sup>, Gardner, Jessie<sup>1</sup>, and Favreau, Jorie<sup>1</sup>**

Snowshoe Hare Browse Behavior in the Adirondacks: How availability and preference influence winter browse choices

Snowshoe hares (*Lepus americanus*) use twigs of woody plants as their dominant source of food throughout the winter. Little is known about hare browsing behavior in the southern part of their distribution, which includes the Adirondack Park. We examined in-situ browse intensity in 4X4 meter plots and browse preference in feeding arrays at low and high elevation sites in the northern Adirondacks. We asked: 1) what are the dominant woody species that hare browse at low and high elevation? 2) what is the relationship between proportion of browsed twigs and relative availability of those twigs? and 3) at low elevation, how does in-situ browse choice compare with preference shown in feeding arrays that contain species less commonly found in high density areas? As expected, preliminary analyses indicate different relative availability of woody species within hare habitats at low and high elevations. For woody species found in 3 or more plots, the proportion of tips of a particular species browsed increased linearly with availability at both elevations, except in balsam fir and red and black spruce which were not browsed in our data regardless of availability. However, when feeding arrays were offered that contained less available species as well as those typically found in the areas, hares showed significant preference for less common paper birch, yellow birch and sugar maple over the commonly available striped and red maple. These data suggest that hare may trade-off gathering preferred browse for browsing available food sources in the areas where they spend most of their time in the winter. Trade-offs likely include safety from predators and/or thermoregulation considerations. These will be the subject of further research. Future research on nutrient content of preferred and available browse will also be discussed.

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Home range characteristics of snowshoe hares in the northern Adirondacks

We trapped 6 snowshoe hares at a low elevation site (Saranac Lake NY) in February and March 2009 and radio tracked them in March and April 2009. Trapping success rate was 0.083 hares/trap night. Male snowshoe hares were smaller (mean =680 g, st dev = 42.4, n=2) than the female hare (1750 g, n=1). The female had better body condition as evidenced by a body index of the ratio of mass to length of hind foot. Preliminary analysis showed the majority of the hares were found more often in coniferous stands than hardwood stands. All six of the hares' home ranges overlapped with each other. The female's home range is central to the males' home ranges. Home range sizes calculated as minimum convex polygons and with the kernel method (50% core and 95%) will be presented.

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3. Amanda Marino, WCS - Adirondack Loon Conservation Program, afmarino@vt.edu

**Marino**, Amanda<sup>1,2 \*</sup> and **Schoch**, Nina<sup>2,3</sup>

Loons and people: guidelines for nesting together on Adirondack lakes

With its striking plumage and haunting calls the Common Loon is an iconic species of the Adirondack Park. Despite its appeal, the loon population faces many human-related threats, including lakeshore development and boating recreational activity. This project will develop conservation guidelines to increase public understanding of these issues, and to inspire improvement of lakeshores for the protection and enhancement of Common Loon nesting habitat on Adirondack lakes. For this project, we have utilized the 2001-2008 Adirondack Loon Conservation Program Loon Census data on more than 300 Adirondack lakes to examine the status of the Common Loon population in the Park. This data was analyzed in relation to the Adirondack Park Agency's Geographic Information System data for land classification and development. The results of the analysis, along with review of the scientific literature about Common Loons, will be utilized to develop the conservation guidelines for Adirondack lakeshores. This essential resource will be made available to government regulatory agencies, town planners, and the general public through a companion guideline booklet, presentations, and the websites of partnering organizations.

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4. Michale Glennon, Wildlife Conservation Society, [mglennon@wcs.org](mailto:mglennon@wcs.org)

**Glennon, Michale J.**<sup>1</sup>, and Heidi **Kretser**<sup>1</sup>.

Effects of Exurban Development on Wildlife Across Different Ecosystems: Contrasting the Adirondack Park with the Rocky Mt West.

One of the important conservation questions with respect to low density rural sprawl and its impacts to wildlife populations is the extent to which impacts differ across ecosystems. In two separate studies, we investigated the effects of exurban development on breeding bird community integrity in the Adirondacks in an attempt to understand the degree to which impacts of development may or may not differ from those found in western ecosystems. One of our projects examined the building effect distance surrounding residential homes in the Adirondack Park – the area around a residence in which wildlife habitat can be considered altered, in order to provide a comparison to a similar study in Pitkin County, Colorado. A second study examined the characteristics of avian communities in subdivisions and control sites both in the Adirondacks and in the Madison Valley of Greater Yellowstone. In both cases, we found striking similarities in the changes in breeding bird community integrity created by exurban development, despite the vastly different ecologies of these regions. This work suggests that the activities of humans and their pets around homes may be stronger drivers of wildlife impacts in exurban developments than are structural changes to local habitat.

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<b>RESEARCH PAPERS GROUP 2 - SESSION 2.5</b>
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1. Ríobart É. (Rob) Breen, Ph.D., Siena College, [rbreen@siena.edu](mailto:rbreen@siena.edu)

**Breen, Ríobart É.**<sup>1</sup>

Ecosystem Management in Unit Management Plans of the Adirondack Park

Abstract: The New York Department of Environmental Conservation's twenty-five unit management plans for the Adirondack Park were analyzed using content analysis to determine the level or degree to which the unit planning documents adhere to the ecosystem management paradigm. The DEC has not consistently applied ecosystem management principles in writing all unit management plans. Because unit management planners are at various levels of understanding, accepting, and implementing management concepts consistent with ecosystem management and still struggle to make policy, planning and implementation consistent with ecosystem management approaches, especially ecosystem management's integrated social-ecological system components, analysis of the plans show varying degrees of incorporating ecosystem management. This study also analyzes the transition from older natural resource management approaches to the newer ecosystem management approach using a comprehensive integration of social aspects and ecological aspects. This research utilizes a tool originally developed to measure the level of ecosystem management in U.S. Forest Service forest management plans. Adirondack Park unit management plans are also compared to identify regional and other differences, and are compared with U.S. Forest Service forest management plans. In the broadest sense, this research looks at efforts of systemic change in environmental management, and analyzes the degree to which a new way of thinking is adopted and integrated into the policy planning process in the Adirondack Park.

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2. Michelle Brown and Craig Cheeseman, Adirondack Nature Conservancy, michelle\_brown@tnc.org, ccheeseman@tnc.org

**Brown, Michelle L.<sup>1\*</sup>, Cheeseman, Craig<sup>1</sup>**

#### Using Species to Identify Conservation Priorities In The Black River Valley

New York State is home to one of the largest expanses of remaining unfragmented temperate deciduous forests east of the Mississippi, in a swathe extending from Tug Hill across the Adirondacks. Historic conservation efforts have largely focused on the protection of core tracts of forestland within these landscapes. Maintaining and enhancing the connectivity in the intervening Black River Valley is increasingly important for biodiversity across the region to help mitigate large-scale threats like fragmentation and climate change, and to promote genetic exchange between populations of resident species. A modeling effort was launched to identify where important connectivity zones existed in the Black River Valley and to develop strategies for implementation. A suite of six focal species were selected to model using existing Geographic Information Systems (GIS) applications. FunConn (Theobald et al. 2006) and least-cost path models were developed and run for black bear, American marten, Canadian lynx, moose, scarlet tanager, and river otter. The results identified roughly 23% of the Black River Valley study area as potential priority linkages, spatially distributed in two main areas. While limiting factors including the lack of field data exist, these modeling results have laid the groundwork for conservation strategy implementation in the Black River Valley.

Theobald, D.M., J.B. Norman, M.R. Sherburne. 2006. FunConn v1 User's Manual: ArcGIS tools for Functional Connectivity Modeling. Natural Resource Ecology Lab, Colorado State University, Fort Collins, CO.  
1The Nature Conservancy, Adirondack Chapter, P.O. Box 65, Keene Valley, NY 12943

3. Rachel A. Neugarten, Cornell University, ran63@cornell.edu

**Neugarten, Rachel A.<sup>1\*</sup>, Steven A Wolf<sup>1</sup>, Richard C Stedman<sup>1</sup>**

#### Cutting The Trees To Save The Forest: The Finch Pruyn Working Forest

The past two decades have seen sales of millions of acres of commercial forest land in the United States, with profound implications for forest species and ecosystems, the timber industry, recreational opportunities, and local and regional economies. An emerging strategy seeks to protect lands through complex public-private partnerships involving state agencies, conservation organizations, and commercial investors. These partnerships integrate environmental and socioeconomic goals, thus representing contemporary experiments in sustainable development for forested landscapes. Our objective is to examine environmental and socioeconomic implications of a particular partnership emerging around the former Finch, Pruyn & Co. lands, 161,000 acres in the Adirondacks purchased by The Nature Conservancy in 2007. Through key informant interviews, we will identify objectives for the former Finch, Pruyn lands, such as species protection, expanded recreational opportunities and regional economic vitality. These objectives can serve as benchmarks of success of the project, thus we will evaluate the terms of this forest management agreement in light of these priorities and lessons learned from past agreements. Preliminary results indicate that this project entails several innovations that may contribute to its success, such as the development of a comprehensive ecological baseline and an extensive stakeholder outreach effort. We hypothesize that one way to strengthen the effectiveness of the project is to establish a system for tracking and sharing monitoring information over time. Another would be to define clear environmental and socioeconomic goals at the outset, and, when private philanthropy is central to project

viability, incorporate monitoring costs into initial fundraising targets. Given the scale of this forest management partnership in the Adirondacks, these lessons are likely to be applicable to conservation development projects in the Northern Forest region and beyond.

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## RESEARCH PAPERS GROUP 3 - SESSION 2.6

1. [Amanda S. Lavigne, St. Lawrence University, alavigne@stlawu.edu](mailto:alavigne@stlawu.edu)

**Lavigne, Amanda S.**<sup>1</sup> and **Powers, Susan E.**<sup>2</sup>

Net Recovered Value: Assessing fossil fuel displacement by utilizing non-dedicated biomass materials as energy resources

The U.S. Energy Independence and Security Act, combined with research efforts focusing on the conversion of cellulosic biomass into ethanol, have heightened the attention given to the increased utilization of a diversified biomass resource portfolio for fuel production to displace imported fossil fuels. Although dedicated crops have been the primary focus, non-dedicated biomass materials could also contribute as viable ethanol feedstocks. However, many of the non-dedicated biomass flows considered for ethanol production also have potential uses as materials or as other energy feedstocks. The versatility of these resources raises a critical question: Considering current U.S. national energy priorities, is ethanol production the most effective use of biomass resources? This paper establishes and utilizes a methodology for assessing biomass resources that compares the potential energy value recovered when each feedstock is utilized for various energy and material resource options. The results show that ethanol production is only favored from energy policy perspectives when true “wastes” that have limited alternative uses, such as whey and paper sludge, are utilized. Greater volumes of imported petroleum can be displaced by using other non-dedicated biomass resources to produce material goods (including plastics or particle board) or heating fuel than can be displaced by utilizing these resources for ethanol production.

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**Duley, Victoria Zinser**<sup>1</sup>, **Mack, Keri**<sup>2</sup>

Study of Young Professionals in Clinton, Franklin, Essex, Hamilton Counties, New York

At the request of the North Country Workforce Investment Board (WIB), the Technical Assistance Center (TAC) at the State University of New York at Plattsburgh conducted a study of the lifestyle and professional attitudes of young professionals in Clinton, Franklin, Essex and Hamilton Counties, New York. The study included a survey, focus groups and regional/national research. Key findings included that a strong majority of those surveyed planned to stay in the area long-term and that they were either satisfied or very satisfied with their current jobs. A majority reported to be either satisfied or very

satisfied with the community they lived in outside of professional life. Educational opportunities, professional development, and networking opportunities were rated most positively in the region, and the variety of jobs, number of jobs, and pay scale of jobs were ranked least favorably. Of the highly ranked lifestyle opportunities, respondents said that recreational opportunities, community involvement/volunteer opportunities and community identity/ image were generally well-provided for in the region. Social gathering spots and arts and cultural opportunities scored as “fair” or “poor” by nearly three-quarters of respondents. There were differing responses among participants in Clinton County and those from Franklin/Essex County. Those from the latter group generally expressed greater career and social challenges. The region shows a slightly higher percentage of young professionals than occurs in this 20-44 year old age group statewide.

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**Burnett, Matt.**<sup>1</sup>

The Arbitrary 46

*The Arbitrary 46* is a multimedia study of the philosophical ideas surrounding the concept of wilderness. The project compiles several years of field work and experiences in the Adirondack wilderness, comparing the goals and outcomes of wilderness pursuits as well as the history and ideas informing them. Generally defined as “A place beyond cultivation/human habitation,” the managed wild lands of the Adirondack Park bespeak the inherent enigma of what we seek from wilderness as well as how we maintain and protect it. This project posits that the notion of wilderness as a geographical location, an unknown to be explored and charted, is an anachronistic though influential concept in the 21<sup>st</sup> century, one that continues to inform cultural and political notions of nature and wilderness. In this project, the idea of wilderness as the “perpetual geographic frontier,” is approached through non-objective excursions that ask the question “what is wilderness?” rather than “where is wilderness?” Through interviews, examination of wilderness experiences, and multimedia documentation, the concept of wilderness is reestablished as a psychological experience, one characterized by one’s expectations being superseded by natural occurrences. This can happen within individual experience or culturally. Embedded within the particular experiences documented by this project is evidence of how these concepts are manifested in our laws, behaviors, and sometimes paradoxical enterprises. The discourse surrounding tourism, trail maintenance, backwoods shelters, improving outdoor technology and communication, natural resource conservation, water rights, use restrictions/permits, human/wildlife relationships and natural disasters are some of the topics explored.

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<b>RESEARCH PAPERS GROUP 4 - SESSION 3.1</b>
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1. Mark Rooks, NYS Adirondack Park Agency, [wmrooks@gw.dec.state.ny.us](mailto:wmrooks@gw.dec.state.ny.us)

**Rooks, W. Mark**<sup>1\*</sup>, **Dan M. Spada**<sup>1</sup>, **Mary A. O’Dell**<sup>1</sup>, and **John W. Barge**<sup>1</sup>

Wetlands, Sub-catchments and Invasive Plants in the Mohawk River Watershed.

The Adirondack Park Agency (APA) has recently completed a project which mapped wetlands and watershed sub-catchments in the portion of the Mohawk River watershed within the Adirondack Park. In conjunction with this project, invasive plant infestations were inventoried, monitored and controlled. The mapping and invasive species locations were digitized and made available for use in a Geographic Information System (GIS). This presentation gives background on the project and reports on methods and results. The value and uses of the information are discussed, as well as direction for future efforts. Within the project area of 136,503 ha, 11,444 ha were mapped as wetlands; wetlands, therefore, constitute approximately 8% of the Mohawk watershed's surface area within the Park. Within the Mohawk project area, an additional 3 percent of the watershed area is open water. A total of 428 sub-catchments were mapped for the project area. The sub-catchments ranged in size from a minimum of 1.0 ha to a maximum of 10,492 ha. The smaller sub-catchments are those associated with the Adirondack Lake Survey Corporation numbered ponds while the larger sub-catchments are riverine. One hundred fifty nine invasive plant infestations were inventoried in 2006 and 64 of these were controlled in the 2006 and 2007 field seasons.

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2. Ariel Diggory, NYS Adirondack Park Agency, aadiggor@gw.dec.state.ny.us

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Mapping Existing and Potential Wetlands in the AuSable and Boquet River Watershed.

The NYS Adirondack Park Agency (APA) recently completed a project which mapped both existing and potential wetlands in the AuSable and Boquet River watershed within the Adirondack Park. Interpretation of color infrared aerial imagery provided the maps of existing wetlands. Out of the 229,937 ha (568,174 acres) that comprise the watershed, 12,315 ha (30,431 acres) were mapped as wetland, which constitutes 5% of the total watershed area. The influence of beaver activity was seen in 19.3% of the total number of wetlands. Agricultural activities were found to have converted 750 ha (1,853 acres) of wetland to upland. An additional 137 ha (339 acres) of wetland were found to be otherwise disturbed by agriculture. A principal limitation with most wetland mapping methods is that they are "snapshots" depicting existing wetlands at the time the map was made. To improve on this temporal constraint and to inform the selection of candidate wetland mitigation sites, we used five enduring landscape features (elevation, slope, land position, moisture, and soil) to develop predictive spatial models for wetlands, both existing and potential, in the same Park watershed. The two methods we examined – data-driven regression and expert-driven ecological land units – achieved 70.4% – 85.3% overall accuracy for the prediction of wetland presence when compared to reference maps of existing wetlands. Each modeling method had more false positives (> 58.3%) than false negatives (< 3.2%). Some false positives could be good mitigation sites, i.e., locations with enduring landscape features that could support a wetland.

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3. Daniel M. Spada, NYS Adirondack Park Agency, spada@gw.dec.state.ny.us

**Spada, Daniel M.<sup>1\*</sup>, Aaron C. Ziemann<sup>1</sup>, and Kathy D. Regan<sup>1</sup>.**

Effectiveness of and Enhancements to the Adirondack Park Agency's Wetland Protection Program.

The Adirondack Park Agency has permit jurisdiction over activities involving wetlands in the Adirondack Park and has issued thousands of permits for such activities over the past 30 years. There has never been a systematic attempt to determine or document compliance with permit conditions. A USEPA Wetland Demonstration Program (Grant Pilot) was received in 2006 whose main goal was to develop and implement a wetland permit compliance program. The program was developed and implemented with retroactive permit recipient contact and field visits back to the year 2000. Of 1230 total permit records that were reviewed in the office, 454 were deemed to need field review. Of the 454, 416 (92%) were determined to be in compliance with their permit conditions and 38 (8%) were non-compliant. Twenty of these instances of non-compliance were considered minor and referred to the original Regulatory Programs staff member for resolution. Eighteen were considered serious or extensive enough to warrant referral to Enforcement staff for resolution. Additional tasks relating to wetland protection and data collection were also implemented including wetland and sub-catchment mapping and wetland general permit evaluation.

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4. Kevin Prickett, NYS Adirondack Park Agency, kgpricke@gw.dec.state.ny.us

**Prickett, Kevin**<sup>1</sup>

Comparative Mapping: a useful tool for policy development.

The Adirondack Park State Land Master Plan (SLMP) states “Public use of motor vehicles will not be encouraged and there will not be any material increase in the mileage of roads and trails open to motorized use by the public in wild forest areas that conformed to the master plan at the time of its original adoption in 1972.” To put this guideline into practice and move forward with unit management planning for Wild Forest areas, the Adirondack Park Agency and the Department of Environmental Conservation needed to agree on the mileage of snowmobile trails on Forest Preserve lands in 1972. Agency staff followed a decades-long paper trail of maps, tables and reports and applied GIS technology to arrive at an estimated baseline figure. Regional maps from 1972 were digitized and geo-referenced; trails were digitized and accuracy checked using numerous existing and historical resources. Knowing today that there were 740 miles of snowmobile trails in 1972 gives policy makers and planners the necessary framework for managing the Park’s snowmobile trail system in compliance with the SLMP.

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## RESEARCH PAPERS GROUP 5 - SESSION 3.2

1. Brendan J. Wiltse, Paul Smith’s and Queen's University, Kingston, Ontario, brendan.wiltsie@queens.ca, Major Professor: Dr. Curt Stager

**Wiltse, Brendan J.**<sup>1</sup>\*, **Stager, J. Curt**<sup>2</sup>

A Paleolimnological Record From Lake George, NY: Implications Of Drought Susceptibility And Eutrophication.

Knowing the history of an ecosystem is an important key to understanding its modern condition and vulnerability to future changes, and paleolimnology can often provide historical perspectives necessary



for understanding and protecting aquatic ecosystems. In this study a 30cm sediment core taken from the north basin of Lake George was analyzed for changes in diatom community structure. The chronology of these sediments was established using radioisotopic dating methods. A unique and interesting sedimentary profile was observed while retrieving cores throughout the north basin of the lake. The nature of this sedimentary profile, along with supporting evidence from the diatom community, strongly suggests that a low stand occurred in the lake sometime between 200-350 BP. The low stand likely predated settlement of the watershed and would have resulted in a several meter drop in lake level. It is possible the lake was rebounding from this low stand as the watershed was being settled. Evidence of the recent onset of cultural eutrophication was also observed in the diatom community structure. The timing of this changed occurred in the early 20<sup>th</sup> century and is probably related to development within the watershed. These findings highlight the importance of monitoring and predicting hydrological conditions in the Lake George watershed as human-driven climate change complicates the natural range of rainfall and drought variability in the region. They also provide a context for understanding the current state of the lake and understanding the degree of anthropogenic impacts on the watershed.

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1. Kristina M.A. Arseneau, Queen's University, Kingston, Ontario, 4ka2@queens.ca

**Arseneau\***, Kristina M. A. <sup>1</sup>, Lindsay M. **Brager**<sup>1</sup>, Karen A. **Ross**<sup>2</sup>, and Brian F. **Cumming**<sup>1</sup>

Hunting For Biological Recovery From Acid Deposition: What Can Paleolimnology Tell Us? The Adirondacks have been significantly impacted by acid deposition. Since the implementation of the Clean Air Act Amendments, the area has shown improvements in water chemistry. However, little work has been done to assess biological recovery in the region. Assessing biological recovery is often difficult due to a lack of long-term monitoring data but paleolimnology can overcome this problem. Paleolimnology uses the physical and biological characteristics of lake sediments to infer lake histories. Biological proxies such as diatoms, chrysophytes, and cladocera can be correlated to environmental variables like pH and temperature. By quantifying changes in these proxies overtime, paleolimnologists can assess changes in the aquatic environment. In Big Moose Lake, water chemistry measurements taken approximately once a month since 1982 show that the lake's current pH is approaching its pre-industrial diatom-inferred pH of 5.8. This goal of this investigation was to see if biological recovery has followed chemical recovery in Big Moose Lake. Changes in the lake's chrysophyte, diatom and cladoceran assemblages were analyzed from 1760-present in a 34-cm isotopically dated sediment core. Recent (ca. 1995-present) changes in the chrysophyte assemblages demonstrate a decline in acid-tolerant taxa, indicating biological recovery. However, a post-1995 increase in *Synura echinulata* suggests that chrysophytes are not returning to their pre-industrial state. Diatom assemblages showed a recent decline in acid-tolerant taxa but cladocerans remain unresponsive to pH recovery. This study demonstrates that biological recovery is underway in the Adirondacks but that recovered assemblages may not return to their pre-industrial state due to other environmental factors.

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Johanna **Mackenzie**<sup>1\*</sup> and Erik A. **Backlund**<sup>1</sup>

#### New York Ski Areas' Adaptations to Climate Change

Climate change will challenge the viability and profitability of New York ski areas. IPCC emissions scenarios suggest that over the next twenty years, the upstate New York climate may become similar to that of the Mid-Atlantic States. This shift is likely to shorten the ski season. To cope with the climatic changes and remain viable, ski areas of all sizes will have to make adaptations to their operations. These adaptations could include technological developments like increased snowmaking capacity, changes in slope design, improved weather forecasting and prediction, and the development of artificial ski slopes as well as changes in business practices like diversification, conglomeration, the purchase of weather derivatives, and contraction of the industry. The purpose of this research is to identify ski area adaptation practices throughout New York. Semi-structured phone interviews were conducted with representatives of ski areas across the state. The questions were focused on whether the ski area management was making long-range plans to adapt to climate change and identifying the nature of those changes. The preliminary results suggest that despite personal perceptions of climate change as over or under dramatized, ski area managers are not implementing adaptations specific for climate change. Rather, they are “greening” the business as much as possible by increasing the snow making technology and efficiency, buying wind power and participating in recycling programs. Ski area operators are making these changes out of concern for the long-term viability of their business but also as a tool to increase market share.

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<b>ADIRONDACK BIODIVERSITY PROJECT – SESSION 3.3</b>
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1. David Patrick, Paul Smith's College, dpatrick@paulsmiths.edu

<sup>1</sup>**Patrick**, David A.

#### The Adirondack Biodiversity Project in 2009: Opportunities, new projects and challenges

Since its inception in 2005, the Adirondack Biodiversity Project (formerly the Adirondack ATBI) has worked to involve stakeholders across the Adirondack Park in gathering baseline data for biodiversity monitoring. In 2009 the Project broke new ground with a designated Director, David Patrick, facilitating the mission of this group. David will introduce the Adirondack Biodiversity Inventory Session, briefly outline the need for this scheme, and discuss new projects including adopt-a-plot and adopt-a-transect. This presentation will finish with a discussion of the opportunities and challenges for collaborative biodiversity inventory in the Park in the coming years.

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An introduction to the study of aquatic insects (Ephemeroptera, Plecoptera, Trichoptera) in the Adirondacks and New York State: past and present.

During the early 19<sup>th</sup> century, the state of New York and its aquatic habitats were one of the most reported and best studied regions for aquatic insects in North America. The foremost North American authorities in mayfly (Ephemeroptera), stonefly Plecoptera), and caddisfly (Trichoptera) (EPT) taxonomy and biology collected in the state and published their results. However, little work on these three aquatic insect orders, other than descriptions of additional taxa from the region and taxonomic clarifications are available from the state since that time. Recently a broad survey of New York mayflies, stoneflies and caddisflies has begun with a focus on the Adirondack region. Initial results include numerous new state records from each order and a greatly improved assessment of Adirondack fauna. A review of historical collections will be presented followed by broad review of each order.

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A regional review of Ephemeroptera, Plecoptera and Trichoptera biodiversity in the Adirondack region.

The diverse array of aquatic habitats present in the Adirondacks harbors numerous aquatic insect taxa. Research funded by the NYDEC State Wildlife Grants and the NY Biodiversity Research Institute on Ephemeroptera, Plecoptera and Trichoptera biodiversity in eastern New York have resulted in the first ever comprehensive assessment of aquatic insects in the region. To date we have documented over 600 species of EPT with more than 100 species reported from New York for the first time (New State Records). Field surveys have also revealed the presence of several undescribed species and provided additional distributional records and habitat data for species of conservation concern.

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4. [Erin White, NYS DEC, ewhite@gw.dec.state.ny.us](mailto:ewhite@gw.dec.state.ny.us)

**White, Erin L.**<sup>1</sup>, **Matthew D. Schlesinger**<sup>1</sup>, and **Paul G. Novak**<sup>2</sup>

The New York Dragonfly and Damselfly Survey: The Value of Citizen Science

The New York Dragonfly and Damselfly Survey (NYDDS), begun in 2005, is funded by the State Wildlife Grants Program and implemented by the New York Natural Heritage Program (NYNHP). The major objective of the project is to document the distribution of dragonfly and damselfly (“odonate”) species that occur in New York State. We currently have over 300 volunteers registered, along with several NY Natural Heritage staff and contractors assigned to the project. All data are submitted on a yearly basis and compiled in a database by NY Natural Heritage staff. Volunteers play an integral role in the success of the NYDDS. This statewide project relies heavily on its citizen scientists to help collect information on odonate distribution. Staff and funds for contractors are limited and New York State is a large area to survey; therefore, a volunteer network overseen with high standards of data quality allow

data to be collected over a larger geographic area. As with many citizen science projects, NYDDS does not require participants to have a scientific background or specialized experience; NYDDS provides the aforementioned training in odonate biology and survey methodology needed to get volunteers started. Knowledge of species' distributions throughout the state and the number of odonate species per county can be gained from this database and added to existing statewide odonate distributional data. At the survey's conclusion in 2010, projects results will be available in an atlas publication.

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## 5. Susan Hopkins, Mycologist

### **Hopkins, S. J.**

Citizen participation in fungal inventory and monitoring in the Adirondacks

Compared to taxa such as vertebrates and woody plants, relatively little is known about the fungal kingdom. Conversely, fungi perform many important ecosystem functions including in nutrient cycling and through symbiotic relationships with plants. The goal of the mycological component of the Adirondack Biodiversity Project is to involve citizen-scientists in inventory and monitoring of fungi within the Adirondack Park and to greatly increase our scientific knowledge of this taxa, specifically patterns of occurrence and changes in distribution over time. In this presentation, I will begin by delineating some of what is known about fungi in the Park. I will then present a proposed agenda for scientific research and public awareness and education including a regular series of fungal forays, a fungi fest, and developing a spatial database for inventory of fungi within the Park.

## ADIRONDACK PARK REGIONAL GIS – SESSION 3.4

### **Making Adirondack data and maps available to everyone: Adirondack Park Regional GIS (APR-GIS)**

If you could combine the powerful mapping display of GoogleEarth with information drawn from many Adirondack agencies and institutions in a one-stop web site, what kinds of questions would you explore? We propose a web-based system of data access using a spatially-enabled relational database management system (RDBMS). RDBMS store spatial and attribute information in linked tables, giving users an unparalleled ability to efficiently query and synthesize spatial data. Web-mapping applications allow users to connect to and query the database from any web-browser, while enabling data producers to maintain their data via secure read/write access. Users have immediate access to the latest data without needing to download or store data. The UMP-GIS project has assembled and created many datasets, and is moving toward integration of institutional partners' databases for dynamic efficient research applications. A truly relational database would facilitate assessment of issues such as climate change, invasive species/ecosystem monitoring, recreational usage patterns, sustainable forest management and the tracking of research projects, biodiversity specimens and reports. In this session, we provide an overview of how a spatially enabled RDBMS works, and will discuss plans for the creation of such a database for the Adirondacks.