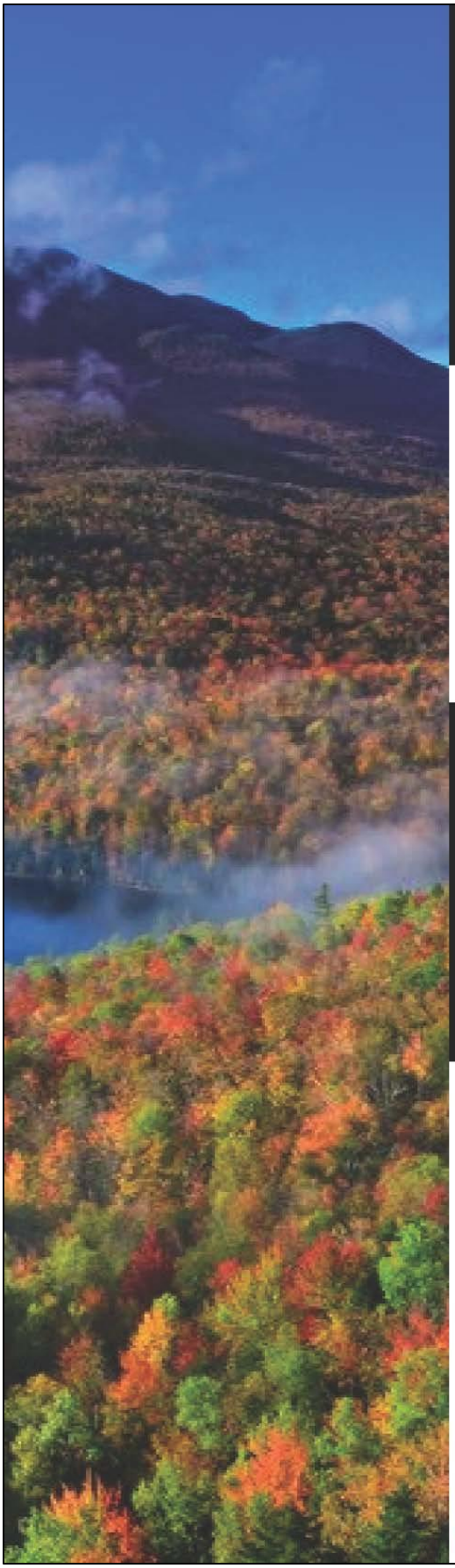

STATE OF THE A2A

A transborder research symposium to identify what we really know about the ecologically significant corridor between Algonquin and the Adirondacks (the A2A), and how we can better understand and protect it

APRIL 11, 2019
HARBOR HOTEL
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A2A | Algonquin to Adirondacks Collaborative

Concurrent Sessions 1: MAPPING CONNECTIVITY

Moderator: David Miller

10:45 A2A Connectivity Mapping

David Miller, Algonquin to Adirondack Collaborative

The A2A completed a connectivity analysis for the more developed portion of the A2A in 2014. The goal of the project was to create a habitat connectivity mapping tool that will support land conservation, stewardship activities, land use planning, and other conservation efforts by planning authorities, conservation groups, community organizations, and residents in the A2A region. Working with the Natural Heritage Information Centre (Ontario Ministry of Natural Resources), A2A mapped out core natural habitat and connections using least cost path analysis and related natural heritage decision rules. More recently, The A2A incorporated similar mapping produced by the Canadian Wildlife Service to complete an analysis on the Canadian side of the border. This mapping resource is available through the A2A and offered to partners to support local conservation efforts. This presentation will review the mapping approaches, potential applications and the challenges and opportunities that mapping present in the A2A.

11:10 Thousand Islands Land Trust priority mapping

Spencer Busler, TILT

The Thousand Islands Land Trust is at the forefront of land conservation efforts in the Thousand Islands. TILT seeks to protect and sustain the diverse wildlife habitats, water quality, scenic views, and outdoor recreation areas that define the St. Lawrence River Valley. With limited resources, TILT is faced with making challenging management decisions. TILT is often approached with landowners hoping to place a conservation easement or even donate tracts of land and they are challenged with an 'accept everything' policy. This policy could lead to conservation lands that are difficult or costly to steward or easements with only minimal conversation value. The adoption of a Strategic Conservation Plan has allowed for TILT to develop a more strategic conservation framework, as opposed to an opportunistic one, allowing for a careful balance between the built and natural environment. Strategic conservation planning has allowed TILT to be more effective and efficient in proactively protecting lands significant to the region.

11:35 The Nature Conservancy's resilient and connected lands mapping

Dirk Bryant, TNC USA

TNC is mapping a network of resilient and connected lands, to identify areas best able to support plants and animals in a changing climate and represent the diversity of environments across the US. Landscapes were assessed for their "complexity" (the diversity of topographies, geologies and elevation ranges) and their "permeability" (the ability of species to move across the landscapes unobstructed by roads, dams, fragmentation or other barriers.) The most complex and permeable landscapes offer species the greatest opportunity to avoid climate impacts and form healthy natural

systems. These areas were determined to be the most resilient to climate change. As droughts, rising temperatures and other climate impacts threaten to destabilize natural areas around the world, scientists believe these resilient landscapes will be strong enough to continue providing habitat to a variety of plants and animals while also serving as essential resources for food and water as society deals with the threats of climate change. Along with conserving these climate-resilient landscapes, we must make sure healthy natural corridors connect them together so species can move between them as their traditional habitats are made unlivable by climate change. This presentation will provide an overview of the resilient lands and waters analysis and how TNC is using this mapping to inform connectivity work within regionally important linkages (e.g. The Adirondack-Tug Hill linkage) as part of the Staying Connected Initiative, which spans the Northern Appalachians/Acadian ecoregion.

12:00 **Pathway to Canada Target 1 Connectivity Research**

Richard Pither and Andrea Clouston, Environment and Climate Change Canada

In June 2017, federal, provincial, and territorial Ministers responsible for parks, protected areas, and biodiversity conservation launched the Pathway to Canada Target 1 initiative to encourage and coordinate efforts to establish connected networks of parks and conservation areas throughout Canada. A National Advisory Panel and Indigenous Circle of Experts provided several recommendations to Canadians and to the Ministers responsible for the Pathway. The Pathway governments have committed to addressing some of the recommendations, including advancing efforts to achieve ecological connectivity between protected areas. Work is currently underway to develop national-scale, terrestrial and freshwater structural connectivity indicators and to prepare a national connectivity strategy. Future work will include the development and application of functional connectivity indices to identify areas important for regional connectivity.

Concurrent Sessions 1: ECOLOGICAL CONNECTIVITY I

Moderator: Kate Cleary

10:45 **Review of connectivity research in the A2A and lessons from other biological corridors**
Kate Cleary, St. Lawrence University
Abstract forthcoming

11:10 **Managing Populations of Endangered Spruce Grouse in New York via translocation**
Angelena M. Ross[1], Tom Langen[2], Glenn Johnson[3]
[1]New York State Department of Environmental Conservation, [2]Clarkson University, and [3]State University of New York at Potsdam.
Species translocations can be an effective means of promoting recovery of populations of rare species. The spruce grouse (*Falcipennis canadensis*) is rare in the northeastern United States and listed as endangered in New York, where the population has experienced a greater than 70% decline in range extent and over 50% decline in number of subpopulations occupied since the 1970s. A management option to address the decline of New York spruce grouse is to supplement the population with individuals from regions outside of New York. In 2013-2018, we released 117 adult and 155 young spruce grouse captured in either Maine or Ontario into occupied boreal forest patches in New York to determine whether population supplementation was a feasible management option to lead to a population increase. Using radio telemetry of >95 adult spruce grouse, we compared home range size, productivity, and survivorship of translocated versus resident groups. Similarity of these metrics between the two groups would suggest that population supplementation via translocations is an effective means of maintaining the population over the long term as determined by PVA. Seventy-two percent of translocated individuals maintained a home range either equal in size or smaller than those of resident grouse of either sex, indicating that translocated birds were finding adequate resources. Translocated spruce grouse generally moved nondirectionally across the landscape after release, indicating that they were not attempting to leave release areas. Clutch and brood sizes were similar between translocated and resident grouse. Translocated spruce grouse had 20-40% lower annual survivorship rates than residents, depending on provenance (i.e., Maine or Canada). We found no temporal effect (i.e., year of translocation) on survivorship of either translocated or resident spruce grouse. All translocated adult females that survived to their first breeding season nested successfully. Because measurable metrics of spruce grouse life history and demographic parameters were generally similar between translocated and resident grouse, translocations may be an effective means of augmenting spruce grouse numbers. Future work should focus on (1) evaluating survivorship and productivity of translocated young grouse once they reach adulthood, (2) identifying whether translocated spruce grouse are interbreeding with resident grouse by DNA analysis, and (3) determining whether translocated spruce grouse exhibit similar habitat use as resident spruce grouse to identify future translocation sites and additional areas in need of habitat management or land protection.

11:35 **State of the Thousand Islands National Park**
Sheldon Lambert, Thousand Islands National Park
Abstract forthcoming

12:00 **Overview of research at Queen's biological station**
Stephen Lougheed, Queen's University
Abstract forthcoming

Concurrent Sessions 2: BIODIVERSITY & ENVIRONMENTAL CHANGE

Moderator: Ryan Danby

1:30 **Mapping Invasive Species Outside the Blue Line**

Jessica Rogers, State University of New York at Potsdam

Purple loosestrife (*Lythrum salicaria)* is an invasive species in North America. Though it has been in the US for over a century, its invasiveness has increased in the last 50 years. In July 2017, I began a project to map the infestation of purple loosestrife (*Lythrum salicaria*) in the North Country. We had several goals – to document the invasion and to understand the possibility of releasing a biological control. Because biological controls, a beetle in this case, require large infestations to establish their own breeding colony, we needed to map the size of invasions. During the summers of 2017 & 2018, student assistants and I mapped 88 miles of highway from the Blue Line to Alexandria Bay and Waddington. In June 2018 we released beetles at the Upper and Lower Lakes Wildlife Management Area. In addition to purple loosestrife, we identified over 60 other species along this path. A third field season will begin this summer.

1:55 A**dirondack AIS Spread Prevention Program: Boat inspections, Vectors, Pathways, and People**

Eric Holmlund, Adirondack Watershed Institute, Paul Smith's College

This session summarizes data compiled during the 2018 field season of a landscape-scaled AIS spread prevention program targeting 66 boat steward and boat decontamination stations in the Adirondack and St. Lawrence region. Implications regarding visitor adoption of AIS spread prevention practices and inbound vector pathways provide insight into the dynamics and patterns of overland transport of aquatic invasive species. Information about pathways originating across New York State and the St. Lawrence River demonstrate ecological and social connectivity between these regions. Implications for source water coordination for AIS spread prevention will be discussed.

2:20 **Forest growth in the A2A: Climate drivers and recent trends**

Michael Stefanuk and Ryan Danby, School of Environmental Studies, Queen's University

Climate change is having complex and dynamic effects on the temperate forests of eastern North America. Changes in the timing of growth events (known as phenology) and productivity have been observed in forest landscapes in several parts of the region. We examined their dynamics in the Algonquin-to-Adirondacks corridor (A2A) using remote sensing data from NOAA's AVHRR series of satellites. We analyzed the relationship between inter-annual variability in phenology (including start of growing season, end of growing season, and length of growing season) and productivity (total productivity during the growing season as indicated by the Normalized Difference Vegetation Index) and climate variables, and tested for linear trends in phenology and productivity variables from 1989-2014. Our results show that inter-annual differences in forest growth in A2A have been driven by variability in air temperature, especially the accumulation of heating and chilling temperatures at key points during the growing season. Trends show that

growing season length and productivity is increasing in the Frontenac Arch and St. Lawrence Lowlands following a delay in the end of the growing season, but that productivity is declining in the interior of Algonquin and the Adirondacks. Air temperature appears to play a role in the growth of the forests of A2A, and their growth has changed in recent decades, indicating that their growth may continue to change under future climate warming.

2:45 **Fish Diversity in the A2A**

Nicholas E. Mandrak[1] and Douglas Carlson[2]
[1]Department of Biological Sciences, University of Toronto Scarborough
[2]NYSDEC, Watertown, NY 13601

Over 70 fish species are present in the A2A region. These species include those of importance to Indigenous peoples, commercially and recreationally important species, federal, provincially and state-listed protected species, and invasive species. As in most areas of the world, threats to the fish diversity of this area include habitat degradation and loss, invasive species, and overexploitation, which are likely to be exacerbated by climate change. Climate change has been as a potential driver of fish community change in lakes in southeastern Ontario. New invasive species continue to invade the area, with Tench and Grass Carp on the doorstep. Existing and new protected areas, such as those identified in the TNC Lake Ontario Aquatic Blueprint, and other coordinated conservation actions are required to protect, restore and enhance this important aquatic biodiversity.

Concurrent Sessions 2: ECOLOGICAL CONNECTIVITY II

Moderator: TBD

1:30 **Prioritizing road sections for wildlife fencing: Scales, thresholds, and trade-offs**

Jochen A.G. Jaeger[1], Ariel G. Spanowicz, and Fernanda Z. Teixeira

[1]Department of Geography, Planning and Environment, Concordia University Montreal

Roads have many negative effects on wildlife populations, the most visible of which is wildlife mortality due to vehicle collisions. Fences and wildlife passages have been applied to reduce roadkill. However, wildlife passages without fencing, in general, have been shown to not reduce roadkill. Therefore, fencing is the most important component for mitigating roadkill. Understanding where and why wildlife-vehicle collisions occur can inform planners about where mitigation measures would be most effectively placed. However, it has not been discussed how the choice of scales and confidence levels influence the results and how the locations of the warm- and coldspots should be included in the decision-making. We used roadkill data of reptiles and medium-sized mammals from three roads and applied multiple scales of analysis and several confidence levels to answer two questions: (1) Are there thresholds in the effect of the extent of fencing (total fence length) on the expected reduction in road mortality? (2) What are the effects of varying scales and varying confidence levels on the road section prioritization results for fencing? We used the software *Siriema* to identify hotspots, warmspots, and coldspots of road mortality at multiple scales. Our results show that the choice of confidence intervals and scales affects the amount of hot-, warm-, and coldspots identified. At lower confidence levels, there are more hotspots and coldspots than at higher confidence levels. When roadkill data are analyzed at a smaller scale (e.g. 100 m), there are more hotspots identified, but combined they cover a shorter overall length of the road than hotspots at larger scales. Our study shows how identifying hotspots, warmspots, and coldspots at multiple scales allows for a more comprehensive approach for locating and prioritizing road sections for wildlife fencing. We discuss the existence of thresholds in the amount of total fencing needed, the importance of considering the fence-end effect when defining the length of the fences to be installed, and the FLOMS trade-off: “Few-Long-Or-Many-Short fences”. Based on these results, we propose an Adaptive Fence Implementation Plan with steps to prioritize road sections for wildlife fencing. The steps of this plan consist of collecting roadkill data to maintaining the installed wildlife fences, integrating hot-, warm-, and coldspots as well as multiple scales and confidence intervals.

1:55 **Encouraging wildlife use of existing crossing structures along roads: Which factors require improvement?**

Kendra Warnock-Juteau[1], Caroline Daguet[2], and Jochen Jaeger[1]

[1]Department of Geography, Planning and Environment, Concordia University Montreal

[2]Appalachian Corridor

As landscapes in North America become increasingly impacted by roadways and heavy traffic, not only is an increase in wildlife-vehicle collisions being experienced, but native wildlife species are also subjected to habitat fragmentation. While the implementation of wildlife crossing structures and fencing have proven to be effective mitigation methods, their expensive installation and maintenance costs restrict their construction throughout most of North America. Therefore, this study aims to evaluate existing human-purpose underpasses in the Appalachian region of Quebec as potential crossing structures for large- to medium-size mammals. Nine underpasses, consisting of water culverts with a minimum height and width of 1.8 meters, low-traffic roadways, and train underpasses, have been continuously monitored by 36 motion-detection and infrared trail cameras for periods spanning up to two years. Structural and environmental factors are being analyzed to determine their influence on wildlife presence, including human activity near and within the monitored underpasses, ground substrate, water levels, culvert dimensions, weather conditions, and time of day. This research intends to deduce how these underpasses can be altered to accommodate a maximum number of species, while also providing insights into which factors must be considered when designing future projects and infrastructures that encourage safe wildlife crossings in the region.

2:20 **Road ecology of amphibians in the A2A**

Tom Langen, Clarkson University

Abstract forthcoming

2:45 **Conservation impacts of non-invasively tracking a threatened wolf genome.**

Linda Rutledge, Trent University

Understanding carnivore distribution is important for conservation policy that aims to restore naturally regulated ecosystems and preserve biodiversity. Eastern wolves (aka Algonquin wolves) are listed as threatened in Ontario and Canada with a range limited to southern regions of Ontario and Quebec. Their patchy distribution is associated primarily with large provincial parks where they are protected from human-caused mortality. A recent collaborative effort by researchers in Canada and the United States used genome-wide SNPs to confirm the uniqueness of the Algonquin Wolf and firmly establish the need for protected travel corridors throughout their range. Here I review recent research and discuss the potential for eastern wolf expansion along the Algonquin to Adirondack corridor.

Concurrent Sessions 2: HUMAN DIMENSIONS

Moderator: David Miller

1:30 **Life along the line: Places of memory among the Mohawks of Akwesasne**
Kallen Martin, Akwesasne
The Mohawks of Akwesasne traveled and lived along the St. Lawrence River for centuries as they migrated north, south, east and west of the river. Throughout the early half of the 20 th century, Mohawks were seen traveling north and northwest to places like Winchester and Smith's Falls, and as far west as Gananoque, Ontario. Others traveled south and southeast to small towns like Saranac Lake and Lake Placid, NY. Most of this travel was to secure income when the trading of sweet grass baskets was less than rewarding or productive. Many Mohawk women took on cleaning jobs, while others became familiar with the strength and currents of the St. Lawrence river, or became regular travelers by train. Their transnational migratory patterns hint at the familiar, and their new interactions with the Other [once considered foreign], conveyed generational legends.

1:55 **A Not So Untouched Wilderness: A Deep History of People and the Adirondack Mountains**
Timothy Messner, Department of Anthropology, State University of New York at Potsdam
Despite nearly a century of inquiry into New York State's ancient past, the Adirondacks have long remained an archaeological backwater. According to many professionals and community members, Adirondack history began only centuries ago with the arrival of Euroamerican adventurers and industrialists into what has conventionally been depicted as an empty pristine mountain wilderness. During the last five years, I have been working to challenge this narrative through joint collaboration with Native and state officials affliated with local museums, talking with artifact collectors, and conducting archaeological testing. In this presentation, I report on recent archaeological findings which highlight a deep history beginning with Early Holocene hunters and gatherers in a newly deglaciated landscape. The evidence demonstrates that over the next 12,000 years, people distributed themselves throughout the uplands even climbing into the High Peaks region. Findings from this research depict a long and intimate connection between people and the Adirondack mountainscape. This study helps provide a more accurate, complex and deep history of the Adirondacks – one with people as part of wilderness.

2:20 **Stretching Nature: An Anthropological Journey through the A2A and E2A**
David Jaclin and Julie Laplante, Department of Anthropology, University of Ottawa
Our interest is with various de-re-territorializing processes involved for both human and nonhuman presences as we imagine as well as do wildlife corridors. Working obliquely, laterally or sideways we are more specifically attuned to what emerges in-between bodies distinguished from one another in respect of motion and rest, quickness and

slowness, and not by reason of substance (Spinoza 1849). Our approach thus moves away from discrete entities or individual bodies, species or organisms, and turns towards how bodies mix and leave traces of each other in one another, either augmenting or diminishing, favoring or hindering each other's power to act or to continue in existence. This is a soft spot and we want to explore it while walking along the A2A in tandem with walking along the Eden to Addo (E2A) corridor in South Africa where hikes have been organized for the past 12 years. We want to discuss as well as illustrate the experimental and state-of-the-art ethnographical approaches we have been working on through a sensory map done along one area of the A2A (www.stretchingnatures.net).

2:45 **The Status of Save the River**

John Peach, Executive Director, Save the River

Save The River's Executive Director, John Peach, will present on the status of Save The River. In its 41st year, Save The River, the Upper St. Lawrence Riverkeeper, continues a strong tradition of advocacy, education, and research to fulfill its mission to restore, preserve, and protect the Upper St. Lawrence River now and for generations to come. There will be discussion of the current status of advocacy positions on *Replace Single-Use Plastics*, Ban Asian Carp, and other areas currently being by addressed by the organization; threats facing the River; and an update on Save The River's "In the Schools" and On the Water" education programs, both of which have been in existence for 10 years and help to educate over 10,000 K-12 students.

Poster Session

Using camera traps to assess winter mammal diversity and habitat use in northern New York State

Katherine E. Andy*, Donovan K. Spaulding*, Erika L. Barthelmess
Department of Biology, St. Lawrence University

Camera trapping is a useful and non-invasive way to determine species diversity and measure habitat use. This pilot study had three aims: 1) Comparative analysis of the general winter mammal species diversity in deciduous versus pine forests 2) Measure the effectiveness of forest patches to support wildlife within the A2A corridor and 3) Act as a test run for a large-scale citizen science initiative to track mammal distributions within habitat patches throughout the A2A corridor. We selected 6 state forests in St. Lawrence County, 3 deciduous and 3 replanted pine. We placed cameras out in 2 phases, with 24 camera deployments during each phase. We deployed the cameras at 4 randomly generated sites per forest. In the second phase, we relocated each camera to a new random site within the same forest. Photos were uploaded to Zooniverse, a citizen-science platform that enables the public to assist with species identification. We measured mammal species richness in each forest and across forest types. Preliminary results from Phase 1 suggest that there is a higher mammal species richness in deciduous forests than in managed pine forests during the winter. We will use occupancy modeling to test for species habitat preference within the A2A Corridor. Understanding how wildlife use available habitat is critical in determining optimal habitat patches to place under conservation status to facilitate animal movement throughout the corridor when planning future conservation strategies. *Presenting, Equal contribution.

Paleolimnological comparison of two subbasins in Tupper Lake in Adirondack Park, New York

Catherine C. Beck[1], Meredith LaBelle[1] , Nicholas Zaremba[2] , Christopher A. Scholz[2], Bruce Wegter[3]
[1]Department of Geosciences, Hamilton College
[2]Department of Earth Sciences, Heroy Geology Laboratory, Syracuse University
[3]Hamilton Isotope Laboratory, Hamilton College

Of the Adirondack's many resources, lakes are significant, not only as modern tourist destinations, but also as valuable achieves of past environmental and climatic change. The sedimentary and proxy (indirect measure of paleo-conditions) records lakes contain are highly responsive to both natural and anthropogenic events in the watershed. Here we present data from five Holocene sediment cores from two sub-basins (north and south) of Tupper Lake and geophysical subsurface data that indicate the sedimentary record extends back into the Pleistocene and thus potentially records the deglaciation of the region. These records could provide valuable context for human occupation of this region and insights into how these systems have responded to the intense deforestation and development since the nineteenth century. These data represent the first phase of a larger study of Adirondack lakes from the Raquette River water shed.

Are drainage culverts an adequate substitute for designated crossing structures for mammals?

Benjamin Brunen[1], Caroline Daguet[2], and Jochen Jaeger[1]

[1] Concordia University Montreal, Department of Geography, Planning and Environment

[2] Appalachian Corridor

Roads present a significant barrier to wildlife movement for many species. While designated wildlife crossing structures have been heralded as an attractive solution to many of the problems associated with roads, they are often prohibitively expensive. Autoroute 10 in Southern Quebec is one of many highways in Canada that would benefit from such structures, but currently has none in place. However, the highway has a series of periodically placed drainage culverts designed to allow water to cross underneath the road surface. Through monitoring wildlife road mortality, trail camera footage inside of 14 drainage culverts, and animal track stations along a 20 kilometre stretch of highway A10, this project aims to (1) determine if drainage culverts can act as alternatives to wildlife crossings for small to medium-sized mammals, and (2) determine the relationship, if any, that animal-road mortality has with proximity to drainage culverts. In total, 1566 camera detections spanning 21 mammal species were recorded at the culvert sites, and 1109 footprint samples from 15 species were collected from track boxes placed into the forest 40 meters from the culvert entrance. Moving forward, this data will be invaluable in determining where best to focus future habitat fragmentation mitigation efforts along highway 10, as well as provide meaningful data that will contribute to the growing body of literature surrounding animals' relationship with roads. This study is conducted in collaboration with Appalachian Corridor, a non-profit conservation organization dedicated to protecting biodiversity, habitats and ecological connectivity in the Appalachian region of Southern Quebec.

Conservation of fishes in New York's waters from the Adirondacks to the Algonquins

Doug Carlson, NYDEC

Inventory is the single most important precursor to initiating conservation programs. Several of the rare species of fish have become less widely distributed, some have become better represented due to more thorough sampling (or increases in abundance to bring them into the detection levels) and several other species have become newly established as introduced populations. For the watersheds of the Adirondacks and north to the St. Lawrence River, there are 115 species, and 20 are non-native to these watersheds. Sampling has provided fairly thorough coverage for the recent period of the last 35 years. Classification of 18 of the species as imperiled by the Rare Fish Program of DEC has been important to single them out for protection of habitat and for protection from harvest, specific to this region from the Adirondacks north to the border. One species is endemic to this region, the Summer Sucker. Only one species, Sauger has become extirpated, but another, Atlantic Salmon has been maintained only through stocking programs. Range loss is also documented for Longnose Sucker, and a small quantity of range gain is recognized for Round Whitefish. Several other gains in range are seen for species not native to the higher elevations of these watersheds, like for Largemouth Bass. Active conservation efforts have been or will be getting underway for five species, including American Eel, Round Whitefish and Mooneye. Connecting links to the Ontario portion of this A2A area are most important for the highly migratory American Eel.

Identifying risk areas for future loss of connectivity in the Adirondack-Laurentians Ecological Corridor an proposing proactive protection and mitigation measures.

Jonathan Cole (PhD Student), Concordia University, Department of Geography, Planning and Environment

The Adirondack–Laurentians ecological corridor (ALEC) is a critical movement linkage for wildlife. This region boasts a wide variety of habitats that still maintain a high degree of ecological integrity and are rich in biodiversity. Population growth over the past 50 years has caused a rise in development putting the area under increased risk of habitat loss and landscape fragmentation. This project will quantify the degree of human modification, the amount of landscape fragmentation, and the changes in landscape connectivity that have occurred within the ALEC over the past 50 years. This information will then be used to investigate future land-use/land cover scenarios. Insights gained from these studies will be combined to identify risk areas for loss of connectivity. Mitigation opportunities utilizing fencing and wildlife passages to improve connectivity will be compared, and priority protection areas for conservation of wildlife habitats and landscape connectivity will be identified.

GIS Optimization for an Adirondack to Algonquin (A2A) Corridor

Justin T. Davis, Clarkson University

Ecosystem connectivity is a critical part of broader efforts to protect wildlife, biospheres, and to protect against habitat fragmentation, especially in terms of human activity. Isolation of natural areas due to human development can have detrimental effects on overall the biodiversity and health of ecosystems. The A2A wildlife corridor is a naturally occurring ecosystem corridor between the Adirondack Park and Algonquin Provincial Park in Ontario, Canada. As part of a broader team effort to assess the possible implementation of an A2A Corridor, we analyzed a wide variety of factors to optimize the best possible routes for an A2A corridor on the New York side of this eco-sphere system. Our optimization analysis also enabled us to use information on roadkill density to target specific human barriers that the A2A corridor faces. Implementing and using ArcMap software we assessed a variety of several factors to determine the most optimal pathways for a possible wildlife corridor. These include large urban areas (Canada side), easements, land cover, stream crossings, rail crossings, road density, and distance considerations. A weighted overlay model was developed based on qualitative assessments of these factors which produced three optimal paths. We discuss challenges in data access, data cleaning, and other factors that affect these optimization choices.

Establishing an Adirondack to Algonquin (A2A) Corridor in the North Country

Wil Hallstrom, *Clarkson University*

Ecosystem connectivity is crucial to maintaining healthy and stable wildlife populations, especially in the face of climate change and global human development. This is certainly the case for the Adirondacks and the broader ecosystem region beyond the Park. The A2A wildlife corridor is a naturally occurring ecosystem corridor between the Adirondack Park and Algonquin Provincial Park in Ontario, Canada. Our research team addressed the reduction of habitat fragmentation throughout the A2A region and worked in partnership with the Algonquin to Adirondack Collaborative to identify future actions to implement the A2A corridor in the North Country. We address three areas of greatest impact: data collection & analysis, public outreach, and economic & social institutions. Categories were prioritized by assessing the most immediate needs and greatest challenges for an A2A corridor. We provide recommendations on data collection efforts via citizen science, route optimization analysis through ArcGIS mapping, and the design and implementation plans for wildlife road crossings. The public outreach team recommends the use of landowner surveys to gauge opinions regarding conservation, creation of an outreach program and pamphlet design, and effective social media campaigns. Institutionally, we recommend the promotion of conservation easements, creating a 501(c)(3) organization in New York State, developing a UNESCO Biosphere Reserve, and identifying synergistic economic opportunities

throughout the region. Our analysis for the A2A Collaborative demonstrates that clear potential exists through these avenues to develop such a corridor, but it will require a sustained and long-term effort with significant economic resources to do so.