

Economic Valuation Study for Public Lands in the Central Catskills

Economic Impact and Opportunities from Outdoor Recreational Activities

Prepared by

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EXECUTIVE SUMMARY

This study has been commissioned by the Catskill Center for Conservation and Development (CCCD), Catskill Mountainkeeper (CMK), and Catskill Heritage Alliance (CHA) for the purpose of quantifying the economic value for surrounding communities generated by recreational activities in the Central Catskills. For the purpose of this study, the Central Catskills Region is defined to include the lands inside the Catskill Park and the Catskill-Delaware Watershed.

Economic impacts generated by recreational activities and of the operations of organizations that protect and manage the natural areas of the Catskills were estimated using the Money Generation (MGM) economic impact models. These models were developed for the National Park Service and have been used for similar evaluations of many parks around the country. The information required to estimate the economic impact of recreational visitors using these models includes the number of visitors to the region and the lodging used by these visitors. Estimating the economic impact of operations required information pertaining to operations spending and employment, including the percent of spending that was local.

Prior to this study, there has never been an analysis conducted to determine the number of annual outdoor recreational visitors to the Catskills. As such, this information had to be gathered from a wide variety of sources so as to include as many of the different outdoor recreational activities that take place in the Catskill Park and Watershed areas as possible. The visitor numbers developed were separated to distinguish between activities that rely primarily on public land or protected private land that is open to the public and activities that take place primarily on private land. In addition, research was conducted to gather information on spending and employment by NYS DEC and NYC DEP operations. For consistency, 2010 year information was generally used for visitor and spending information gathered. Using this information, the MGM models estimated the economic impacts of outdoor recreational activities, including the number of jobs supported and the value added to the local economy as a result of visitor spending and operations spending. The following results were generated by this analysis:

- Outdoor recreational activities that rely on public and protected lands attracted a total of **1,717,927 visitors**. These visitors had an estimated economic impact on the region's economy of **\$46,207,000** and supported **980 jobs**.
- All outdoor recreational activities, including both those that rely on public and protected lands and those that rely on private lands, attracted a total of **2,496,753 visitors**. These visitors had an estimated economic impact of **\$114,768,000** on the region's economy and supported **2413 jobs**.
- NYS DEC and NYC DEP operations generated an estimated economic impact of **\$62,403,156** and supported **1571 jobs**. Because of concerns about the accuracy of the operations spending and employment numbers provided, these estimates were judged to be highly speculative and actual impacts may be significantly greater.

A review was then conducted to identify potential unrealized or undeveloped recreational opportunities in the Catskills. Based on this review, a number of previously identified initiatives were recommended for further consideration, including: the **Route 28 Central Catskills Scenic Byway**, **Expansion of Trail Networks**, **Continued Expansion of the DEP Reservoir Boating Program**, and the **Catskill Interpretive Center**. In addition, opportunities for enhancing marketing efforts were noted, including **Centralizing Marketing Activities**, **Increasing Marketing to International Visitors**, **Increasing Marketing to Downhill Skiers**, and **Development of a "Gateway" Visitor Information Center**. Opportunities to leverage tourism trends were also noted, including **Art and Art History Tourism**, **Agri-tourism**, **Ecotourism** and **Wildlife Viewing**.

BACKGROUND

This study seeks to quantify the economic impact of recreational activities in the Central Catskills. For the purpose of this study, the Central Catskills Region is defined to include the lands inside the Catskill Park and the Catskill-Delaware Watershed. The study examines activities on both public lands and publicly accessible private property.

The Catskill Park was created by the State of New York in 1904 and encompasses a mountainous region of public and private lands in Ulster, Greene, Delaware and Sullivan Counties. The total area of the Catskill Park is 705,500 acres and it includes the Catskill Forest Preserve. The Forest Preserve consists of 287,514 acres of state owned land and was established under the New York State Constitution in 1894 to afford these properties with New York's highest level of protection. These protections provide for an abundance of recreational opportunity, as well as plant and wildlife habitat.¹

The Catskill-Delaware Watershed covers 1,022,080 acres and is located within Delaware, Greene, Schoharie, Sullivan, and Ulster counties. The Watershed provides 90% of New York City's daily water needs and contains six reservoirs (Ashokan, Cannonsville, Neversink, Pepacton, Rondout and Schoharie).² New York City's Department of Environmental Protection (DEP) funds and implements a comprehensive Long-Term Watershed Protection Program to meet the US Environmental Protection Agency criteria to avoid the enormous cost of installing filtration while protecting the water supply for its nine million consumers.³ Within the Watershed, DEP owns approximately 150,000 acres and approximately 64,000 acres of DEP lands are open for public recreation.⁴

For certain designated areas in the Watershed, DEP issues a comprehensive permit (Access Permit) that allows for fishing, hiking and hunting (with a valid NYS hunting license). Other areas are referred to as Public Access Areas and are open to all, without a permit. Access Permit holders may also obtain a DEP Boat Tag for keeping a rowboat at one of the reservoirs for fishing. DEP has recently allowed expanded recreational boating (canoes, kayaks, sailboats, etc.) at the Cannonsville, Pepacton, Neversink and Schoharie reservoirs.⁵ Future plans for the Watershed include investment in additional land protection and acquisition, while also supporting the economic vitality of residents and businesses located in the areas of the Watershed.⁶

The combined area of the Catskill Park and Watershed, taking into account land that is included in both, is estimated at 1,254,981 acres.⁷ This land includes both privately owned and publicly owned properties, as indicated above, as well as privately owned preserves that provide for public access. Fifty towns and villages have boundaries wholly or partially within the Park or the Watershed. The area also contains many recreational facilities including seven State-owned and four privately owned campgrounds, one publicly owned and four privately owned downhill ski facilities, several cross-country ski facilities, hundreds of miles of hiking trails, snowmobile trails, mountain-biking areas, fishing access sites and thousands of acres of protected forest and wildlife management areas.⁸

Various plans and studies have been completed that address recreational uses and economic impacts of outdoor recreation in the Catskills, including the Catskill Forest Preserve Public Access Plan (1998), the Catskill State Park Master Plan (2008), the New York City Watershed Economic Impact Assessment Report (2009) and the recently completed Regional Economic Impact of Belleayre Mountain Ski Facility (2012). None of these reports, however, have provided a comprehensive estimate of the number of visitors and the economic impact associated with outdoor recreational activities in the Central Catskills region.

OBJECTIVE

Hundreds of thousands of visitors come to the Catskills each year to enjoy the natural beauty and recreational opportunities offered by the region. These visitors, along with the operations of the organizations that protect and manage these natural areas, have a significant impact on the local economy of the region. This study has been commissioned by the Catskill Center for Conservation and Development (CCCD), Catskill Mountainkeeper (CMK), and Catskill Heritage Alliance (CHA) for the purpose of quantifying the economic value for surrounding communities generated by the Catskill Forest Preserve, the New York City-owned and publicly accessible lands in the Catskill-Delaware Watershed, along with other publicly accessible lands within the boundaries of the Catskill Park and the Catskill-Delaware Watershed.

The challenge to be addressed involves first quantifying the magnitude of economic benefits currently derived from protected lands of the Catskills and then, using this information, informing the public discourse to encourage actions that will serve to both protect the environment and enhance the economic viability of the region. The specific tasks to be addressed include the following:

- 1) Assess the magnitude of the economic impact generated by factors such as visitor spending in communities inside the Catskill Park and the Catskill-Delaware Watershed.
- 2) Identify unrealized or undeveloped recreational opportunities on public lands that could be developed under existing management constraints that would contribute to and/or further enhance local and regional economies.

PROJECT APPROACH

To achieve the project's objectives in the most cost-effective manner, the research was designed to develop estimates that are reasonable and justifiable using available information from public sources, thus avoiding the cost of conducting primary research to collect additional information. The information gathered focused on outdoor recreational activities that utilize the natural resources of the Catskill Park and Watershed area. These include activities that involve both publicly owned land and privately owned land that is accessible to the public.

To the extent possible, information was gathered pertaining to activities such as hiking, camping, hunting, trapping, fishing, boating, mountain biking, tubing, kayaking, canoeing, downhill skiing, cross-country skiing, snowmobiling, horseback riding, outdoor education and similar activities. Limitations pertaining to available information required that estimates be made for most activities and, in the case of some activities, no credible information was available to develop estimates. The available information was used to develop conservative order-of-magnitude estimates that provide the basis for quantifying the economic impact of these activities on the region.

For the purpose of estimating economic impact, the four New York State counties which contain the vast majority of protected land were assessed. These include Delaware, Greene, Sullivan and Ulster Counties. Schoharie County was excluded because it includes only a small portion of the Catskill-Delaware Watershed, thus making it difficult to attribute economic impact in this county to the activities of the Catskills area. To the extent possible, information was gathered for the year 2010. This year was chosen as the most recent year for which information could be made available from all sources. In addition, weather conditions were judged to be historically typical during 2010, as compared to 2011 which featured Hurricane Irene and a winter with very low snowfall amounts.

Using the above approach, estimates were developed to quantify the number of visitors that come to locations in the Catskill area to participate in the outdoor recreational activities identified. To also understand the significance of protected land on the region, distinctions were made between activities that primarily involved public lands or privately protected lands that are open to the public and activities that involved private properties. The estimates that were developed provided the basis for determining economic impacts on the region of these outdoor recreational activities through the use of economic impact models. The organizations that protect and manage the natural areas of the Catskills also have a significant impact on the local economy of the region through spending on operations, capital investments and the employees that work for these organizations. Using information gathered from the public entities that manage these responsibilities, economic models were also applied to estimate these economic impacts on the local area. By reviewing these economic impact estimates, insights were also gained about future opportunities for leveraging the natural resources of the Catskills to enhance the local economy in a way that is compatible with the environment and existing land use restrictions.

Methodology

Economic models are used to estimate economic impacts on a local economy. To estimate the economic impacts generated by the recreational activities and operations identified above, the Money Generation Models (MGM) developed for the National Park Service by a team from Michigan State University were selected. These models are well suited to this project because they rely on proven economic modeling and have been used for similar evaluations of many parks around the country. The MGM models have been used for the past fifteen years to estimate the economic impact of national parks and historic sites on the local regions where these attractions are located.⁹

The MGM2 model is used to calculate the impact of spending by visitors on the local economy. To do this, the total local spending by park visitors is first calculated, based on the number of park visitors and average spending per visitor. Average visitor spending figures are provided by the model, with visitor spending profiles that depend on the characteristics of the area where the park is located (urban, rural, etc.) and the lodging requirements of visitors (live locally, camping, staying at hotel, etc.). Economic multipliers are then applied to the local visitor spending total to compute the various impacts that this spending has on the local economy. The economic multipliers are based on sophisticated economic analyses that have been incorporated into the MGM2 model. The economic impacts of visitor spending include the **number of jobs supported** and the **value added** to the local economy as a result of visitor spending. **Value added** is the most commonly used measure of the contribution of an industry to a region and represents the sum total of increased value to goods and services that is generated by the local activities being evaluated.¹⁰

The MGM2 model calculates the following impacts on the local economy:

- **Direct Effects:** This includes the impact that visitor spending has on the local vendors that receive the visitor spending directly (motels, restaurants, etc.), as well as the jobs that exist to support this spending by visitors. This economic activity is calculated to only include impacts on the local economy. As such, the impact of spending on an item purchased includes only the portion of the amount paid that went to local businesses. It does not include the portion of the selling price that went to vendors located outside of the region. As such, when a visitor purchases a gallon of gasoline, the direct effect includes the amount paid per gallon of gas, less the amount that the gas station pays its supplier for that gallon of gasoline.
- **Secondary or “Multiplier” Effects:** Secondary effects represent the local economic activity that results from the re-circulation of money spent by visitors making purchases from local vendors. This includes the indirect effects of visitor spending which goes to local entities that supply the vendors that service visitors. An example of this would be the impact of visitor spending on local farmers that sell vegetables to restaurants serving meals to visitors. It also includes the induced effect of spending by employees that are paid to provide services to visitors. An example of induced effects would include the economic activity produced when wait staff that work at the restaurant spend their paychecks to buy food at the local grocery store. Secondary effects also include the number of jobs supported by the economic activity generated by the secondary effects of visitor spending.

The **total effects** of visitor spending, therefore, include the **direct effects** that accrue primarily to tourism-related businesses in the area, the **indirect effects** that accrue to the suppliers of these tourism businesses, and the **induced effects** that result from household income produced by employees hired because of visitor spending. **Total effects** also include the **jobs** supported by visitor spending, including **jobs** supported by both direct and secondary effects.

Similarly, the MGM2 Operate model is used to estimate the economic impact of park operations on the local economy. The model uses the following information to calculate economic impact:

- number of employees, including year-round (part-time and full-time) and seasonal employees (expressed in terms of full-time equivalents)
- annual labor costs (total amount and amount spent locally)
- annual operating expenses (total amount and amount spent locally)
- annual capital spending (total amount and amount spent locally)

As with the MGM2 model, the MGM2 Operate model uses multipliers developed from research of economic activity at national parks and historic sites around the country to calculate direct and secondary impacts. The specific set of multipliers used depends on the characteristics of the area where the park is located (urban, rural, etc).

The MGM2 Operate model quantifies the **total effects** of park operations. This includes the **direct effects** associated with payments to employees and vendors that work for the organizations that protect and manage the natural areas of the Catskills. It also takes into account the **secondary effects** resulting from recirculation of money spent by these organizations. **Total effects** in dollars are represented as the **value added** to the local economy as a result of operations. **Total effects** also include the **jobs** supported by operations, including employees, as well as the **jobs** supported by both direct and secondary effects of spending on operations.

It is important to emphasize that the MGM models used in this study estimate economic impact as the value added to the local economy. For the reasons indicated, this is judged to be the best measure of local economic impact. Other research reports sometimes use estimates of total visitor spending or total employment value as measures of economic impact. Although these measures may also be of interest, they are not the same as the value added economic impact and are not directly comparable to value added measures of economic impact.

A review of recreational activities that are currently allowable in the Catskills was conducted and the economic impact estimates generated were also reviewed. This was done to identify any unrealized or undeveloped recreational opportunities that could significantly enhance local and regional economies under existing management constraints. Additional research was conducted to explore these opportunities and evaluate their appropriateness and potential for the Catskills area. An inventory of such opportunities was developed for further consideration by the sponsoring organizations, along with descriptions of each activity to allow for further exploration of these opportunities. In addition, the report suggests ways that these findings can be incorporated as part of larger, more comprehensive and detailed economic analyses.

Data and Assumptions

Impact of Visitor Spending: The MGM2 model was used to calculate the impact on the local economy of people who visit locations in the Catskills for outdoor recreational

activities. To do this, the total local spending by visitors is first calculated, based on the number of visitors and average spending per visitor. Spending by visitors depends not only on the number of visitors, but also on how long visitors stay in the area and their lodging while in the area. For example, day visitors that live locally have different spending patterns than visitors coming from out-of-town that stay in hotels. For this reason, the MGM model uses visits expressed on a party night basis, with party nights defined as one party spending one day in the area either within the park/watershed or in the local area. The party will generally be all the people traveling together or staying in a single room or campsite for a given night. The MGM model converts the total number of visitors to the total number of party nights spent by visitors in the area using estimates that are based on surveys of visitors to national parks.

Ideally, the spending patterns of visitors can be determined based on surveys and this information can then be used in the model to generate estimates of visitor spending. Since there is no current visitor survey information detailing spending by visitors to the Catskills and gathering this information is beyond the scope of this research, generic visitor spending profiles developed by the MGM2 model were used. These profiles were developed using information from visitor surveys conducted at national parks. Average visitor spending figures are provided by the model, with visitor spending profiles that depend on the characteristics of the region being impacted (urban, rural, etc.) and the lodging requirements of visitors (live locally, camping, staying at hotel, etc.). For the selection of visitor spending profiles, the small metro area profile was selected, based on the population of the four counties (population of 100,000 – 500,000). These economic multipliers are then applied to compute the various impacts that this spending has on the local economy.

Use of the MGM2 model to estimate the economic impact of visitor spending, therefore, requires both the total number of visitors and the lodging requirements of these visitors. There is no centralized source for information on visitors to the Catskills generally. In addition, no overall census of visitors to the recreational facilities of the Catskill region has ever been undertaken.¹¹ As such, this information had to be gathered from a wide variety of sources so as to include as many of the different outdoor recreational activities that take place in the Catskill Park and Watershed areas as possible. Visitor information was obtained pertaining to the following locations and recreational activities:

- **DEC/Catskill Forest Preserve Trailheads:** NY DEC Region 3 and Region 4 provided 2010 visitor sign-in totals for all trailheads located within the Catskill Forest Preserve. Data was not available in the case of several Region 3 trailheads and in these cases figures were estimated based on totals for previous years. Visitors passing these trailheads primarily include those engaged in hiking, mountain biking, horseback riding and related activities. In addition, it was concluded that visitors climbing the 35 Catskill peaks above 3500 feet in elevation were also included among those passing these trailheads. It was also concluded that very few snowmobilers were likely to have signed trail registries. Similarly, visitors engaged in hunting, fishing and related activities represented a small proportion of trailhead sign-ins.

Not all visitors passing trailheads actually sign trail registers. The percentage of visitors that sign trail registries varies greatly from trail to trail and is difficult to estimate. A previous DEC estimate indicated that, on average, trailhead registration represents about 60% of actual visitor numbers.¹² This percentage was viewed to be reasonable and conservative by DEC Region 3 and Region 4 representatives and trailhead sign-in totals were factored by this amount to estimate total visitors.

- **DEC/Catskill Forest Preserve Campsites:** NY DEC Region 3 and Region 4 manage seven campgrounds within the Catskill Forest Preserve that are available for camping and day use. Visitor totals came from DEC provided 2010 attendance reports. In addition, DEC staff indicated that essentially all visitors passing the Peekamoose Mountain trailhead were doing so for the purpose of wilderness camping. Total estimated visitors to this trailhead were assumed to be camping in the Park.
- **DEC/Pine Hill Lake Day Use Area:** This facility is located on the property that includes the Belleayre Mountain Ski Area and provides opportunities for picnicking, swimming and fishing. The number of visitors to the site in 2010 was provided by DEC.
- **DEC Administrative Areas:** Previous estimates of Catskill Forest Preserve public use estimated 5000 visitors to DEC administrative areas.¹³ No documentation for this figure could be found. Based on conversations with DEC staff, it was decided that to be conservative, this figure should be removed from visitor estimates.
- **DEP/Catskill-Delaware Watershed Areas Requiring Permit:** Certain areas of the Catskill-Delaware Watershed, primarily the New York City Reservoir areas, require a permit for access. Access Permit holders are allowed to hike, boat (with appropriate boat tag), fish and hunt (with appropriate state licenses) in these Watershed areas. DEP does not, however, track visitor usage of these areas. DEP does, however, conduct a survey of Access Permit holders that renew their permits online. The questions posed by this survey include the number of times permit holders visited DEP land in the previous 12 months, locations visited and activities.¹⁴ This survey information was used to estimate the total number of annual visits to these areas. The estimates generated were compared to estimates of visitors to other areas in the Catskill region, reviewed with DEP and DEC staff, and judged to be reasonable.
- **Fishing:** The New York State Angler Survey, last conducted for the year 2007, estimates the number of days fished in each New York State county over the course of a year.¹⁵ The information in the Angler Survey does not distinguish between angler effort within the Catskill Park and Watershed, but using county-wide information, assumptions were made to generate order-of-magnitude estimates for the number of fisherman visiting areas of the Catskill region. Since permits are required to fish the large bodies of water within the Watershed, it was assumed that all visits by fishermen to fish in the Catskill-Delaware Watershed Area were included

in the total visitor estimate developed from the DEP Access Permit Renewal Usage Survey. Because it is possible that some fishing within the Watershed area occurred on land not requiring a permit, this was deemed to be a conservative assumption. An estimate, therefore, needed to be made for fishing visits for the portion of the study area that is located within the Catskill Park, but not within the Watershed. To develop this estimate, the area of the Catskill Park not in the Watershed, as a percentage of the total combined area of Delaware, Greene, Sullivan and Ulster Counties, was determined. Assuming that fishing visits were of the same proportion in all parts of the four counties, this percentage was multiplied by the total fishing visits in the four counties to estimate the number of visits within the area of the Catskill Park that is not part of the Watershed.

- **Hunting:** As with the Angler Survey, New York State conducts surveys to estimate hunter effort in terms of the number of days hunted for various game across the State. For turkey hunting, the estimated number of days hunting effort combined for the spring and fall 2010 seasons was determined for the Catskills Wildlife Management Unit.¹⁶ The total land area of the Catskill Wildlife Management Unit was compared with the study area, less the area of the Watershed that requires an Access Permit. Based on this proportion, the number of hunting visits was calculated. The area of the Watershed requiring an Access Permit was excluded as these visits were assumed to be included in the estimate developed for the DEP Watershed Area requiring a Permit.

Estimates were developed for small game hunting (cottontail rabbit, squirrel, coyote, ruffed grouse, pheasant, duck and goose) in a similar manner as the estimates developed for turkey hunting. The estimated number of days hunting effort for each species was totaled and, because of overlapping seasons, an average was taken of 2009-10 and 2010-11 season for the Southeastern New York State Zone C Region. Based on discussions with DEC, it was also determined that some small game hunters may pursue multiple species simultaneously. This is most common among hunters of ducks and geese.¹⁷ To account for this, it was assumed that all goose hunting visits occurred simultaneously with duck hunting visits and the goose hunting effort was subtracted from the total. The result was a conservative total for small game hunting in the Southeastern New York State Zone C Region. The area of this region was compared to the area of the study area, less the area requiring an Access Permit. This proportion was used to generate the number of visits for small game hunting in the study area, less the area of the Watershed requiring a Permit.

For deer hunting, only statewide hunting effort numbers were available.¹⁸ The areas of New York State that permit deer hunting were compared to the area of the study area, less the area requiring an Access Permit. This proportion was then used to generate the number of visits for deer hunting. Because the information used pertains to statewide deer hunting patterns, rather than being specific to the Catskills area, this estimate is more suspect. The estimate does seem realistic, however, when compared to the estimates for other types of hunting.

No survey information was available for bear hunting; hence no estimates for visits pertaining to bear hunting were developed or included in the economic impact estimates.

- **Downhill Skiing/Belleayre Mountain:** A recently completed study was done to estimate the economic impact of the Belleayre Mountain Ski Facility, a public facility which is owned by the State of New York. This study also employed the MGM2 economic impact models and 2010 visitor information was gathered as part of this study.¹⁹ This study was judged to be credible and for consistency, the visitor numbers from the Belleayre economic impact research were also used in this research pertaining to the Catskills region. The Belleayre economic impact study also assumed that 10% of visitors stayed in a hotel and this was also assumed for this Catskills research project.²⁰
- **Snowmobiling:** Based on information from the New York State Snowmobile Association, it is estimated that each registered snowmobile owner uses their machine an average of 10 times during an average year.²¹ Based on registration numbers for Delaware, Greene, Sullivan and Ulster Counties, total days of usage were estimated for the four counties. Since no permits are required for snowmobiling in the Watershed, the proportion of land area for the entire study area was compared to the area of the four counties and using this proportion, total estimated snowmobiling visits were calculated.
- **Whitewater Users on the Esopus Creek:** This includes popular activities such as tubing, canoeing and kayaking. An estimate of annual visitors to the Esopus for these activities was provided by Harry G. Jameson III, President of Mountain Creek Recreation and proprietor of Town Tinker Tube Rental.²²
- **Private Preserves Open to the Public:** There are a number of preserves and other protected areas that are privately owned but open for public use for activities such as hiking and cross-country skiing. These areas include the following:
 - West Branch Preserve
 - Burroughs Memorial Site/Woodchuck Lodge
 - Scene of Anti-Rent Wars
 - Beach Mountain Preserve
 - Emory Brook Preserve
 - Mountain Guardian Preserve
 - Overlook Preserve
 - Platte Cove Preserve
 - Snake Rocks Preserve
 - Mt. Utsayantha Fire Tower
 - Pratt Rock

Attempts were made to get visitor information pertaining to these areas, but in many instances either information was not available or no responses were received. An estimate was developed for the total number of visitors to these locations based on discussions with those contacted and with others familiar with these areas.²³

- **DeBruce Environmental Education Camp:** This facility is owned and operated by NYS DEC, serving campers 11 – 13 years of age. Located in Sullivan County, campers attend week-long programs that emphasize hands-on exploration and outdoor recreational activities. The number of visits was estimated, assuming two parent visits for each child enrolled in a week-long program (one visit to drop off the child and one visit to pick up the child).²⁴
- **Junction Pool:** Junction Pool is a renowned site for fly fishing located where the Little Beaverkill joins the Willowemoc to become the Beaverkill. Riverside Park provides access to Junction Pool and is also a popular attraction for other outdoor recreational activities. An estimate of annual visitors was provided by the Roscoe Chamber of Commerce. The visitor total was developed to exclude visitors accessing the park to fish at Junction Pool to avoid double counting, as these visitors were assumed to be included in the numbers for the NYS Angler Survey.²⁵
- **Downhill Skiing/Private Ski Facilities:** There are four privately owned downhill ski facilities located within the Catskill Park: Hunter, Windham, Plattekill and Sawkill. For these facilities, visitor information relied on a report done for the Ski Areas of New York entitled “Ski Areas of New York Economic Value Analysis 2009/10 Season” and input from the President of Ski Areas of New York. The total estimated number of skier visits for these four facilities was provided, as were estimates for the proportion of visitors that stay in hotels. According to the report, 44% of visitors to larger (“Tier One”) ski areas stay in hotels, while only 5% of visitors to smaller (“Tier Three”) ski areas stay in hotels. Given the proximity of the Catskills ski facilities near New York City, it was suggested that the proportion of visitors staying in hotels be reduced to 29% for the Tier One ski areas to be conservative.²⁶
- **Summer Activities at Private Ski Facilities:** In addition to downhill skiing in the winter, these facilities look to profit by offering activities year-round. These include mountain biking (such as the Downhill Mountain Bike World Cup), festivals and other events. This information was also part of the “Ski Areas of New York Economic Value Analysis 2009/10 Season” report and visitor numbers for 2010 were provided by Ski Areas of New York. In addition, it was estimated that 35% of these visitors stayed in hotels.²⁷
- **Cross-Country Skiing:** There are several cross-country ski areas in the Catskill Park, although lack of snow in recent seasons has resulted in the possible closure of some of these areas, such that the exact number remaining is uncertain. Based on discussions with local operators, an estimate was developed for annual visitors.²⁸
- **SUNY Delhi Outdoor Education Center:** This facility is owned by SUNY Delhi and offers environmental education programs. An estimate was provided for the number of annual visitors attending these programs.²⁹
- **Ashokan Field Campus:** The Ashokan Center offers various programs that focus on nature, history and the arts. Estimates were provided for the number of visitors that attend these programs.³⁰

- **Hudson Valley Triathlon Club:** This organization sponsors triathlons and training programs at Kenneth Wilson State Park and nearby locations. Mark Wilson of the Hudson Valley Triathlon Club provided an estimate of the number of participants.³¹
- **Catskill Fly Fishing Center and Museum:** This membership organization hosts various events throughout the year at its 53 acre facility. An estimate was provided for the number of annual visitors to the Center. Some events are more than one day in length, so using the number of annual visitors is likely a conservative estimate of the number of days that attendees are visiting the Catskills.³²
- **Scenic Railroads:** These include the Catskill Mountain Railroad³³ and the Delaware and Ulster Railroad.³⁴ Ridership figures for 2010 were obtained from the organizations operating each of these railroad lines.

Attempts were also made to get visitor information for the following, without success:

- Tour of the Catskills
- Frost Valley YMCA
- Mountaintop Historical Site

Visitor numbers from the various locations and activities produced an estimate for total annual visitors to the Catskills. For some sources, such as downhill ski areas, information was also available pertaining to visitor lodging. In addition, visitor information from DEC campsites located in the Catskill Forest Preserve was totaled. For many sources, however, there was no lodging information available and assumptions had to be made to estimate these numbers.

To simplify the estimation of visitor lodging, visitors were assumed to fit one of four lodging categories: hotel, camping in the park, camping outside of the park or local/not requiring overnight accommodations. The MGM2 model allows for a more detailed breakout of visitors that do not require overnight lodging which includes non-local day users and visitors staying with friends or relatives. It was not possible to develop reasonable estimates for this level of detail. As such, all visitors not requiring overnight lodging were assumed to be locals. Since the model assumes a lower level of spending by locals, as compared to non-local day users and those staying with friends/relatives, this also provided a more conservative assumption for estimating economic impact.

Based on feedback from DEC and DEP staff, it was assumed that 5% of visitors (other than visitors to downhill ski facilities) required hotel lodging. This was judged to be a conservative estimate when compared to other similar surveys and the number of available local hotel rooms. For campers staying at private campgrounds outside of the Catskill Forest Preserve, the assumption was made that the number of visitors staying at private campgrounds was equal to the number of visitors that stayed at DEC campgrounds. Since there are considerably more private campsites in the Catskills region than DEC campsites, this also seemed to be a conservative assumption.³⁵ By applying these assumptions to the visitor totals, estimates were developed for the lodging used by visitors such that this information could be used by the MGM2 model to estimate the economic impact that these visitors had on the local economy.

The visitor numbers developed were separated to distinguish between activities that rely primarily on public land or protected private land that is open to the public and activities that take place primarily on private land. Visitor numbers associated with public/protected land included all visitor numbers provided by DEC, including DEC trail visitation numbers, visitors to DEC campgrounds and visitors to Belleayre. Visitors associated with public/protected land also included estimated visitors to NYC DEP lands that require a permit. Hunting and fishing can occur on both public and private lands, but because these activities are highly dependent on the habitats provided by public lands, these visitors were included with the public/protected land numbers. Similarly, whitewater activities on the Esopus Creek were included with public/protected land numbers. Since a significant amount of snowmobiling activities take place on public lands, these figures were also included with the public/protected estimates. Public/protected visitor totals also included visitors to private preserves that are open to the public, as well as other activities on public lands that are open to the public.

In addition to visitors participating in activities on public/protected land, there are visitors enjoying outdoor recreational activities that take place primarily on privately owned lands that are located inside the Catskill Park and the Catskill-Delaware Watershed. This includes skiers that visit privately owned downhill and cross country skiing facilities, as well as people that visit ski areas to attend other events at these locations. This also includes visitors to privately owned facilities, attractions, summer camps, retreats and members of private organizations that participate in outdoor recreational activities.

Impact of Catskill Park/Forest Preserve and DEP Watershed Operations: In addition to the economic impact that visitors have on the local economy, the operations that maintain the public lands of the Catskills, including facilities and employees of DEC, DEP and Belleayre Mountain, also impact the local economy. To calculate the economic impact on the local economy of these operations, the number of employees, operating spending and capital spending information is entered into the MGM2 Operate model. As with the MGM2 model, generic multipliers developed based on studies of national park operations are used to calculate economic impacts and jobs supported as a result of Park and Watershed operations. Like the multipliers applied to visitor information, the MGM2 Operate model allows for multipliers to be selected based on the area where parks are located (rural, small metro, large metro and state). The multipliers applicable to small metro areas were again selected.

Information was obtained from DEC Region 3, DEC Region 4 and NYC DEP to estimate number of employees, operations spending, capital spending and the proportion of spending that was local. For Belleayre Mountain, the information used was sourced from the Regional Economic Impact of Belleayre Mountain Ski Facility study. Using information from this report both provided an available source for the necessary data and also allowed for consistency between the current research and the Belleayre study. As detailed budget figures were not available, the Belleayre information was developed based on knowing the annual budget for Belleayre and using industry average spending levels to allocate spending to different categories.³⁶

Information from DEC Region 3, DEC Region 4 and NYC DEP was not readily available in the level of detail required for the MGM2 Operate model. As such, order of magnitude estimates were developed based on the information that was provided and discussions with DEC and DEP staff. These estimates were used to generate economic impact estimates, but were recognized to be somewhat speculative in nature.

RESULTS

Impact of Visitor Spending

Based on the information collected and assumptions made, the following data was developed pertaining to the annual number of visitors who come to the Catskills for outdoor recreational activities:

CATSKILLS: ESTIMATED ANNUAL OUTDOOR RECREATIONAL VISITORS

<u>Location</u>	<u>Activity(s)</u>	<u>Day</u>	<u>Hotel</u>	<u>Camping in Park</u>	<u>Outside Camping</u>	<u>Total Visitors</u>
ACTIVITIES RELYING ON PUBLIC/PROTECTED LANDS						
DEC Region 3	Hiking, Equestrian, Mtn Biking, etc	66,408	4,115	3,008	8,760	82,290
DEC Region 4	Hiking, Equestrian, Mtn Biking, etc	91,244	5,408		11,514	108,167
DEC Pine Hill Lake	Swimming/Outdoor Recreation	17,797	1,055		2,246	21,098
DEC Region 3	Camping	18,692		63,823		82,515
DEC Region 4	Camping	67,137		78,482		145,619
Mountains (3500 Club)	Mountain Climbing	included in the above numbers				-
DEC Administrative Areas	Visits to DEC	no longer included in visitor totals				-
Watershed area requiring DEP permit	Fishing, Boating, Hunting	340,276	20,169		42,939	403,384
Catskills not requiring DEP permit	Fishing	101,862	6,038		12,854	120,753
Catskills not requiring DEP permit	Deer Hunting	359,638	21,317		45,382	426,337
Catskills not requiring DEP permit	Bear Hunting					-
Catskills not requiring DEP permit	Turkey Hunting	32,438	1,923		4,093	38,454
Catskills not requiring DEP permit	Small Game Hunting	30,586	1,813		3,860	36,259
Belleayre	Skiing	157,500	17,500			175,000
Catskill Park and Watershed	Snowmobiling	20,182	1,196		2,547	23,925
Esopus Creek	Tubing, Canoeing, Kayaking	19,402	1,150		2,448	23,000
Private Preserves Open to the Public	Hiking	1,687	100		213	2,000
Debruce Environmental Education Camp	Environmental Education	528	31		67	626
Riverside Park	Junction Pool Visits Not Including Fishing	24,041	1,425		3,034	28,500
TOTAL PUBLIC/PROTECTED LANDS		1,349,418	83,240	145,313	139,956	1,717,927
ACTIVITIES RELYING ON PRIVATE LAND						
Windham, Hunter, Plattekill, Sawkill	Winter: Skiing	384,400	151,600			536,000
Windham, Hunter, Plattekill	Summer: Mtn Biking, Festivals, Events, etc.	125,125	67,375			192,500
Private Cross Country Facilities	Cross Country Skiing	8,436	500		1,064	10,000
SUNY Delhi Outdoor Education Center	Environmental Education	2,320	138		293	2,750
Ashokan Field Campus	Environmental Education	6,748	400		852	8,000
Kenneth Wilson State Park/Nearby Areas	Triathlon/Hudson Valley Triathlon Club	295	18		37	350
Catskill Fly Fishing Center	Fishing/Education	8,436	500		1,064	10,000
Catskill Mountain Railroad	Scenic Railroad	8,614	511		1,087	10,211
Delaware and Ulster Rail	Scenic Railroad	7,605	451		960	9,015
TOTAL PUBLIC/PROTECTED AND PRIVATE LANDS		1,901,396	304,731	145,313	145,313	2,496,753

The above totals for public/protected lands were used by the MGM2 model to estimate visitor spending, value added economic impact and jobs supported by these visitors, including both the direct effects and the secondary effects that result from visitor spending. The results generated by the MGM model for outdoor recreational activities in the Catskills that rely on public and protected lands are as follows:

Total Visitors: 1,717,927
Total Visitor Spending: \$62,426,000
Average Spending/Visitor: \$36.34
Total Economic Impact (Value Added): \$46,207,000
Jobs Supported: 980

The above estimates were developed using a “medium” visitor spending profile. Visitors to state parks typically spend less than the visitors to national parks that are the basis for the spending profiles used in the MGM2 model, however, skiers visiting Belleayre spend more than visitors to national parks. As such, the medium spending profile was judged to be reasonable.

The MGM2 model was then used to estimate the impact of all visitors to the Catskills, including the totals for both public/protected lands and private lands. The results generated are as follows:

Total Visitors: 2,496,753
Total Visitor Spending: \$148,534,000
Average Spending/Visitor: \$59.49
Total Economic Impact (Value Added): \$114,768,000
Jobs Supported: 2413

The above estimates were developed using a “high” visitor spending profile (30% greater than the medium level profiles). This spending profile was selected to take into consideration the higher level of spending from downhill skiers visiting private ski facilities that made up a significant portion of total visitors to the region.

To evaluate the reasonableness of the visitor spending estimates, average visitor spending not including spending by downhill skiers was examined. Using average spending/skier figures provided by the “Ski Areas of New York Economic Value Analysis 2009/10 Season” report, total annual spending by all downhill skiers visiting the Catskills was estimated at \$84,669,000.³⁷ This was an average of \$119.08/downhill skier, which was judged to be a conservative figure. Removing this amount from total visitor spending by all visitors to the Catskills, including the totals for both public/protected lands and private lands, results in annual spending of \$63,864,867 spent by the remaining 1,785,753 visitors, for an average of \$35.76/visitor. Similarly, when the spending by visitors to Belleayre is removed from the estimated spending totals for public/protected lands, the average spending by visitors not including skiers is estimated at \$29.63/visitor.

The \$35.76 and \$29.63 estimates for spending/visitor can be compared to similar studies of recreational tourism to assess the reasonableness of this estimate. Comparable studies include the following:

- A 2010 study of the Minnewaska State Park, Mohonk and Sam's Point Preserves in the nearby Shawangunk Ridge area of New York, which used a similar methodology, estimated average visitor spending of \$33.24/visitor.³⁸ A previous study of Mohonk Preserve visitors done in 1996 estimated average visitor spending of \$26/visitor. Adjusting this amount for inflation results in average spending of \$36.10/visitor in 2010 dollars.³⁹
- A 2009 study done of New York State Parks estimated visitor spending to be between \$17 and \$35/visitor.⁴⁰
- More than 281 million visitors to America's National Parks generate spending of \$12.13 billion in 2010, for an average spending/visitor of \$43.12.⁴¹

Both average daily spending/visitor estimates for non-skiers appear to be consistent and conservative when compared with spending levels estimated by comparable studies. Having concluded that estimates of average spending/visitor by non-skiers are reasonable and using average daily spending figures for skiers that also appear reasonable, the estimate of total spending by visitors to the Catskills was judged to be reasonable. This, combined with a reasonable estimate for the total number of visitors to the Catskills, provides credibility to the estimates of economic impact that have been generated.

Impact of Catskill Park/Forest Preserve and DEP Watershed Operations

Using the information collected for employment, operations spending and capital spending from DEC, DEP and Belleayre Mountain, the MGM2 Operate model estimated the economic impact of these operations as follows:

Total Spending: \$190,092,358
Local Spending: \$52,945,351
Year-round Employees: 520.5
Seasonal Employees: 81.0
Economic Impact (Value Added): \$62,403,156
Jobs Supported: 1571

As previously noted, although best efforts were used to gather local spending and employment figures, the information used to develop these estimates is somewhat speculative in nature. DEC does not break out spending and employment on a geographic basis to be able to readily attribute the amount spent or number of employees to specified geographic areas. Similarly, NYC DEP does not allocate spending and employment figures specific to the Catskill-Delaware Watershed. As such, to a large extent local spending by NYC DEP could not be documented. Similarly, although the figures used for the Belleayre Mountain Ski Facility came from the economic impact study of this operation, these numbers are based on industry averages and they also must be considered rough approximations.

Given the limited availability of accurate spending and employment information pertaining to the local economy, along with the conservative assumptions used to generate these estimates, it is highly likely that actual local spending by these operations is much greater than what has been estimated. In addition, this study did not attempt to estimate the spending by private organizations, such as conservation groups and ski areas, that protect and manage the natural areas of the Catskills. As such, the economic impact figures that have been generated must be viewed only as an attempt to estimate the order of magnitude of the economic impact, recognizing the significant limitations of the information used in developing these estimates. In reality, the impacts could be significantly greater, if more and better information were available to be considered in estimating these economic impacts.

UNREALIZED OR UNDEVELOPED RECREATIONAL OPPORTUNITIES

A review of current land use in the Central Catskills Region reveals that there exists a variety of opportunities for outdoor recreation that are both abundant and diverse. As such, the potential for unrealized or undeveloped recreational opportunities primarily involves expanding public appreciation of existing activities, rather than creating new ones. These opportunities have the potential for significantly increasing both the number of visitors to the Catskills and the recreational opportunities enjoyed by these visitors, and they are categorized as follows:

Previously Identified Opportunities: There are already a number of initiatives that have been proposed and/or are in process that could generate a positive impact on local and regional economies. Such initiatives that merit further consideration include the following:

- **Route 28 Central Catskills Scenic Byway:** This project is being promoted by the Catskill Center in cooperation with other regional organizations, including the Central Catskills Collaborative. It offers the promise of both increasing the number of visitors to various recreational locations in the Catskills and enhancing the quality of visitor experiences.
- **Expansion of Trail Networks:** Ulster County has proposed a county-wide trail network and such initiatives should be encouraged. Creating, connecting and promoting networks of trails can increase the number of visitors that take advantage of these resources for activities such as hiking, mountain biking and off trail activities. Such efforts should include increased integration of DEC and DEP lands for enhanced and connected trail networks.
- **Continued Expansion of DEP Reservoir Boating Program:** This program creates new recreational opportunities and has proven popular with local residents and visitors to the Catskills.
- **Catskill Interpretive Center:** The completion of this project can provide a destination to attract visitors while also enhancing the quality of visitor experience by providing both education and information about the Catskills.

Increase Marketing of Recreational Activities in the Catskills: Not only does the Catskills region offer an abundance of recreational activities, but its proximity to New York City and other population centers affords an exceptional advantage that can be better leveraged to attract visitors. There exist many opportunities to increase and improve the promotion of recreational activities in the Catskills, including the following:

- **Centralize Marketing Activities:** Currently, marketing activities are largely directed separately by each of the four counties of the Catskill Region, along with local and location-specific marketing efforts. Regions such as the Adirondacks benefit from a more unified marketing presence. Centralizing marketing responsibilities would allow for consistent messaging, a centralized web presence and greater economies of scale.
- **Increasing Marketing to International Visitors:** The Catskills offers visitors a unique exposure to recreation, American history and American art which, along with its close proximity to New York City, makes the region an ideal attraction for visitors from overseas. International visitors also spend more money and therefore can generate a significant economic impact on the region.
- **Increasing Marketing to Downhill Skiers:** Downhill skiers spend more when visiting the Catskills, thus generating more economic impact. Although global warming may negatively impact the long-term prospects for this recreational activity, the proximity of Catskill ski areas to New York City skiers presents an opportunity for near-term economic impact.
- **Develop a “Gateway” Visitor Information Center:** An information center that exposes visitors passing through the area to the recreational opportunities offered by the Catskills would help promote the region to travelers. A nearby example of such a facility is the Clifton Park rest area that offers an Adirondack region tourism information center. This facility is located in an Adirondack-style building and it is located just south of the Adirondack Park so that it can be seen by all visitors traveling from New York City. Remodeling of the Plattekill Travel Plaza to create an expanded tourism information area focusing on the Catskills could be considered as a way to address this opportunity.

Opportunities to Leverage Tourism Trends: The Catskill region is well positioned to take advantage of several popular trends that are impacting the tourism industry:

- **Art and Art History:** The Hudson River School Art Trail represents a great opportunity to attract visitors from New York City and overseas. This could also include promotion of activities such as painting and photography.
- **Agri-tourism:** Existing land use regulations allow for agricultural uses and expanded local agriculture could support agri-tourism initiatives that would cater to visitors from New York City.

- **Ecotourism:** The pristine natural areas of the Catskills, along with the unique water resources of the Catskill-Delaware Watershed, could be leveraged to attract tourists from around the globe. This could include multi-season activities that would bring visitors to the region year-round.
- **Wildlife Viewing and Bird Watching:** An estimated 22 million Americans participate in wildlife viewing⁴² and wildlife watchers spend an estimated \$51.2 million annually.⁴³ The wildlife habitats and location of the Catskills make the region well suited to attracting these enthusiasts.

In addition to the above, the growth of technology businesses in the Hudson Valley creates a need to attract employees on a global basis. The recreational opportunities afforded by the Catskill region can be used to lure knowledge workers that are attracted to these quality of life amenities.

Additional insight into opportunities for enhancing the impact of the recreational resources of the Catskills may be gained by examining the Laurel Highlands Conservation Landscape Initiative. The Laurel Highlands region spans five counties and is located in southeastern Pennsylvania, about one hour east of Pittsburgh.⁴⁴ Although the protected areas of the Laurel Highlands (about 100,000 acres) are significantly less than those of the Catskills, the area generates an estimated economic impact of \$33,000,000.⁴⁵ Recent efforts have also resulted in the securing of significant grant funds, including \$4,000,000 for a visitor center.⁴⁶

RECOMMENDATIONS FOR FUTURE RESEARCH

This study relied on existing and available information pertaining to visitor numbers and visitor spending. More accurate estimations of the economic impact of outdoor recreational activities could be developed with better visitor information. This could be accomplished through detailed surveys of visitors to the region, including questions about places visited and the activities of these visitors, as well as questions about how much visitors spend and where they spend their money. Specifically, trailhead surveys could be conducted to better estimate lodging and spending by users of DEC trails. Similarly, surveys of Belleayre skiers could be used to determine lodging and spending by these visitors. In addition, limited information was available related to visitors to camps, retreats and religious centers in the Catskills.

Estimates of the economic impact of the operations of organizations that protect and manage the natural areas of the Catskills were based on information that was admittedly suspect. A better estimate of these impacts could be generated with an in-depth investigation of spending and employment by these operations and/or by enhanced tracking of this information by the organizations. This more accurate and reliable information could be used by the economic models to develop better estimates of the value added dollar impact and jobs supported by these activities.

The models used to estimate economic impacts do not take into account impacts from second home owners, who make up a significant proportion of those participating in activities in the Catskills. Additional research would be required to quantify and better understand how the participation of these second home owners in recreational activities impacts the economy of the Catskills.

¹ New York Department of Environmental Conservation website

² New York City Watershed website

³ NYC.gov website

⁴ Catskill Heritage Alliance website

⁵ Catskill Mountain Club website

⁶ Catskill Watershed Corporation website

⁷ Estimate developed by NYS DEC with assistance from the Catskill Center for Conservation and Development

⁸ Catskill Heritage Alliance website, Campground Owners of New York website

⁹ Estimating National Park Visitor Spending and Economic Impacts; The MGM2 Model” Stynes, Propst, Chang and Sun; May 2000

¹⁰ Ibid

¹¹ Catskill Park State Land Master Plan; August 2008, page 86

¹² Catskill Forest Preserve Public Access Plan; 1998, page 17

¹³ Catskill Park State Land Master Plan; August 2008, page 87 and Catskill Forest Preserve Public Access Plan; 1998, page 82

¹⁴ NYC Environmental Protection; Access Permit Renewal Usage Survey Results; Report Created on July 13, 2012

¹⁵ New York Statewide Angler Survey 2007; New York State Department of Environmental Conservation Bureau of Fisheries; June 2009

¹⁶ From Ted Kerpez, NYS DEC Region 3 Wildlife Manager

¹⁷ From Michael V. Schiavone, NYS DEC Certified Wildlife Biologist

¹⁸ Management Plan for White-tailed Deer in New York State 2012-2016; NYS DEC; October 2011, page 14

¹⁹ Regional Economic Impact of Belleayre Mountain Ski Facility; Caskey and Shen; School of Business; SUNY New Paltz; March 2012

²⁰ Note: The Belleayre economic impact study made additional assumptions pertaining to day visitors and average party size that could not be assumed for the entire Catskills region without adding significant complication to the economic impact model. As such, all day visitors were assumed to be local and average party size at Belleayre was assumed to conform with assumptions made for other visitors to the Catskills. This also produces a more conservative estimate of economic impact.

²¹ From Dominic Jacangelo, Executive Director, New York State Snowmobile Association

²² From Harry G. Jameson III, President, Mountain Creek Recreation, Inc.

²³ Discussions with Matt Levy, Open Space Institute; representatives from Village of Stamford; Carolyn Bennett, Pratt Museum; Catskill Center for Conservation and Development; Catskill Mountainkeeper; Catskill Heritage Alliance

²⁴ Wendy Rosenbach, New York State Department of Environmental Conservation

²⁵ Elaine Fetting, Roscoe Chamber of Commerce

²⁶ Ski Areas of New York Economic Value Analysis 2009/10 Season; Prepared for Ski Areas of New York by RRC Associates, Inc. and Scott Brandi, President Ski Areas of New York, Inc.

²⁷ Ibid

²⁸ Discussions with Dick Carlson, Cross Country Ski Areas of New York and Paul Kuznia of Fahnestock Winter Park

²⁹ Dave A DeForest, SUNY Delhi

³⁰ Wayne Turner, Executive Director, Ashokan Center

³¹ Mark Wilson, Hudson Valley Triathlon Club

³² Jim Krul, Executive Director, Catskill Fly Fishing Center and Museum

³³ Catskill Mountain Railroad; 2010 Annual Report

³⁴ Dave Riordan, Executive Director, Catskill Renovation Corporation

³⁵ Information provided by Donald G. Bennett Jr., President and CEO, Campground Owners of New York

³⁶ Regional Economic Impact of Belleayre Mountain Ski Facility; Caskey and Shen; School of Business, SUNY New Paltz; March 2012 and discussions with Dr. Kevin Caskey and Dr. Anyuan Shen

³⁷ Ski Areas of New York Economic Value Analysis 2009/10 Season; Prepared for Ski Areas of New York by RRC Associates, Inc. and Scott Brandi, President Ski Areas of New York, Inc.

³⁸ Study of the Economic Impact on the Local Economy of Minnewaska State Park Preserve, Mohonk Preserve, and Sam's Point Preserve; prepared by Business Opportunities Management Consulting; May 2010

³⁹ The Economic Impact of Mohonk Preserve Visitors on the Surrounding Communities; Paul Kerlinger; May 1996

⁴⁰ The NYS Park System: An Economic Asset to the Empire State; Political Economy Research Institute; University of Massachusetts-Amherst; Heintz, Pollin and Garrett-Peltier; March 2009

⁴¹ Economic Benefits to Local Communities from National Park Visitation and Payroll, 2010; Daniel J. Stynes, Michigan State University; US Department of the Interior, National Park Service; December 2011

⁴² Outdoor Recreation Participation, Topline Report, 2012; outdoorIndustry.org

⁴³ Annual Participants and Expenditures for Hunting, Fishing and Wildlife Watching in the United States, Department of the Interior, 2006

⁴⁴ Laurel Highlands Conservation Landscape Profile and Observations; Michele Lempa, Patti Patrizi, Len Albright, Ed Wilson; November 3, 2009

⁴⁵ Economic Impact and Benefits of Tourism, Recreation, Trails, Conservation and Healthy Living; Pennsylvania Environmental Council; ohiorivertrail.org

⁴⁶ Laurel Highlands Conservation Landscape Initiative; May 4, 2011; laurelhighlandscli.blogspot.com