

Modified Belleayre Resort at Catskill Park

Baseline Wildlife Survey - 2008

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INTRODUCTION

Terrestrial Environmental Specialists, Inc. (“TES”) was contracted to perform a baseline wildlife assessment on the proposed Modified Belleayre Resort project site (“Project”). The objective was to augment wildlife data collected during previous surveys, namely in 2000 and 2004. To allow for valid comparisons, the 2008 surveys attempted to use the same sampling locations employed in previous surveys. The same vegetation cover type designations were also adopted for this effort.

METHODS

The wildlife assessment was conducted in accordance with “Part B - Scoping Outline for the Modified Belleayre Resort at Catskill Park Supplemental Draft Environmental Impact Statement”, dated February 28, 2008. As such, the assessment included a file search of regulatory agencies, including the New York Natural Heritage Program for known occurrences of listed rare, threatened, endangered, or special concern species [Section 3.4.3 (A) and (B) of the scoping outline]. The field investigations were designed to comply with requirements in Section 3.4.3 (C) through (G) of the scoping outline.

Birds

The primary goal of the 2008 survey was collect data on avian use of the project area. Background information regarding the likely presence of various avian species was gathered prior to conducting the field surveys. This was based primarily on data obtained from the New York State Breeding Bird Atlas. Breeding bird data were tabulated from four breeding bird atlas blocks (5366A, 5366B, 5366C, and 5366D). For each block, data were presented in the two time frames during which breeding bird data were entered into the atlas – 1980 to 1985 and 2000 to 2005.

Sampling locations employed during 2008 were the same 19 bird observation locations that were used in 2004. One additional observation location (W-20-BM) was added to expand the coverage of the survey. The 20 sampling locations, and the community type in which they are located, are noted on Figure 1.

The field survey was a version of the sampling protocol presented in Ralph *et. al.* (1993). Bird observation were recorded during a 10-minute sampling period at each location on four days – May 14, May 15, June 18, and June 19, 2008. Thus each location was sampled four times. The May sampling days were scheduled to include both species that breed early in the season as well as species that pass through this area during spring migration. The sampling on the two days in June were meant to characterize the breeding bird community on the project area.

Sampling took place during the early morning hours (0500 to 1030). All birds seen or heard during a 10-minute period from each sampling location were recorded on standard data sheets. For each species, the total number of birds observed during the four sampling periods at each location was calculated and divided by four, resulting in the average number of birds observed during a 10-minute period. This allowed for a better comparison among sampling locations and community types.

Additional bird observations were recorded on the four sampling days. Most of these observations were made while moving from one sampling location to another or during other periods spent on the project area. Incidental bird observations were also made during other site visits in April, May, June, and July.

Reptiles and Amphibians

Prior to conducting the field survey, information regarding the occurrence of reptiles and amphibians was obtained from the Herpetological Atlas Project (1990 to 1998), which is available on the NYSDEC website. Data were compiled from the four topographic quadrangles in which the project area is located (Fleischmanns, West Kill, Seager, and Shandaken), plus adjacent quadrangles.

Searches for reptiles and amphibians were conducted in April, May and June. In addition to any incidental observations in and around areas of suitable habitat, reptiles and amphibians were located by overturning rocks and logs in upland areas, overturning rocks in streams, and listening for calling frogs.

Mammals

A list of mammals recorded on the project area was generated from incidental observations noted during the course of all field work. Mammal observations included direct sightings, as well as notation of tracks, scat, burrows and other indirect sign.

RESULTS

Birds

Seventy bird species were recorded during the course of the field survey. Of the 70 species, 69 were documented during the point counts. The ruby-throated hummingbird was the only species noted incidentally that was not recorded during the point counts.

Table 1 is a list of birds recorded during the point counts, noting the communities in which they were observed. Because two of the four point count sampling days occurred in May, it is likely that Table 1 includes some transient species that may not actually breed on the site. Table 2 is a list of species recorded incidentally on the project area. Details of the point count effort are presented on Table 3. The data in Table 3 are

presented by community type and represent the average number of individuals of each species counted per 10-minute sample. The results of the point count effort for each community type are summarized at the end of Table 3, including the total number of species noted in each community type, the number of 10-minute samples (number of locations times 4), and the total number of birds observed per 10-minute sample.

There was considerable variation among the community types in terms of the number of bird species observed and the overall abundance of birds (birds per 10-minute sample). To put the data into perspective, the community types can be placed into four categories based upon the number of species recorded. First, by far the greatest number of species observed (47) was in the beech-maple mesic forest (BM). This was notably more than the second category, which included communities types in which the number of bird species ranged from 30 (hemlock-northern hardwoods forest) to 36 (successional old field). Also included in this second group are pine plantation (35 species) and successional northern hardwoods forest (31 species). The third group includes community types in which the number of bird species ranged from 21 (hemlock-northern hardwoods forest/beech-maple mesic forest) to 26 (shrub swamp). Falling between these two communities were shallow emergent swamp (24 species), ski slope/beech-maple mesic forest (23 species), and ski slope (22 species). The last group, in which the fewest species were noted, includes beech-maple mesic forest/intermittent rocky stream wetland (19 species), hemlock-hardwood swamp (19 species), and hardwood swamp (18 species).

The total number of birds observed per 10-minute count also varied considerably among the community types. Using this metric, birds were most abundant in the shallow emergent swamp (18.25 birds per 10-minute count), followed by the beech-maple mesic forest (16.63 birds per 10-minute count), and the ski slope (16.50 birds per 10-minute count). The fewest number of birds were noted in the ski slope/beech-maple mesic forest location (11.00 birds per 10-minute count) and the successional old field location (10.92 birds per 10-minute count).

The following breakdown by community types is presented to simplify a comparison. Presented are the total number of species noted, the total birds per 10-minute count, and the most abundant species. The community types are presented in decreasing order based upon the number of species recorded. In most cases, the five most common species are listed, along with the average number of birds per 10-minute count in parentheses. Where several species displayed the same abundance, they were all listed, thus in some cases more than five species appear.

Beech-Maple Mesic Forest (BM)

Number of Species	47	Birds Per Count	16.63
Most Abundant Species	Ovenbird (2.94)		
	Red-eyed Vireo (1.38)		
	American Crow (1.13)		
	American Robin (0.88)		
	Black-throated Green Warbler (0.88)		

Successional Old Field (OF)

Number of Species	36	Birds Per Count	10.92
Most Abundant Species	Chipping Sparrow (1.42) Ovenbird (1.08) Black-throated Green Warbler (0.92) American Robin (0.83) Blue Jay (0.58)		

Pine Plantation (PP)

Number of Species	35	Birds Per Count	15.38
Most Abundant Species	Ovenbird (1.50) Red-eyed Vireo (1.38) American Robin (1.13) Black-throated Green Warbler (0.88) Blackburnian Warbler (0.88) Black and White Warbler (0.88) Dark-eyed Junco (0.88)		

Successional Northern Hardwoods Forest (SH)

Number of Species	31	Birds Per Count	15.75
Most Abundant Species	Ovenbird (1.75) Blue Jay (1.25) American Goldfinch (1.25) Dark-eyed Junco (0.75) Indigo Bunting (0.75) Black and White Warbler (0.75) Common Raven (0.75)		

Hemlock-Northern Hardwoods Forest (HH)

Number of Species	30	Birds Per Count	14.38
Most Abundant Species	Black-throated Green Warbler (2.13) Ovenbird (2.00) Red-eyed Vireo (1.25) Blue Jay (1.00) Black-capped Chickadee (0.75)		

Shrub Swamp (SB)

Number of Species	26	Birds Per Count	15.25
Most Abundant Species	Veery (1.50) Gray Catbird (1.50) Song Sparrow (1.50) Chestnut-sided Warbler (1.25) American Redstart (1.25)		

Shallow Emergent Swamp (SM)

Number of Species	24	Birds Per Count	18.25
Most Abundant Species	Red-eyed Vireo (2.00) Ovenbird (2.00) Song Sparrow(1.75) Least Flycatcher (1.75) Veery (1.50) Wood Thrush (1.50)		

Ski Slope/Beech-Maple Mesic Forest (SS-BM)

Number of Species	23	Birds Per Count	11.00
Most Abundant Species	Chestnut-sided Warbler (1.00) Ovenbird (1.00) Common Yellowthroat (1.00) Wood Thrush (0.75) Red-eyed Vireo (0.75) Black-throated Green Warbler (0.75) Baltimore Oriole (0.75)		

Ski Slope (SS)

Number of Species	22	Birds Per Count	16.50
Most Abundant Species	Mourning Dove (1.50) Rose-breasted Grosbeak (1.50) Common Yellowthroat (1.25) Chipping Sparrow (1.25) American Goldfinch (1.25)		

Hemlock-Northern Hardwoods Forest/Beech-Maple Mesic Forest (HH-BM)

Number of Species	21	Birds Per Count	12.25
Most Abundant Species	Ovenbird (2.50) Black-throated Green Warbler (2.00) Wood Thrush (0.75) American Robin (0.75) Black-capped Chickadee (0.75)		

Beech-Maple Mesic Forest/Intermittent Rocky Stream Wetland (BM-RS)

Number of Species	19	Birds Per Count	14.00
Most Abundant Species	Ovenbird (2.75) Red-eyed Vireo (2.25) Black-throated Green Warbler (1.25) American Redstart (1.25) Eastern Wood-pewee (0.75) Black-capped Chickadee (0.75) Veery (0.75) Wood Thrush (0.75)		

Hemlock-Hardwood Swamp (HS)

Number of Species	19	Birds Per Count	13.00
Most Abundant Species	Black-throated Green Warbler (2.25) Ovenbird (2.25) Black and White Warbler (1.25) Dark-eyed Junco (1.00) Red-eyed Vireo (0.75)		

Hardwood Swamp (HD)

Number of Species	18	Birds Per Count	13.25
Most Abundant Species	Black and White Warbler (1.75) Red-eyed Vireo (1.50) Ovenbird (1.50) Dark-eyed Junco (1.50) American Robin (1.25)		

Clearly, some bird species favor certain community types. For example, of the 13 different areas sampled the ovenbird, red-eyed vireo, and black-throated green warbler appear in the list of the most abundant species more often than any other species. The ovenbird qualified for the most abundant list in 11 of the 13 community types, followed by the red-eyed vireo and black-throated green warbler, which were listed as most abundant in 8 of the 13 community types. This is obviously due to the forested nature of most of the sampling areas and the preferences of these species for forested habitats.

Those bird species that find forested areas less suitable were more limited in their distribution and abundance. For example, the chipping sparrow was considered abundant in only two sampling areas, the successional old field and the ski slope. Likewise, the chestnut-sided warbler and gray catbird, two species that prefer shrub-dominated areas, were abundant in the shrub swamp and ski slope/beechn-maple mesic forest sampling points.

Reptiles and Amphibians

One reptile and nine amphibian species were documented on the project area (Table 5). The distribution and abundance of reptile and amphibian species was basically reflective of their habitat requirements. The Allegheny mountain dusky salamander, northern two-lined salamander, and northern spring salamander were found in association with intermittent streams, thus their primary occurrence in the Intermittent Rocky Stream Wetland community. Those species that display less restrictive habitat requirements, such as the red-spotted newt, wood frog, and eastern red-backed salamander, were recorded in a variety of community types.

Mammals

Twelve mammalian species were recorded during the 2008 surveys (Table 7). With the exception of the white-footed mouse and meadow vole, these species, or their

sign, are easily observable. The meadow vole is the only species of the 12 documented species that is not typically found in forested habitats. The other 11 species utilize either forested communities or a variety of habitats that include forested communities.

DISCUSSION

Birds

Bird observations recorded during 2008, both the point count data and incidental observations, clearly characterize the avian community in the project area as typical of forested habitats in the region. This is as expected given the fact that the vast majority of the project area is forested (see Figure 1).

Non-forested community types, such as shrub swamp (SB), shallow emergent swamp (SM), successional old field (OF), and ski slope (SS), are very limited in size and distribution. The ski slope community type is probably the largest of this non-forested group. Because of their small size, and because the point count sampling recorded all birds seen or heard within a 50-meter radius of the count location, data collected in these small, non-forested community types often included some species associated with adjacent areas, which were forested. For example, data from the successional old field point count locations included species typically found in open fields, plus species common along the edges of open fields and forested habitats, and some species normally associated with forested communities. Again, the project area is mostly forested and thus the breeding birds using the project area are primarily those species associated with forested habitats.

Of the 70 bird species recorded on the project area in 2008, 62 were also noted in the Breeding Bird Atlas blocks that covered this area (Table 4). The nine species recorded on the project area that were not documented during the Breeding Bird Atlas project included: red-bellied woodpecker, eastern phoebe, great-crested flycatcher, winter wren, northern parula, blue-winged warbler, yellow-rumped warbler, black-throated green warbler, blackburnian warbler, and hooded warbler.

It is difficult to draw a meaningful comparison without details regarding the habitat communities associated with the Breeding Bird Atlas. Some species, the red-bellied woodpecker, winter wren, and hooded warbler for example, are not typically very abundant and easily could have been missed by atlas surveyors. However, the fact that the breeding bird atlas data did not include the great-crested- flycatcher, black-throated green warbler, and blackburnian warbler, species found to be quite common in the forested portion of the project area, suggests that the breeding bird atlas surveyors did not thoroughly sample interior portions of forested habitats.

Of the 70 species noted in 2008, 65 species were also documented in studies conducted in 2000 and 2004. The five species recorded in 2008 that were not observed in the previous studies included Canada goose, red-bellied woodpecker, northern

mockingbird, warbling vireo, and hooded warbler. On the other hand, 23 species noted in previous studies were not recorded in 2008. Because the previous studies included both the eastern and western areas, while the 2008 studies occurred only in the western area, differences in habitat conditions probably accounted for at least some of this difference in observed species. For example, species noted previously that were not found in 2008 included such birds as great blue heron, mallard, belted kingfisher, barn swallow, tree swallow, killdeer, and woodcock. These are species typically associated with open water, open fields, and scrub-shrub uplands, habitat types that were not common in the western area surveyed in 2008.

Reptiles and Amphibians (“Herpetofauna”)

The Modified Belleayre Resort project site is situated within an almost entirely forested landscape. While the vast majority is upland deciduous forest, there are several mixed forest stands, and smaller areas of forested wetlands. Although limited in size and extent, the appropriate juxtaposition of upland and wetland communities does exist in several areas on the project site, which supports a number of amphibian and reptile species that are typically found in these habitat types. All amphibian and reptile species observed on the site are considered abundant and widespread throughout New York State.

Ultimately, all amphibians will use some type of aquatic or wetland habitat during their lifecycle; however, some are more dependent on these types of habitats than others. The Allegheny mountain dusky salamander, northern two-lined salamander, and the northern spring salamander are most often found in streams and seeps within a wooded landscape. While still reliant on wetland habitats, the spotted salamander, northern spring peeper, red-spotted newt, and wood frog spend significant portions of their lives in the uplands. During the breeding season, these species commonly use ephemeral woodland pools for mating activities and to deposit eggs. The eastern red-backed salamander is the most terrestrial of the amphibians found on the site, spending its entire life on land. This species is the most abundant salamander in New York State (Gibbs *et al.* 2007).

One reptile species, the common gartersnake was observed on the project site. Gartersnakes are perhaps one of the most ubiquitous reptilians, using both upland and wetland habitats, especially habitat edges, and frequently can be found in urban and suburban environments. The gartersnake, along with black rat snake, red-bellied snake, and northern brown snake were recorded in previous studies.

Of the three frog species found on the site in 2008, two species (northern spring peeper and northern green frog) were also noted in the previous studies. The wood frog, which was recorded in four vegetation cover types in 2008, was not reported previously. Four of the six salamander species noted in 2008 were also previously recorded. Two species (spotted salamander and northern spring salamander) were recorded only in 2008. However, there were three species previously reported that were not found in 2008 - northern dusky salamander, slimy salamander, and American toad. These differences in

recorded species could be due to differences areas searched, weather conditions, or simply random chance.

In addition to the herpetofauna observed on the site, a number of other amphibian and reptile species have been documented in the vicinity of the project area through the New York State Amphibian and Reptile Atlas Project (Table 6). Those species whose habitat requirements include the community types found at the proposed Modified Belleayre Resort, are possible inhabitants of the site.

Other amphibian species that might occur on the site include some stream salamanders (e.g., red salamander), mole salamanders (e.g., marbled salamanders, Jefferson salamanders, and blue-spotted salamanders), and several common anurans (e.g., northern leopard frog and pickerel frog). All of these species use forested uplands or wetlands, and have a significant terrestrial component in their lifecycles.

A variety of reptiles also have the potential to occur at this site; these include the northern ring-necked snake and smooth greensnake. These common snake species use primarily deciduous and mixed forests that provide sufficient cover. Although seemingly rare, these species are more so rarely encountered than absent from the landscape (Gibbs *et al.* 2007).

The range of the eastern box turtle reaches its western limit in the vicinity of the project site. This terrestrial turtle species uses upland forest, as well as open fields and meadows, particularly those areas with sandy or loamy soils, conditions that are not present on the site. While the wood turtle, also a highly terrestrial turtle, has been documented in the vicinity of the project site, this species is highly dependent upon stream and river systems throughout its lifecycle (Gibbs *et al.* 2007). The streams that occur on the project site are intermittent and would not provide suitable habitat for wood turtles.

The species most obviously lacking from this area are those that are highly dependent on permanent wetland habitats, particularly deeper, open water bodies such as lakes, ponds, or marshes. Although a northern green frog was observed on the site, other species with these habitat requirements (e.g., snapping turtles, painted turtles, and American bullfrogs) were not observed on the site, nor are they likely to be found there. One common species that would be expected to be at this site, the gray treefrog, has been noted as being conspicuously absent from the western Catskills (Gibbs *et al.* 2007). Gray treefrogs have been documented in Amphibian and Reptile Atlas blocks adjacent to the project site, but not those in which the site occurs.

Mammals

The 12 species listed on Table 7 were noted incidentally to other field efforts. Three of the species listed on Table 7 were not noted in previous studies, including Virginia opossum, white-footed mouse, and meadow vole. The bobcat and red fox are two species that were recorded previously, but were not noted during the 2008 survey.

There are certainly other mammals expected to inhabit the project area. Following is a brief description of those mammalian species likely to occur. The list is based upon range distributions and habitat requirements as reported by Whitaker and Hamilton (1998).

Shrews and Moles

Of the shrews and moles listed below, undoubtedly the most common inhabitants of the project area are the masked shrew and northern short-tailed shrew. These two species are very common throughout the northeastern United States and are characterized by very general habitat requirements. Based upon habitat conditions, the only mole that is likely to occur is the hairy-tailed mole.

Masked shrew	<i>Sorex cinereus</i>
Long-tailed shrew	<i>Sorex dispar</i>
Pygmy shrew	<i>Sorex hoyi</i>
Northern short-tailed shrew	<i>Blarina brevicauda</i>
Hairy-tailed mole	<i>Parascalops breweri</i>

Bats

Literally any of the bat species noted below could roost on or forage over the project area. Some migratory species, such as the eastern red bat, silver-haired bat, and hoary bat, might also make transient use of the project area during migration. A lack of caves or mines on the project area eliminates the possibility that bats use the area for hibernation during the winter months. The Indiana bat was not included on this list because the elevation of the Modified Belleayre Resort is generally between 2,000 and 3,000 feet above mean sea level, which is considerably higher than elevations reported in association with this species.

Eastern small-footed myotis	<i>Myotis leibii</i>
Little brown bat	<i>Myotis lucifugus</i>
Northern myotis	<i>Myotis septentrionalis</i>
Silver-haired bat	<i>Lasionycteris noctivagus</i>
Eastern pipistrelle	<i>Pipistrellus subflavus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Eastern red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</i>

Rabbits and Rodents

As noted on Table 7, several easily observed rabbit or rodent species were documented on the property (e.g., Eastern cottontail, Eastern chipmunk, gray squirrel, red squirrel, white-footed mouse, meadow vole, and porcupine). Listed below are additional species that may also occur.

The woodchuck could be present on or along the edges of the ski slopes, at least in limited numbers. Either the Northern or Southern flying squirrel is probably present in the forested communities. Northern flying squirrels are often more common at higher elevations than Southern flying squirrels, but considering the elevational changes across the property it is difficult to predict which species is present. The presence of Southern flying squirrels may depend upon the abundance of oaks, as this species tends to forage more on hard mast than Northern flying squirrels.

A somewhat similar situation exists regarding the deer mouse, which is typically found more often in forested mountainous areas than the white-footed mouse. In this case, either species, or perhaps both species, may be very common. Both the Southern red-backed vole and the woodland vole also could be present, with the Southern red-backed vole being more likely to occur.

Woodchuck	<i>Marmota monax</i>
Northern flying squirrel	<i>Glaucomys sabrinus</i>
Southern flying squirrel	<i>Glaucomys volans</i>
Deer mouse	<i>Peromyscus maniculatus gracilis</i>
Southern red-backed vole	<i>Clethrionomys gapperi</i>
Woodland vole	<i>Microtus pinetorum</i>

Carnivores

Coyote, black bear, and raccoon were documented on the property (Table 7). In addition, the species listed below may also occur. Both red fox and gray fox are possible inhabitants of the property, with the gray fox being more likely to occur considering the habitat conditions. The occurrence of fishers is more speculative, but considering the recent expansion of their range in New York State, this species cannot be ruled out. Either the short-tailed or long-tailed weasel may occur, and striped skunk is most certainly present on the property.

Red fox	<i>Vulpes vulpes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Fisher	<i>Martes pennanti</i>
Short-tailed weasel	<i>Mustela erminea</i>
Long-tailed weasel	<i>Mustela frenata</i>
Striped skunk	<i>Mephitis mephitis</i>

Rare Species

No threatened or endangered species are known from the project area (see letter dated May 8, 2008 - copy attached) and none were found during the 2008 field survey. Only the sharp-shinned hawk, a species listed as being of Special Concern in New York State, was documented on the project area. A detailed discussion of this species is presented below.

Sharp-shinned Hawk

During the breeding bird surveys, multiple observations of two adult sharp-shinned hawks were made in an area of mixed upland forest (Point Count Location W-17-HH-BM) (Figure 1) on the northeastern portion of the site. Based on behaviors exhibited by these birds and their continued presence in this location during the breeding season, it was thought that this pair might be nesting or brooding young in the area. A separate visit to the site was requested to verify whether or not reproduction by sharp-shinned hawks, a New York State Species of Special Concern, had occurred on the project area.

Sharp-shinned hawks breed in coniferous and mixed forests, often near openings or forest edges. The breeding season begins in April or May and by mid- to late-summer, the young fledge. Stick nests (14 to 24 inches wide and 4 to 6 inches deep) are constructed along the trunks of mature trees (typically conifer trees) on horizontal limbs that may be 20 to 60 feet above the ground (Bildstein and Meyer 2000). While nests may be difficult to see in the dense tree canopy, they can often be located by the presence of fecal material (i.e., whitewash) on the tree trunk and on the ground. One of the best indicators of an active nest in a sharp-shinned hawk territory is a plucking post. A plucking post is a tree stump or snag within the territory that is used as a perch while the bird removes feathers from its prey. These posts can be recognized by the accumulation of feathers and whitewash near the base (Cornell 2001, CT DEP 2008).

Both breeding and territorial behaviors of sharp-shinned hawks include vocalizations (most commonly, a 'kik-kik-kik' call) and an undulating flight display. The calls and flight displays are performed during courtship, as well as in response to intruders in the vicinity of a nest. If young are present, they can be heard giving begging calls or hunger shrieks, which sound different than the calls of the adults (Cornell 2008).

During the bird surveys conducted in May and June, 2008, an adult sharp-shinned hawk was observed perched and flying in the understory of a hemlock-northern hardwood forest stand where one of the survey points was located (W-17-HH-BM). On several occasions, an adult was heard performing the characteristic kik-kik-kik call in this area. At that time, no young birds were observed and no specific effort was made to look for other indicators of nesting.

On July 11, 2008, another field visit was made to the project site to look for evidence of successful reproduction by sharp-shinned hawks. Survey efforts were concentrated in the aforementioned hemlock-northern hardwood forest stand. A small amount of time (2 person-hours) was also spent in a nearby hemlock-northern hardwood stand to the west. Investigators looked and listened for adult and juvenile birds, searched for a nest and a plucking post, and looked for areas with prey remains or whitewash. After 9.5 person-hours on the site, no sharp-shinned hawks were seen or heard, and no other evidence of reproduction was found. Thus, the use of the project area for nesting by sharp-shinned hawks was not observed.

Bicknell's Thrush

The potential occurrence of Bicknell's thrush (*Catharus bicknelli*) was mentioned during the course of this project. Bicknell's thrush is listed as Special Concern in New York State. For several reasons it is highly unlikely that Bicknell's thrush inhabits the project area.

First, this species was recorded on neither the Breeding Bird Atlas Survey nor during any of the on-site bird surveys. Second, habitat conditions do not appear suitable for Bicknell's thrush. A detailed description of habitat conditions known to be associated with this species is presented by Rimmer *et. al.* (2001).

Elevation is perhaps the key issue regarding the potential for this species to breed on the project area. Rimmer *et. al.* (2001) notes that Bicknell's thrush normally breeds in forested mountains above elevations of 1,100 meters (approximately 3,575 feet). They cite one exception from Vermont where Bicknell's thrush was recorded breeding at an elevation of 1,006 meters (approximately 3,270 feet). The highest elevation on the Modified Belleayre Resort project area is about 3,110 feet, close to but below the exception noted in Vermont. Discounting that one exception, the project area is well below the minimum elevation of 3,575 feet reported in the literature.

Vegetation communities found on the Modified Belleayre project area also differ from preferred conditions described by Rimmer *et. al.*(2001). In general, habitat conditions reported to be associated with breeding Bicknell's thrush are dominated by balsam fir, spruce, birch, mountain ash and other hardwoods. There also seems to be a preference for recently disturbed communities dominated by these tree species. Such disturbed areas are described by Rimmer *et. al.* (2001) as, "...dense, stunted fir on exposed ridgelines or along edges of human-created openings (e.g., ski trails),...". Although the Modified Belleayre project area does include ski trails, it lacks the "dense, stunted fir on exposed ridgelines" reported by Rimmer *et. al.* (2001). Thus the lack of appropriate vegetation conditions, in conjunction with the fact that the project area is below elevations reportedly associated with this species, makes it highly unlikely that Bicknell's thrush breed on the project area, a conclusion supported by the fact that the breeding bird survey failed to document the presence of Bicknell's thrush.

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Table 1

Breeding Birds Recorded at the Modified Belleayre Resort at Catskill Park Project Site
Towns of Shandaken and Middletown, Ulster and Delaware Counties, New York

BIRDS		VEGETATION COVER TYPES ^(a)										
Common Name ^(b)	Scientific Name	BM	HD	HH	HS	OF	PP	RS	SB	SH	SM	SS
Canada goose	<i>Branta canadensis</i>	-	-	-	X	-	-	-	-	-	-	-
Sharp-shinned hawk*	<i>Accipiter striatus</i>	X	-	X	-	-	-	-	-	-	-	-
Red-tailed hawk*	<i>Buteo jamaicensis</i>	X	X	X	-	-	-	-	-	-	-	-
Ruffed grouse*	<i>Bonasa umbellus</i>	-	-	X	X	-	X	-	X	-	-	-
Wild turkey*	<i>Meleagris gallopavo</i>	X	-	-	-	-	-	-	X	X	-	-
Mourning dove*	<i>Zenaida macroura</i>	X	-	X	-	-	-	-	X	-	-	X
Black-billed cuckoo*	<i>Coccyzus erythrophthalmus</i>	-	-	-	-	-	X	-	-	-	-	-
Yellow-billed cuckoo*	<i>Coccyzus americanus</i>	X	-	-	-	-	-	X	-	-	-	X
Barred owl*	<i>Stryx varia</i>	X	-	-	-	-	-	-	-	-	-	-
Chimney swift*	<i>Chaetura pelagica</i>	-	-	-	-	-	-	-	-	-	-	X
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	-	-	-	-	-	-	-	-	X	-	-
Yellow-bellied sapsucker*	<i>Sphyrapicus varius</i>	X	X	X	X	X	X	-	-	-	-	-
Downy woodpecker*	<i>Picoides pubescens</i>	X	X	X	-	X	-	-	-	-	X	-
Hairy woodpecker*	<i>Picoides villosus</i>	X	-	-	-	-	-	-	-	-	-	-
Northern flicker*	<i>Colaptes auratus</i>	-	-	-	-	-	-	-	-	X	-	X
Pileated woodpecker*	<i>Dryocopus pileatus</i>	-	-	-	-	-	-	-	-	X	-	-
Eastern wood-pewee*	<i>Contopus virens</i>	X	X	-	-	-	X	X	-	-	X	X
Least flycatcher*	<i>Empidonax minimus</i>	X	-	-	-	-	X	-	X	X	X	-
Eastern phoebe*	<i>Sayornis phoebe</i>	X	-	-	-	X	-	-	X	X	-	-
Great crested flycatcher*	<i>Myiarchus crinitus</i>	X	-	X	-	-	X	X	-	X	-	-

^(a) Vegetation cover types observed by The LA Group are as follows: BM = Beech-Maple Mesic Forest, HD = Hardwood Swamp, HH = Hemlock-Northern Hardwood Forests, HS = Hemlock-Northern Hardwoods Swamp, OF = Successional Old Forest, PP = Pine Plantation, RS = Intermittent Rocky Stream Wetland, SB = Shrub Swamp, SH = Successional Northern Hardwoods Forest, SM = Shallow Emergent Swamp, SS = Ski Slope.

^(b) Common and scientific names according to AOU (1998) and supplements through 2006.

* Species recorded in previous studies.

Table 1 (continued)

BIRDS		VEGETATION COVER TYPES ^(a)										
Common Name ^(b)	Scientific Name	BM	HD	HH	HS	OF	PP	RS	SB	SH	SM	SS
Blue jay*	<i>Cyanocitta cristata</i>	X	X	X	X	X	X	X	-	X	-	X
American crow*	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X	X	X	X	X	X
Common raven*	<i>Corvus corax</i>	-	-	-	-	-	X	-	-	X	-	-
Black-capped chickadee*	<i>Parus atricapillus</i>	X	X	X	-	X	X	X	X	X	X	-
Tufted titmouse*	<i>Parus bicolor</i>	-	-	-	-	-	-	-	-	-	X	-
White-breasted nuthatch*	<i>Sitta carolinensis</i>	X	-	-	-	-	X	-	-	X	-	-
Brown creeper*	<i>Certhia americana</i>	X	-	-	-	-	-	-	-	X	-	-
House wren*	<i>Troglodytes aedon</i>	-	-	-	-	-	-	-	-	-	X	-
Winter wren*	<i>Troglodytes troglodytes</i>	X	-	-	-	-	-	X	X	-	-	-
Golden-crowned kinglet*	<i>Regulus satrapa</i>	X	-	X	-	X	X	-	-	-	-	-
Veery*	<i>Catharus fuscescens</i>	X	-	-	X	-	X	X	X	-	X	X
Hermit thrush*	<i>Catharus guttatus</i>	X	-	X	X	X	X	-	-	X	-	X
Wood thrush*	<i>Hylocichla mustelina</i>	X	-	X	-	X	X	X	-	X	X	X
American robin*	<i>Turdus migratorius</i>	X	X	X	X	X	X	-	X	X	X	X
Gray catbird*	<i>Dumetella carolinensis</i>	X	-	-	-	X	X	-	X	-	X	X
Northern mockingbird	<i>Mimus polyglottos</i>	X	-	-	-	-	-	-	-	-	-	-
Cedar waxwing*	<i>Bombycilla cedrorum</i>	-	-	-	-	X	-	-	X	-	-	-
Blue-headed vireo*	<i>Vireo solitarius</i>	X	-	X	X	X	X	-	-	X	-	-
Warbling vireo	<i>Vireo gilvus</i>	-	-	-	-	-	-	-	X	-	-	-
Red-eyed vireo*	<i>Vireo olivaceus</i>	X	X	X	X	X	X	X	X	X	X	X
Blue-winged warbler*	<i>Vermivora pinus</i>	-	-	-	-	-	X	-	-	-	-	-
Nashville warbler*	<i>Vermivora ruficapilla</i>	-	-	X	-	-	-	-	-	-	-	X
Yellow warbler*	<i>Dendroica petechia</i>	X	-	X	-	-	X	-	X	X	-	-
Chestnut-sided warbler*	<i>Dendroica pensylvanica</i>	X	-	-	X	X	X	-	X	-	-	X
Magnolia warbler*	<i>Dendroica magnolia</i>	X	-	-	-	X	-	-	-	-	-	-
Black-throated blue warbler*	<i>Dendroica caerulescens</i>	X	-	-	-	-	X	-	-	-	X	X
Black-throated green warbler*	<i>Dendroica virens</i>	X	X	X	X	X	X	X	X	X	X	X

* Species recorded in previous studies.

Table 1 (continued)

BIRDS		VEGETATION COVER TYPES ^(a)										
Common Name ^(b)	Scientific Name	BM	HD	HH	HS	OF	PP	RS	SB	SH	SM	SS
Blackburnian warbler*	<i>Dendroica fusca</i>	X	-	X	X	X	X	-	-	X	-	-
Black-and-white warbler*	<i>Mniotilta varia</i>	X	X	X	X	X	X	X	X	X	-	X
American redstart*	<i>Setophaga ruticilla</i>	X	X	X	X	X	X	X	X	X	X	X
Worm-eating warbler*	<i>Helminthos vermivorus</i>	X	X	X	-	X	X	X	-	-	X	-
Ovenbird*	<i>Seiurus aurocapillus</i>	X	X	X	X	X	X	X	X	X	X	X
Common yellowthroat*	<i>Geothlypis trichas</i>	X	-	X	-	X	-	-	X	X	-	X
Hooded warbler	<i>Wilsonia citrina</i>	X	-	-	-	-	-	-	-	-	-	-
Scarlet tanager*	<i>Piranga olivacea</i>	X	-	X	-	X	X	X	-	-	X	-
Rose-breasted grosbeak*	<i>Pheucticus ludovicianus</i>	X	X	X	-	X	-	-	X	-	X	X
Indigo bunting*	<i>Passerina cyanea</i>	X	-	X	-	X	-	-	-	X	-	X
Eastern towhee*	<i>Pipilo erythrophthalmus</i>	X	-	-	-	-	-	-	-	-	-	X
Chipping sparrow*	<i>Spizella passerina</i>	X	-	-	-	X	X	-	-	X	-	X
Field sparrow*	<i>Spizella pusilla</i>	X	-	-	-	X	-	-	-	-	-	X
Song sparrow*	<i>Melospiza melodia</i>	X	-	-	-	X	-	-	X	-	X	X
Dark-eyed junco*	<i>Junco hyemalis</i>	X	X	X	X	X	X	X	-	X	X	X
Red-winged blackbird*	<i>Agelaius phoeniceus</i>	X	-	-	-	X	-	-	-	-	-	-
Common grackle*	<i>Quiscalus quiscula</i>	X	-	-	-	-	-	-	X	-	-	-
Brown-headed cowbird*	<i>Molothrus ater</i>	X	X	-	-	X	X	X	-	-	X	-
Baltimore oriole*	<i>Icterus galbula</i>	X	-	-	X	-	-	-	-	X	-	X
Purple finch*	<i>Carpodacus purpureus</i>	-	-	-	-	X	-	-	-	-	-	-
American goldfinch*	<i>Carduelis tristis</i>	X	-	X	-	X	X	-	X	X	-	-

* Species recorded in previous studies.

Table 2

**Incidental Bird Observations at the Modified Belleayre Resort at Catskill Park Project Site
Towns of Shandaken and Middletown, Ulster and Delaware Counties, New York
2008**

BIRDS		VEGETATION COVER TYPES^(a)											
Common Name^(b)	Scientific Name	BM	HD	HH	HS	OF	ML	PP	RS	SB	SH	SM	SS
Wild turkey*	<i>Meleagris gallopavo</i>	X	-	-	-	-	-	-	-	-	X	-	-
Sharp-shinned hawk*	<i>Accipiter striatus</i>	-	-	X	-	-	-	-	-	-	-	-	-
Mourning dove*	<i>Zenaida macroura</i>	-	-	-	-	X	X	-	-	-	-	-	-
Chimney swift*	<i>Chaetura pelagica</i>	X	-	-	-	-	-	-	-	-	-	-	X
Ruby-throated hummingbird*	<i>Archilochus colubris</i>	X	-	-	-	-	-	-	-	-	-	-	X
Eastern wood-pewee*	<i>Contopus virens</i>	X	-	X	-	-	-	-	-	-	-	-	-
Least flycatcher*	<i>Empidonax minimus</i>	X	-	-	-	-	-	-	-	-	-	X	-
Eastern phoebe*	<i>Sayornis phoebe</i>	X	-	X	-	X	X	-	-	-	-	-	-
Great crested flycatcher*	<i>Myiarchus crinitus</i>	X	-	-	-	-	-	-	-	-	-	-	-
Blue-headed vireo*	<i>Vireo solitarius</i>	X	-	X	-	-	-	-	-	-	-	-	-
Red-eyed vireo*	<i>Vireo olivaceus</i>	X	X	X	X	-	-	-	X	X	X	X	-
Blue jay*	<i>Cyanocitta cristata</i>	X	-	X	-	X	X	-	-	-	-	-	-
American crow*	<i>Corvus brachyrhynchos</i>	X	-	X	-	-	-	-	-	-	X	-	-
Common raven*	<i>Corvus corax</i>	-	X	-	-	-	-	-	-	-	X	-	-
Black-capped chickadee*	<i>Parus atricapillus</i>	X	-	X	-	X	X	-	-	-	-	X	-
Winter wren*	<i>Troglodytes troglodytes</i>	X	-	-	-	-	-	-	-	-	-	-	X
Veery*	<i>Catharus fuscescens</i>	X	-	X	X	-	-	-	-	X	-	X	-
Hermit thrush*	<i>Catharus guttatus</i>	X	-	X	X	-	-	X	-	-	-	-	-
Wood thrush*	<i>Hylocichla mustelina</i>	X	-	X	-	-	-	-	-	-	-	-	-
American robin*	<i>Turdus migratorius</i>	X	-	X	-	-	-	-	-	X	X	X	-

^(a) Vegetation cover types observed by The LA Group are as follows: BM = Beech-Maple Mesic Forest, HD = Hardwood Swamp, HH = Hemlock-Northern Hardwood Forests, HS = Hemlock-Northern Hardwoods Swamp, OF = Successional Old Forest, ML = Mowed Lawn with Trees, PP = Pine Plantation, RS = Intermittent Rocky Stream Wetland, SB = Shrub Swamp, SH = Successional Northern Hardwoods Forest, SM = Shallow Emergent Swamp, SS = Ski Slope.

^(b) Common and scientific names according to AOU (1998) and supplements through 2006.

* Species recorded in previous studies.

Table 2 (continued)

BIRDS		VEGETATION COVER TYPES ^(a)											
Common Name ^(b)	Scientific Name	BM	HD	HH	HS	OF	ML	PP	RS	SB	SH	SM	SS
Gray catbird*	<i>Dumetella carolinensis</i>	X	-	X	-	X	X	-	-	X	-	X	X
Cedar waxwing*	<i>Bombycilla cedrorum</i>	-	-	-	-	X	-	-	-	X	-	-	-
Nashville warbler*	<i>Vermivora ruficapilla</i>	X	-	-	-	-	-	-	-	-	-	-	X
Louisiana waterthrush*	<i>Seiurus motacilla</i>	-	-	-	-	-	-	-	X	-	-	-	-
Northern parula*	<i>Parula americana</i>	X	-	-	-	-	-	-	-	-	-	-	-
Chestnut-sided warbler*	<i>Dendroica pensylvanica</i>	X	-	-	-	X	X	-	-	-	-	-	-
Black-throated blue warbler*	<i>Dendroica caerulescens</i>	X	-	-	-	-	-	-	-	-	-	-	X
Black-throated green warbler*	<i>Dendroica virens</i>	-	X	X	X	X	X	-	X	X	-	X	X
Blackburnian warbler*	<i>Dendroica fusca</i>	X	-	X	-	X	X	-	-	-	-	X	-
Black-and-white warbler*	<i>Mniotilta varia</i>	X	-	X	-	-	-	-	-	-	-	-	X
American redstart*	<i>Setophaga ruticilla</i>	X	-	X	-	-	-	-	-	-	-	-	-
Worm-eating warbler*	<i>Helmitheros vermivorus</i>	X	X	-	-	-	-	X	-	-	-	-	-
Ovenbird*	<i>Seiurus aurocapillus</i>	X	X	X	X	-	-	X	X	X	X	X	-
Common yellowthroat*	<i>Geothlypis trichas</i>	-	-	-	-	-	-	-	-	X	X	-	-
Scarlet tanager*	<i>Piranga olivacea</i>	X	-	X	-	-	-	-	-	-	-	-	-
Eastern towhee*	<i>Pipilo erythrophthalmus</i>	X	-	-	-	-	-	-	-	-	-	-	X
Chipping sparrow*	<i>Spizella passerina</i>	X	-	X	-	X	X	-	-	-	-	-	-
Field sparrow*	<i>Spizella pusilla</i>	-	-	-	-	-	X	-	-	X	-	X	-
Song sparrow*	<i>Melospiza melodia</i>	-	-	-	-	X	X	-	-	-	-	-	-
Dark-eyed junco*	<i>Junco hyemalis</i>	X	X	X	-	X	X	X	-	-	-	-	-
Rose-breasted grosbeak*	<i>Pheucticus ludovicianus</i>	X	-	-	-	-	-	-	-	-	-	-	-
Indigo bunting*	<i>Passerina cyanea</i>	X	-	-	-	-	-	-	-	-	X	-	-
Red-winged blackbird*	<i>Agelaius phoeniceus</i>	-	-	-	-	-	-	-	-	X	-	X	-
Brown-headed cowbird*	<i>Molothrus ater</i>	-	-	-	-	X	X	-	-	-	-	-	-
Purple finch*	<i>Carpodacus purpureus</i>	-	-	-	-	X	X	-	-	-	-	-	-
American goldfinch*	<i>Carduelis tristis</i>	-	-	-	-	X	X	-	-	-	-	-	-

* Species recorded in previous studies.

Table 3
Birds Observed Per 10-Minute Point Count
Modified Belleayre Resort at Catskill Park Project Site - 2008

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Canada goose <i>Branta canadensis</i>						0.25							
Sharp-shinned hawk <i>Accipiter striatus</i>				0.63	0.50								
Red-tailed hawk <i>Buteo jamaicensis</i>			0.25		0.25								
Ruffed grouse <i>Bonasa umbellus</i>				0.13		0.25		0.13	0.25				
Wild turkey <i>Meleagris gallopavo</i>	0.13								0.25	0.25			
Mourning dove <i>Zenaida macroura</i>	0.31			0.13					0.25			1.50	
Black-billed cuckoo <i>Coccyzus erythrophthalmus</i>								0.13					
Yellow-billed cuckoo <i>Coccyzus americanus</i>	0.13	0.25											0.25
Barred owl <i>Stryx varia</i>	0.06												
Chimney swift <i>Chaetura pelagica</i>													0.75
Red-bellied woodpecker <i>Melanerpes carolinus</i>										0.25			

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Yellow-bellied sapsucker <i>Sphyrapicus varius</i>	0.25		0.25	0.25	0.25	0.50	0.17	0.75					
Downy woodpecker <i>Picoides pubescens</i>	0.13		0.25	0.13			0.08				0.25		
Hairy woodpecker <i>Picoides villosus</i>	0.25												
Northern flicker <i>Colaptes auratus</i>										0.25		0.25	
Pileated woodpecker <i>Dryocopus pileatus</i>										0.25			
Eastern wood-pewee <i>Contopus virens</i>	0.06	0.75	0.75					0.13			0.25	0.25	
Least flycatcher <i>Empidonax minimus</i>	0.56							0.38	0.25	0.25	1.75		
Eastern phoebe <i>Sayornis phoebe</i>	0.38						0.08		0.25	0.50			
Great crested flycatcher <i>Myiarchus crinitus</i>		0.25		0.13				0.13		0.50			
Blue jay <i>Cyanocitta cristata</i>	0.31	0.25	0.50	1.00	0.50	0.50	0.58	0.25		1.25		0.50	
American crow <i>Corvus brachyrhynchos</i>	1.13	0.25	0.75	0.63	0.50	0.50	0.42	0.38	0.75	0.50	0.25	0.50	0.25
Common raven <i>Corvus corax</i>								0.13		0.75			

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Black-capped chickadee <i>Parus atricapillus</i>	0.81	0.75	0.50	0.75	0.75		0.17	0.63	0.50	0.25	1.00		
Tufted titmouse <i>Parus bicolor</i>												0.25	
White-breasted nuthatch <i>Sitta carolinensis</i>	0.19							0.25		0.50			
Brown creeper <i>Certhia americana</i>	0.06									0.25			
House wren <i>Troglodytes aedon</i>												0.25	
Winter wren <i>Troglodytes troglodytes</i>		0.25							0.25				
Golden-crowned kinglet <i>Regulus satrapa</i>					0.25		0.17	0.13					
Veery <i>Catharus fuscescens</i>	0.38	0.75				0.25		0.38	1.50		1.50		0.25
Hermit thrush <i>Catharus guttatus</i>	0.19			0.13		0.50	0.17	0.50		0.50			0.25
Wood thrush <i>Hylocichla mustelina</i>	0.81	0.75		0.63	0.75		0.25	0.25		0.25	1.50		0.75
American robin <i>Turdus migratorius</i>	0.88		1.25	0.50	0.75	0.50	0.83	1.13	0.75	0.50	1.25	1.00	
Gray catbird <i>Dumetella carolinensis</i>	0.06						0.33	0.13	1.50		0.25	0.50	0.25

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Northern mockingbird <i>Mimus polyglottos</i>	0.06												
Cedar waxwing <i>Bombycilla cedrorum</i>							0.17		0.25				
Blue headed vireo <i>Vireo solitarius</i>	0.13			0.38	0.25	0.25	0.08	0.38		0.50			
Warbling vireo <i>Vireo gilvus</i>									0.25				
Red-eyed vireo <i>Vireo olivaceus</i>	1.38	2.25	1.50	1.25	0.25	0.75	0.50	1.38	0.75	0.25	2.00	0.50	0.75
Blue-winged warbler <i>Vermivora pinus</i>								0.13					
Nashville warbler <i>Vermivora ruficapilla</i>				0.13								0.75	
Yellow warbler <i>Dendroica petechia</i>									0.25				
Chestnut-sided warbler <i>Dendroica pensylvanica</i>	0.25					0.25	0.08	0.25	1.25				1.00
Magnolia warbler <i>Dendroica magnolia</i>	0.06						0.17						
Black-throated blue warbler <i>Dendroica caerulescens</i>								0.13			0.50		0.50
Yellow-rumped warbler <i>Dendroica coronata</i>	0.06			0.13	0.25			0.50		0.25			

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Black-throated green warbler <i>Dendroica virens</i>	0.88	1.25	0.50	2.13	2.00	2.25	0.92	0.88	0.25	0.50	0.25	0.25	0.75
Blackburnian warbler <i>Dendroica fusca</i>	0.38			0.63	0.50	0.50	0.08	0.88		0.50			
Black-and-white warbler <i>Mniotilta varia</i>	0.38	0.50	1.75	0.63	0.25	1.25	0.25	0.88	0.25	0.75			0.25
American redstart <i>Setophaga ruticilla</i>	0.31	1.25	0.50	0.13	0.50	0.25	0.08	0.13	1.25	0.25	1.00	0.25	
Worm-eating warbler <i>Helmitheros vermivorus</i>	0.13	0.25	0.50	0.13			0.08	0.25			0.25		
Ovenbird <i>Seiurus aurocapillus</i>	2.94	2.75	1.50	2.00	2.50	2.25	1.08	1.50	0.75	1.75	2.00	0.50	1.00
Common yellowthroat <i>Geothlypis trichas</i>	0.06			0.13			0.33		0.75	0.50	0.75	1.25	1.00
Hooded warbler <i>Wilsonia citrina</i>	0.06												
Scarlet tanager <i>Piranga olivacea</i>	0.38	0.50		0.50	0.50		0.25	0.50	0.25		0.25	0.50	0.25
Rose-breasted grosbeak <i>Pheucticus ludovicianus</i>	0.25		0.25	0.13			0.08		0.25		0.25	1.50	0.25
Indigo bunting <i>Passerina cyanea</i>	0.13			0.25			0.08			0.75		0.50	0.25
Rufous-sided towhee <i>Pipilo erythrophthalmus</i>	0.06												0.50

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Chipping sparrow <i>Spizella passerina</i>	0.13						1.42	0.25		0.25		1.25	0.25
Field sparrow <i>Spizella pusilla</i>							0.08						0.50
Song sparrow <i>Melospiza melodia</i>	0.19						0.42		1.50		1.75	1.00	0.25
Dark-eyed junco <i>Junco hyemalis</i>	0.38	0.25	1.50	0.25		1.00	0.42	0.88		0.75	0.25	1.00	0.50
Red-winged blackbird <i>Agelaius phoeniceus</i>	0.13						0.08						
Common grackle <i>Quiscalus quiscula</i>	0.06								0.25				
Brown-headed cowbird <i>Molothrus ater</i>	0.06	0.25	0.50				0.17	0.13			0.25		
Baltimore oriole <i>Icterus galbula</i>	0.44					0.25				0.25		0.75	0.75
Purple finch <i>Carpodacus purpureus</i>							0.25						
American goldfinch <i>Carduelis tristis</i>				0.13	0.25		0.42	0.50	0.50	1.25		1.25	0.25
Woodpecker sp. <i>unid.</i>	0.25	0.50	0.25	0.25	0.25	0.75	0.08	0.13		0.25	0.25		
Unidentified sp. <i>unid.</i>	0.06			0.25	0.25		0.08						

Table 3 (continued)

Cover Type:	BM	BM-RS	HD	HH	HH-BM	HS	OF	PP	SB	SH	SM	SS	SS-BM
Total Number of Species:	47	19	18	30	21	19	36	35	26	31	24	22	23
Number of 10 Minute Samples:	16	8	4	8	4	4	12	8	4	4	4	4	4
Total Number of Birds Per 10 Minute Sample:	16.63	14.00	13.25	14.38	12.25	13.00	10.92	15.38	15.25	15.75	18.25	16.50	11.00

Table 4

**Breeding Birds in Atlas Blocks 5366A, 5366B, 5366C and 5366D
Towns of Shandaken and Middletown, Ulster and Delaware Counties, New York**

BIRDS		ATLAS BLOCK^(a)							
Common Name^(b)	Scientific Name	5366A (1980- 1985)	5366A (2000- 2005)	5366B (1980- 1985)	5366B (2000- 2005)	5366C (1980- 1985)	5366C (2000- 2005)	5366D (1980- 1985)	5366D (2000- 2005)
Great blue heron	<i>Ardea herodias</i>	POS	-	-	POS	-	POS	-	POS
Turkey vulture	<i>Cathartes aura</i>	PRO	PRO	POS	POS	POS	POS	POS	POS
Canada goose	<i>Branta canadensis</i>	-	CON	-	-	-	CON	-	-
Wood duck	<i>Aix sponsa</i>	-	-	-	POS	-	-	-	-
American black duck	<i>Anas rubripes</i>	-	CON	-	-	-	-	-	-
Mallard	<i>Anas platyrhynchos</i>	-	PRO	-	-	-	PRO	-	-
Common merganser	<i>Mergus merganser</i>	-	CON	-	-	-	-	-	-
Bald eagle	<i>Haliaeetus leucocephalus</i>	-	-	-	-	-	POS	-	-
Sharp-shinned hawk	<i>Accipiter striatus</i>	-	-	-	POS	-	POS	-	-
Cooper's hawk	<i>Accipiter cooperii</i>	-	-	-	-	-	-	POS	-
Broad-winged hawk	<i>Buteo platypterus</i>	POS	-	POS	POS	-	-	-	-
Red-tailed hawk	<i>Buteo jamaicensis</i>	POS	-	-	-	POS	POS	POS	-
American kestrel	<i>Falco sparverius</i>	PRO	-	POS	-	-	POS	-	-
Ring-necked pheasant	<i>Phasianus colchicus</i>	CON	-	-	-	-	-	-	-
Ruffed grouse	<i>Bonasa umbellus</i>	-	-	-	-	-	CON	CON	POS
Wild turkey	<i>Meleagris gallopavo</i>	-	-	CON	POS	-	CON	-	-
Killdeer	<i>Charadrius vociferus</i>	PRO	CON	-	CON	-	-	-	-
Spotted sandpiper	<i>Actitis macularia</i>	-	PRO	-	-	-	-	-	-
American woodcock	<i>Scolopax minor</i>	-	-	-	POS	-	-	-	-
Rock dove	<i>Columba livia</i>	PRO	PRO	-	POS	-	CON	-	-
Mourning dove	<i>Zenaida macroura</i>	PRO	PRO	POS	POS	POS	POS	PRO	PRO
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	-	-	POS	CON	-	-	POS	-

^(a) Recorded in Blocks 5366A, 5366B, 5366C, and 5366D, 1980-1985 and 2000-2005. CON = Confirmed Breeder, PRO = Probable Breeder, POS = Possible Breeder.

^(b) Common and scientific names according to AOU (1998) and supplements through 2006.

Table 4 (continued)

BIRDS		ATLAS BLOCK ^(a)							
Common Name ^(b)	Scientific Name	5366A (1980- 1985)	5366A (2000- 2005)	5366B (1980- 1985)	5366B (2000- 2005)	5366C (1980- 1985)	5366C (2000- 2005)	5366D (1980- 1985)	5366D (2000- 2005)
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	-	-	-	-	POS	-	-	POS
Barred owl	<i>Stryx varia</i>	-	-	-	POS	-	POS	-	POS
Chimney swift	<i>Chaetura pelagica</i>	PRO	PRO	POS	-	POS	-	PRO	POS
Ruby-throated hummingbird	<i>Archilochus colubris</i>	-	PRO	POS	POS	PRO	CON	-	POS
Belted kingfisher	<i>Ceryle alcyon</i>	CON	POS	-	POS	-	POS	-	-
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	-	PRO	CON	CON	POS	CON	PRO	CON
Downy woodpecker	<i>Picoides pubescens</i>	CON	POS	POS	POS	POS	POS	PRO	POS
Hairy woodpecker	<i>Picoides villosus</i>	-	POS	-	-	POS	-	-	POS
Northern flicker	<i>Colaptes auratus</i>	CON	POS	POS	POS	POS	POS	POS	POS
Pileated woodpecker	<i>Dryocopus pileatus</i>	-	POS	-	-	-	POS	-	-
Eastern wood-pewee	<i>Contopus virens</i>	-	PRO	POS	-	-	POS	PRO	POS
Least flycatcher	<i>Empidonax minimus</i>	PRO	POS	PRO	POS	POS	PRO	CON	-
Yellow-throated vireo	<i>Vireo flavifrons</i>	-	-	-	-	POS	-	POS	PRO
Blue-headed vireo	<i>Vireo solitarius</i>	CON	POS	POS	POS	-	PRO	PRO	PRO
Warbling vireo	<i>Vireo gilvus</i>	-	POS	-	-	POS	-	PRO	POS
Red-eyed vireo	<i>Vireo olivaceus</i>	CON	PRO	POS	PRO	POS	PRO	PRO	CON
Blue jay	<i>Cyanocitta cristata</i>	CON	PRO	CON	POS	CON	POS	CON	POS
American crow	<i>Corvus brachyrhynchos</i>	CON	CON	POS	POS	POS	POS	POS	POS
Common raven	<i>Corvus corax</i>	-	POS	-	-	-	POS	-	-
Tree swallow	<i>Tachycineta bicolor</i>	CON	CON	CON	CON	POS	CON	-	CON
Bank swallow	<i>Riparia riparia</i>	CON	-	-	-	-	-	-	-
Cliff swallow	<i>Petrochelidon pyrrhonota</i>	CON	-	POS	-	CON	CON	POS	CON
Barn swallow	<i>Hirundo rustica</i>	CON	CON	CON	CON	CON	CON	CON	CON
Black-capped chickadee	<i>Parus atricapillus</i>	CON	PRO	CON	POS	POS	CON	CON	POS
Tufted titmouse	<i>Parus bicolor</i>	CON	PRO	POS	POS	-	-	CON	CON
White-breasted nuthatch	<i>Sitta carolinensis</i>	CON	-	CON	POS	POS	POS	POS	POS
Brown creeper	<i>Certhia americana</i>	-	PRO	POS	-	-	-	-	PRO
Carolina wren	<i>Thryothorus ludovicianus</i>	-	POS	-	-	-	-	-	-

Table 4 (continued)

BIRDS		ATLAS BLOCK ^(a)							
Common Name ^(b)	Scientific Name	5366A (1980- 1985)	5366A (2000- 2005)	5366B (1980- 1985)	5366B (2000- 2005)	5366C (1980- 1985)	5366C (2000- 2005)	5366D (1980- 1985)	5366D (2000- 2005)
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	PRO	-	CON	PRO	POS	-	-	-
Chipping sparrow	<i>Spizella passerina</i>	CON	PRO	CON	CON	CON	CON	CON	CON
Field sparrow	<i>Spizella pusilla</i>	PRO	POS	CON	PRO	POS	PRO	PRO	-
Savannah sparrow	<i>Passerculus sandwichensis</i>	POS	POS	-	PRO	-	PRO	-	-
Song sparrow	<i>Melospiza melodia</i>	CON	CON	CON	PRO	POS	CON	PRO	CON
Swamp sparrow	<i>Melospiza georgiana</i>	POS	PRO	-	-	-	-	-	-
White-throated sparrow	<i>Zonotrichia albicollis</i>	POS	PRO	POS	-	-	-	-	-
Dark-eyed junco	<i>Junco hyemalis</i>	CON	CON	CON	POS	POS	POS	POS	CON
Northern cardinal	<i>Cardinalis cardinalis</i>	POS	PRO	-	-	-	-	-	POS
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	CON	PRO	CON	CON	PRO	POS	PRO	POS
Indigo bunting	<i>Passerina cyanea</i>	PRO	PRO	PRO	PRO	PRO	CON	PRO	CON
Bobolink	<i>Dolichonyx oryzivorus</i>	POS	-	CON	-	-	PRO	-	-
Red-winged blackbird	<i>Agelaius phoeniceus</i>	CON	PRO	CON	CON	CON	CON	POS	CON
Eastern meadowlark	<i>Sturnella magna</i>	POS	-	-	-	-	-	-	-
Common grackle	<i>Quiscalus quiscula</i>	CON	PRO	CON	CON	CON	POS	CON	CON
Brown-headed cowbird	<i>Molothrus ater</i>	CON	-	POS	PRO	CON	POS	CON	POS
Baltimore oriole	<i>Icterus galbula</i>	CON	PRO	CON	POS	CON	PRO	CON	PRO
Purple finch	<i>Carpodacus purpureus</i>	CON	PRO	-	PRO	PRO	POS	-	PRO
House finch	<i>Carpodacus mexicanus</i>	PRO	PRO	PRO	-	PRO	-	CON	PRO
American goldfinch	<i>Carduelis tristis</i>	PRO	PRO	POS	PRO	PRO	PRO	POS	POS
House sparrow	<i>Passer domesticus</i>	CON	CON	-	-	CON	-	CON	POS

Table 5.

**Amphibians and Reptiles Recorded at the Modified Belleayre Resort at Catskill Park
Project Site, Towns of Shandaken and Middletown, Ulster and Delaware Counties, New
York**

AMPHIBIANS		VEGETATION COVER TYPES^(a)						
English Name^(b)	Scientific Name	BM	HH	HS	OF	RS	SM	PP
Northern Spring Peeper *	<i>Pseudacris c. crucifer</i>			X				
Northern Green Frog *	<i>Rana clamitans melanota</i>		X					
Wood Frog	<i>Rana sylvatica</i>	X	X	X	X			
Spotted Salamander	<i>Ambystoma maculatum</i>			X				
Allegheny Mountain Dusky Salamander *	<i>Desmognathus ochrophaeus</i>					X		
Northern Two-lined Salamander *	<i>Eurycea bislineata</i>		X	X		X		
Northern Spring Salamander	<i>Gyrinophilus p. porphyriticus</i>					X	X	
Eastern Red-backed Salamander *	<i>Plethodon cinereus</i>	X				X		X
Red-spotted Newt *	<i>Notophthalmus v. viridescens</i>	X						X

REPTILES		VEGETATION COVER TYPES^(a)						
English Name^(b)	Scientific Name	BM	HH	HS	OF	RS	SM	PP
Common Gartersnake *	<i>Thamnophis sirtalis</i>	X						

^(a) Vegetation cover types observed by The LA Group are as follows: BM = Beech-Maple Mesic Forest, HH = Hemlock,-Northern Hardwood Forests, HS = Hemlock-northern hardwoods swamp, OF = Successional Old Forest, PP = Pine Plantation, RS = Intermittent Rocky Stream Wetland; SM = Shallow Emergent Swamp

^(b) Common and scientific names according to Crother (2000), and updates through 2005.

* Species recorded in previous studies.

Table 6.

**Amphibians and Reptiles in Fleischmanns, West Kill, Seager, and Shandaken Quadrangles
Ulster and Delaware Counties, New York**

SALAMANDERS		
Standard English Name^(a)	Scientific Name	ATLAS^(b)
Marbled Salamander	<i>Ambystoma opacum</i>	ADJ
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	ADJ
Blue-spotted Salamander	<i>Ambystoma laterale</i>	ADJ
Spotted Salamander	<i>Ambystoma maculatum</i>	IN
Red-spotted Newt	<i>Notophthalmus v. viridescens</i>	IN
Northern Dusky Salamander	<i>Desmognathus fuscus</i>	IN
Allegheny Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>	IN
Northern Red-backed Salamander	<i>Plethodon cinereus</i>	IN
Northern Slimy Salamander	<i>Plethodon glutinosus</i>	ADJ
Four-toed Salamander	<i>Hemidactylium scutatum</i>	ADJ
Northern Spring Salamander	<i>Gyrinophilus p. porphyriticus</i>	ADJ
Northern Red Salamander	<i>Pseudotriton r. ruber</i>	ADJ
Northern Two-lined Salamander	<i>Eurycea bislineata</i>	IN

TOADS AND FROGS		
Standard English Name^(a)	Scientific Name	ATLAS^(b)
Eastern American Toad	<i>Bufo a. americanus</i>	IN
Fowler's Toad	<i>Bufo fowleri</i>	ADJ
Gray Treefrog	<i>Hyla versicolor</i>	ADJ
Northern Spring Peeper	<i>Pseudacris c. crucifer</i>	IN
American Bullfrog	<i>Rana catesbeiana</i>	IN
Northern Green Frog	<i>Rana clamitans melanota</i>	IN
Wood Frog	<i>Rana sylvatica</i>	IN
Northern Leopard Frog	<i>Rana pipiens</i>	IN
Pickerel Frog	<i>Rana palustris</i>	IN

TURTLES		
Standard English Name^(a)	Scientific Name	ATLAS^(b)
Common Snapping Turtle	<i>Chelydra s. serpentina</i>	IN
Spotted Turtle	<i>Clemmys guttata</i>	ADJ
Wood Turtle	<i>Glyptemys insculpta</i>	IN
Eastern Box Turtle	<i>Terrapene c. carolina</i>	IN
Red-eared Slider	<i>Trachemys scripta elegans</i>	ADJ
Painted Turtle	<i>Chrysemys picta</i>	ADJ

^(a) Common and scientific names according to Crother (2000), and updates through 2003.

^(b) Recorded during Herpetological Atlas Project (1990-1998). Interim distribution maps on NYSDEC website. IN = Recorded in one or more of Fleischmanns, West Kill, Seager, or Shandaken quadrangles, ADJ = Recorded in at least one of twelve adjacent quadrangles.

Table 6 (continued)

SNAKES		
Standard English Name^(a)	Scientific Name	ATLAS^(b)
Northern Watersnake	<i>Nerodia s. sipedon</i>	ADJ
Northern Brownsnake	<i>Storeria d. dekayi</i>	ADJ
Northern Red-bellied Snake	<i>Storeria o. occipitomaculata</i>	IN
Common Gartersnake	<i>Thamnophis sirtalis</i>	IN
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	ADJ
Northern Ring-necked Snake	<i>Diadophis punctatus edwardsii</i>	IN
Smooth Greensnake	<i>Opheodrys vernalis</i>	IN
Black Ratsnake	<i>Elaphe alleghaniensis</i>	ADJ
Eastern Milksnake	<i>Lampropeltis t. triangulum</i>	ADJ

Table 7.

**Mammals Recorded at the Modified Belleayre Resort at Catskill Park Project Site
Towns of Shandaken and Middletown, Ulster and Delaware Counties, New York - 2008**

Virginia opossum	<i>Didelphis virginiana</i>
Eastern cottontail *	<i>Sylvilagus floridanus</i>
Eastern chipmunk *	<i>Tamias striatus</i>
Gray squirrel *	<i>Sciurus carolinensis</i>
Red squirrel *	<i>Tamiasciurus hudsonicus</i>
White-footed mouse	<i>Peromyscus leucopus</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Porcupine *	<i>Erethizon dorsatum</i>
Coyote *	<i>Canis latrans</i>
Black bear *	<i>Ursus americanus</i>
Raccoon *	<i>Procyon lotor</i>
White-tailed deer *	<i>Odocoileus virginianus</i>

* Species recorded in previous studies



Legend

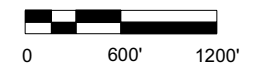
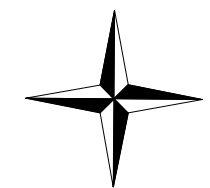
Cover Types

- BM - Beech-maple mesic forest
- HD - Hardwood swamp
- HH - Hemlock-northern hardwoods forest
- HS - Hemlock-hardwood swamp
- ML - Mowed lawn with trees
- OF - Successional old field
- PP - Pine Plantation
- RS - Intermittent rocky stream wetland
- SB - Shrub swamp
- SH - Successional northern hardwoods forest
- SM - Shallow emergent swamp
- SS - Ski slope

Bird Observations

- W-1-BM - Bird Point Count Locations

NORTH



APPROXIMATE SCALE IN FEET

Figure Prepared by
Terrestrial Environmental
Specialists, Inc.

Site and Cover Type
Boundaries provided by
The LA Group

Figure 1.

**Aerial Photograph of
Site with Cover Types
and Bird Point
Count Locations**