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TERRESTRIAL ECOLOGICAL STUDIES AT THE PRATTSVILLE PUMPED STORAGE SITE AND THE EXISTING BLENHEIM-GILBOA PUMPED STORAGE PROJECT IN SCHOHARIE VALLEY, NEW YORK

Progress Report for the Period
January 1977 - April 1978

by

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June 1978

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Errata

(1) Page 1, first paragraph, fifth line: Delete the word "alternate".

(2) Page 13, second paragraph, first line: Delete the word "alternate".

(3) Page 63, last paragraph, second line: Change "(Map 22)" to "(Map 21)".

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FLORA AND VEGETATION

Introduction

In 1977, studies of the flora and vegetation at the Prattsville study site centered on: (1) floristic surveys and plant community description along the proposed Primary and Alternate Transmission Rights-of-Way (ROWs), the Haul Road between Schoharie Reservoir and the upper reservoir site on Dog Hill and the ~~Alternate~~ Manorkill Falls Scenic Overlook (MFSO); (2) a quantitative description of the vegetation and a floristic survey of certain areas around Schoharie Reservoir to be affected by the proposed project; (3) a quantitative analysis of above and below ground chufa (*Cyperus esculentus*) production in the drawdown zone of Schoharie Reservoir; and (4) analysis of the relationship between rate of growth and period of inundation of trees growing around the periphery of Lower Blenheim-Gilboa (B-G) Reservoir and Schoharie Reservoir.

The results of some of these studies have appeared in Burt (1977a, 1977b, 1977c), Montgomery et al. (1977). Data that appeared in those publications also are included in this report.

Methods

In 1977, floristic surveys were conducted in the Primary and Alternate Transmission ROWs, the Haul Road, the MFSO, and the Gilboa Dam Temporary Lay Down Area; none of these surveys were conducted throughout a complete growing season. Floristic surveys were conducted during a complete growing season at the alternate excavation disposal area at the south end of Schoharie Reservoir, the Schoharie Reservoir Temporary Lay Down Area, and the Powerhouse-Switchyard Areas. Scientific names were used in the

tables and given at the first use of each taxon in the text. Common names were given in the tables where space permitted and throughout the text. Nomenclature follows Gleason and Cronquist (1963).

Plant communities along the Primary and Alternate Transmission ROWs were mapped on the basis of ground reconnaissance and aerial photographs (1 inch = 1000 feet).

The point-quarter method was used for sampling trees /diameter at breast height (dbh) greater than 4 inches/ and saplings (dbh of 1 to 4 inches) (Cottam and Curtis 1956). Shrubs, tree seedlings, and herbaceous ground cover were sampled with a 1-meter square quadrat. Forty points (4 x 10) were sampled in each stand with the 1-meter square quadrat placed in the upper right-hand quarter at each sampling point. Frequency, density, dominance, and relative values for frequency, density, and dominance plus the importance value were calculated for the trees, saplings, shrubs, and seedlings in each stand using the formulas that appear in Appendix 1. The same values, except for density, were calculated for herbs.

The ages of the trees in the stands sampled were determined by taking increment borings from the upper right quarter tree. If necessary, additional increment borings were taken so that at least 10% of the trees sampled within each species were aged. Ages were determined by counting annual rings using a Nikon dissecting microscope.

Chufa was sampled in the drawdown zone of Zone 31 of Schoharie Reservoir at three different elevations below the high water mark (elevation 1130 feet) (Map 1). Sampling occurred at 3- to 4-week intervals at each of the three elevations. Sampling at the upper (1125 feet) and middle (1120 feet)

elevations began well after the chufa had sprouted, whereas sampling at the lower elevation (1115 feet) commenced only a few days after growth had begun.

Ten points were sampled for vegetation during each sampling period. The first point was established in a homogeneous stand of chufa and each subsequent point was located along a transect. The space between points was determined by pacing; the number of paces had been determined previously from a random number table. At each point a 1/2-meter square quadrat was placed on the ground and all above ground vegetation within the quadrat was clipped to ground level. All other plants were removed from the chufa samples, which were than placed in bags. After the above ground vegetation had been clipped, a soil core with a diameter of 7.6 centimeters was extracted from the center of each plot. The boring device was inserted 15 centimeters into the substrate. All material extracted was placed in a plastic bag. A total of 10 above ground and 10 below ground samples was obtained at each elevation during each sampling period.

All above ground vegetation collected for standing crop determination was air dried in a garage for a minimum of 13 days. Chufa tubers were separated from the soil samples by means of a #4 sieve, washed, and air dried to a constant weight.

White ash (Fraxinus americanus) and white pine (Pinus strobus) were sampled at Lower B-G Reservoir between elevations 890 and 915 feet (Map 2). At Schoharie Reservoir, red pine (Pinus resinosa) was sampled in a plantation along the shore of Zone 3 (Map 1). The elevation of each tree was determined by leveling from existing benchmarks. All trees sampled were on a slope, so elevation determinations to the nearest 0.1 foot were calculated for both downhill and uphill sides. An average elevation

for each tree was determined by adding the uphill and downhill elevations and dividing by 2. The dbh and increment borings, which extended completely through the tree at breast height (4.5 feet), were taken from the downhill side of each tree.

For trees sampled at Lower B-G Reservoir, the annual tree rings for five years prior to inundation (1968-1972) and for five years during which periodic inundation occurred (1973-1977) were measured using a Nikon dissecting microscope with an optical micrometer. White ash rings were measured at 16X (0.065 mm per micrometer division) and white pine at 8X (0.130 mm per micrometer division). At Schoharie Reservoir, the increments of growth were not measured and dbh was used to assess the relationship between period of inundation and growth. It was felt that dbh was an accurate measure of growth because the New York City Department of Water Resources records indicate these trees were planted during 1923, 1924, 1926, or 1927 (New York City Board of Water Supply 1928).

All trees sampled at Lower B-G Reservoir were separated into 5-foot elevation intervals (890.1-895.0, 895.1-900.0, 900.1-905.0, 905.1-910.0, 910.1-915.0). Trees at Schoharie Reservoir also were separated into elevation categories (1130.1-1132.5, 1132.6-1135.0, 1135.1-1140.0, 1140.1-1145.0, 1145.1-1150.0). The upper limit of the lowest elevation category was set at 1132.5 feet because all trees that were inundated during the growing seasons from 1926 through 1977 were located at or below this elevation.

At Lower B-G Reservoir, correlation coefficients (r) were calculated to compare the percent of the growing season (15 April through 1 September) that each tree was inundated per year versus the increment of growth for that

year. At Schoharie Reservoir, "r" was calculated for the percent of growing season each tree was inundated versus dbh from 1926 through 1977. Student's "t" test was used to analyze the difference in average growth between pre- and post-inundation time periods and between elevation contours (Sokal and Rohlf 1969).

At Lower B-G Reservoir, the percent each tree was inundated during the growing season was determined from hourly water level elevations recorded at the B-G Project from 1973 through 1977. At Schoharie Reservoir, this percent was determined from daily elevation measurements taken from 1926 through 1977.

Floristic Surveys, Qualitative Vegetation Analysis, and Quantitative Vegetation Analysis

Results

Floristic surveys were conducted in various areas at the Prattsville study site. Some of these surveys were conducted throughout a complete growing season and others were conducted during shorter periods as specified below.

Primary Transmission ROW

The approximately 5.6-mile long proposed Primary Transmission ROW between the proposed Prattsville Pumped Storage Project powerhouse and the existing Gilboa-New Scotland Transmission ROW was surveyed for flora and vegetation in June 1977. A total of 130 species of trees, shrubs, and herbs was observed along the Primary Transmission ROW (Table 1). These species were observed in four major plant community types: hemlock-white pine-hardwood forest, hemlock ravine forest, field, and marsh.

Hemlock-white pine-hardwood forest occupies the largest percentage (about 65%) of the area inventoried (Map 3). Various mixtures of hemlock (Tsuga canadensis), white pine, and hardwoods, including sugar maple (Acer saccharum), red maple (Acer rubrum), black birch (Betula lenta), white ash, and paper birch (Betula papyrifera) occur (Table 1). Some areas on Bull Hill are nearly pure white pine, with scattered hardwood trees. Hemlock is absent in some areas but is generally present as scattered individuals. Shrubs are sparse in this forest. Herbs are abundant in some areas, scattered in others, and nearly absent in dense stands of young white pine. The most abundant herbs are starflower (Trientalis borealis), white wood aster (Aster divaricatus), hay-scented fern (Dennstaedtia punctilobula), marginal wood fern (Dryopteris marginalis), wild lily-of-the-valley (Maianthemum canadense), and drooping sedge (Carex gracillima). This type of community occurs on the level tops of Brown Mountain, Bull Hill, and Dog Hill and in smaller areas above Manor Kill Road and along Flat Creek Road.

Hemlock ravine forest occupies about 5% of the area inventoried. Hemlock is the most abundant tree, with sugar maple and yellow birch (Betula lutea) associated. There are few shrubs. Common herbs include fancy fern (Dryopteris intermedia), marginal wood fern, sedges (Carex spp.), common polypody (Polypodium virginianum), and wild lily-of-the-valley (Table 1). This community occurs along the north-facing slope of Bull Hill where the Primary Transmission ROW crosses County Route 59 in a small ravine and in the ravine along Manor Kill Road.

Fields occupy 30% of the area inventoried. This community type includes roadsides, pastures, abandoned fields in early succession, and

hay fields. Vegetation consists of herbaceous plants with scattered trees or shrubs in some areas. Common herbs are hawkweed (Hieracium pratense), common cinquefoil (Potentilla simplex), goldenrod (Solidago sp.), wild strawberry (Fragaria virginiana), and grasses, including timothy (Phleum pratense), sweet vernal grass (Anthoxanthum odoratum), bluegrass (Poa sp.), and orchard grass (Dactylis glomerata) (Table 1). Roadside communities occur along the dirt road that follows the transmission ROW on Brown Mountain and where the ROW crosses other roads. Abandoned fields and hay fields occur on Bull Hill and Dog Hill. Abandoned fields also occur on Brown Mountain.

A small marsh occurs where the New Scotland ROW crosses the primary transmission ROW just south of Upper B-G Reservoir. This marsh is dominated by sedge (Carex crinita), meadowsweet (Spiraea latifolia), goldenrod, and sensitive fern (Onoclea sensibilis), with scattered trees of red maple and fire cherry (Prunus pensylvanica). The marsh occupies less than 1% of the area.

Alternate Transmission ROWs

The four proposed Alternate Transmission ROWs referred to as "C", "D", "E", and "F" were surveyed for flora and vegetation in late July 1977. The alternate ROWs begin north of Gilboa-Conesville Road and traverse Bull Hill (Map 4). ROWs "C" and "D" are 3.2 and 2.5 miles long, respectively, with 0.6 miles in common north of Flat Creek Road and traverse the south-facing slope of Brown Mountain north of Flat Creek Road. ROWs "E" and "F" are 2.5 and 2.4 miles long, respectively, with 1.0 miles in common on the northern half of Bull Hill. This analysis does not include a 1.3-mile segment to the

south and a 0.9-mile segment to the north along the primary ROW, both of which are common to all segments. By July, much of the spring flora had disappeared and could not be included; summer and some fall-flowering herbaceous plants were observed.

Alternate Transmission ROW "C"

Alternate ROW "C" traverses the south slope of Brown Mountain, the Platter Kill valley, and the steep, west-facing slope of Bull Hill (Map 4). A total of 122 species of trees, shrubs, and herbs in three community types was observed (Table 2). Hemlock-white pine-hardwood forest occurs on the upper part of Bull Hill and Brown Mountain and occupies 61% of Alternate ROW "C". Hemlock, white pine, red maple, sugar maple, black birch, paper birch, and white ash are the most important trees. Various mixtures of these species occur. Some areas on Bull Hill are nearly pure young white pine with few other tree species present. On the west slope of Bull Hill is a small area of young hardwoods dominated by red maple, white ash, and quaking aspen (*Populus tremuloides*). Shrubs are infrequent except in openings in the forest or in very young pine stands. Meadowsweet and lowbush blueberry (*Vaccinium angustifolium*) are the most frequent. Herbs are abundant in some areas to very sparse in dense stands of white pine. The most frequent herbs are wild lily-of-the-valley, starflower, common speedwell (*Veronica officinalis*), sedges, and marginal wood fern. The openings, common cinquefoil, wild strawberry, and hawkweed are common.

Hemlock ravine forest occurs along the Platter Kill, on the west slope of Bull Hill, and in the ravine along County Route 59. This community type occupies 14% of Alternate ROW "C". Hemlock is the most important tree, with

sugar maple and yellow birch associated. Striped maple (Acer pensylvanicum) was the only shrub species observed (Table 2). The most important herbs are fancy fern, marginal wood fern, wild lily-of-the-valley, starflower, and lady fern (Athyrium filix-femina).

Fields occur on the south slope of Brown Mountain and in a small area on the top of Bull Hill. Trees and shrubs are scattered in abandoned field; the most frequent are red maple, meadowsweet, blackberry (Rubus allegheniensis), and red raspberry (Rubus strigosus). The most important herbs are common cinquefoil, strawberry, hawkweed, goldenrod, and St. John's wort (Hypericum perforatum), with grasses, including sweet vernal grass, timothy, bent-grass (Agrostis sp.), bluegrass, and orchard grass (Table 2). This community type occupies 25% of Alternate ROW "C".

Alternate Transmission ROW "D"

Alternate ROW "D" traverses the south slope of Brown Mountain and crosses the Platter Kill and level top of Bull Hill. A total of 127 species of trees, shrubs, and herbs in three community types was observed on Alternate ROW "D" (Table 3, Map 4). The hemlock-white pine-hardwood forest occurs on Brown Mountain and Bull Hill and comprises 53% of Alternate ROW "D". The community is much the same as that described for Alternate ROW "C"; however, there is more young white pine on Alternate ROW "D".

Hemlock ravine forest occurs along the Platter Kill and on the steep north slope of Bull Hill. This community type is similar to that on Alternate ROW "C" and occupies 12% of Alternate ROW "D".

Fields occupy 35% of Alternate ROW "D", which traverses hay fields on the south slope of Brown Mountain, abandoned pasture and a corn field near

the Platter Kill, and several hay fields on Bull Hill. Plants observed in the abandoned pasture are similar to those observed on Alternate ROW "C" abandoned pastures.

Alternate Transmission ROWs "E" and "F"

Alternate ROWs "E" and "F" cross Bull Hill to the east of the primary ROW. Community types and species observed are very similar; therefore, these routes are discussed together. They were mapped separately and percentages for community types were calculated separately. A total of 128 species of trees, shrubs, and herbs in five community types was observed on each route (Table 4, Map 4). Hemlock-white pine-hardwood forest occurs on the gently rolling top of Bull Hill. This community type occupies 47% of ROW "E" and 44% of ROW "F". Much of this area is occupied by young white pine forest, with other areas being mixed forest.

Hemlock ravine forest occurs on the north slope of Bull Hill and the ravine along Gilboa-Conesville Road. This community occupies 7% of Alternate ROW "E" and 5% of Alternate ROW "F". It is similar to that described for Alternate ROW "C".

Fields occupy 40% of Alternate ROW "E" and 45% of Alternate ROW "F". The common segment of Alternate ROWs "E" and "F" crosses cultivated fields (oats and corn) at County Route 59, hay fields south of these fields, and abandoned pasture along Back Road and on top of Bull Hill near Gilboa-Conesville Road. Species dominant in the fields and abandoned pasture are similar to those discussed for Alternate ROW "C".

A small open marsh occurs where Alternate ROWs "E" and "F" cross County Route 59 and occupies 1% of each ROW. Sedges, sensitive fern, crested wood

fern (Dryopteris cristata), cinnamon fern (Osmunda cinnamomea), and meadowsweet are the dominant plants (Table 4).

Hemlock-red maple swamp forest occurs just north of County Route 59 and the open marsh. This community type occupies 5% of each ROW. This swamp is much the same type of community as the hemlock-red maple swamp on Dog Hill (Burt et al. 1976). Hemlock and red maple are the dominant trees, with cinnamon fern, goldthread (Coptis trifolia), wild lily-of-the-valley, spinulose wood fern (Dryopteris spinulosa), wood horsetail (Equisetum sylvaticum), blue flag (Iris versicolor), and wild calla (Calla palustris) as common herbs (Table 4).

Haul Road

The proposed 8300-foot long Haul Road traverses the steep, west-facing slope of Dog Hill between the powerhouse areas east of Schoharie Reservoir and the upper reservoir site on Dog Hill (Map 5). A 200-foot wide corridor and surrounding areas were surveyed for flora and vegetation in July 1977. By July, much of the spring flora had disappeared and could not be included; summer and some fall-flowering herbaceous plants were observed.

Thirty-six species of trees and shrubs and 88 species of herbaceous plants were observed on the route (Table 5). Five community types were present: second growth white pine-hardwood forest, white pine plantation, red pine plantation, mature hemlock-hardwood forest, and open field. The open field and young white pine-hardwood communities are successional and grade into each other so that no clear line exists between these community types.

Communities were mapped based on ground observation and aerial photographs (1 inch = 1000 feet) (Map 5). This map and the measured ground

distance stakes along the Haul Road were used to determine the proportion of each community type traversed by the Haul Road.

The lower part of the Haul Road traverses a mature hardwood forest with hemlock important in small areas. Dominant hardwood trees include beech (Fagus grandifolia), sugar maple, red maple, white ash, shagbark hickory (Carya ovata), and hop-hornbeam (Ostrya virginiana). White pine is present in most areas (Table 5). There are few shrubs in the hardwood forest. Wild lily-of-the-valley, marginal wood fern, fancy fern, and starflower are common herbs. This community occupies about 21% of the Haul Road.

The upper portion of the Haul Road is a mosaic of successional plant communities and pine plantations (Map 5). Second growth white pine-hardwood forest occupies about 34% of the Haul Road area. White pine, red maple, paper birch, white ash, and hop-hornbeam are the most important trees; 16 tree species were observed (Table 5). Shrubs are not important except in open areas, where meadowsweet and blackberry are abundant. Herbs also are more important in openings; common cinquefoil, wild strawberry, sedges, wild lily-of-the-valley, and goldenrod are the most abundant.

Open field occupies 13% of the Haul Road. Grasses, including sweet vernal grass, timothy, bent-grass, and poverty-grass (Danthonia spicata), are mixed with other herbaceous plants, including common cinquefoil, wild strawberry, hawkweed, St. John's wort, goldenrod, and yarrow (Achillea millefolium). In most areas, there are scattered young trees, especially white pine and red maple.

White pine plantations occupy 26% of the Haul Road and red pine plantations about 6%. Saplings of red maple, sugar maple, and white ash are found in most areas of white pine plantations. Herbs are much

less frequent than in mixed forests. Common speedwell, lady fern, fancy fern, and drooping sedge are the most common herbs in white pine plantations. Shrubs are sparse in both kinds of pine plantations. There are very few herbs in the red pine plantation.

Proposed Manorkill Falls Scenic Overlook (MFSO)

In December 1977, an ~~alternate~~ MFSO was surveyed for flora and major plant community types. The vegetation in the area of the MFSO is located on a moderately steep, west-facing slope of Schoharie Reservoir and along the Manor Kill ravine (Map 6). Most of the forest on the slope can be characterized as a hemlock-white pine-hardwood forest. White pine dominates the forest east of County Route 39 and south of the Gilboa-Conesville Road. White ash, sugar maple, black cherry (*Prunus serotina*), and quaking aspen are associated with white pine in this area (Table 6). Hemlock is abundant along the ravine and immediately north of the mouth of the Manor Kill. Various hardwood species such as black locust (*Robinia pseudoacacia*), box elder (*Acer negundo*), paper birch, and American beech are more abundant near Schoharie Reservoir.

Plantations of white pine intermixed with red pine and Scotch pine (*Pinus sylvestris*) occur west of County Route 39. Seedlings of white ash and black cherry are the major understory species in these plantations. American yew (*Taxus canadensis*) and common polypody are the common species in the Manor Kill ravine.

Proposed Excavation Disposal Areas

The Primary Excavation Disposal Area is located at the upper reservoir site on Dog Hill and the plant communities in this area have been described in Burt et al. 1977. The alternate excavation disposal area is located at the extreme south end of Schoharie Reservoir (Map 7) and occupies about 44

acres. It was surveyed for flora from May through October 1977 and sampled quantitatively for vegetation in three stands. The floristic survey yielded 144 species of vascular plants (Table 7). Most of the area was planted with conifers (red, white, and Scotch pine and Norway spruce (Picea abies) but there are small brushy openings and small islands of bottomland hardwood forest (Map 8).

Three stands were sampled quantitatively at the alternate excavation disposal area. Stand D1 was located near Route 23 in a mature red pine plantation, and red pine was the most important tree (Table 8). White ash was the most important sapling, followed by American elm (Ulmus americana) and box elder. White ash, black cherry, and sugar maple were the most important tree seedlings (Table 9). Virginia creeper (Parthenocissus quinquefolia) was the most important shrub.

In Stand D1, the herbaceous layer was well developed, with enchanter's nightshade (Circaea canadensis), garlic mustard (Allaria officinalis), fancy fern, lady fern, and a variety of other ferns being important (Table 10). Thirty-two species of herbs were sampled.

Increment borings indicate that red pine were planted about 50 years ago, when this area was pasture (Table 11). The high density and dominance of trees in this stand have caused suppression of growth in most of the red pine, which probably accounts for the variation in their age measurements.

The forest floor was generally covered with litter, except for some small areas of moss (Table 12).

Stand D2 was located in a mature white pine and Scotch pine plantation. White pine was the most important tree, followed by Scotch pine (Table 13).

White ash was the most important sapling; white pine and black cherry were also important. The most important tree seedling was white ash (Table 14).

In Stand D2, the most important shrub was Virginia creeper. Garlic mustard was the most important herb (Table 15). Bedstraw (Galium triflorum), fancy fern, herb-robert (Geranium robertianium), enchanter's nightshade, and hemp-nettle (Galeopsis tetrahit) were also important; 42 additional species of herbs were tallied in the quadrats.

A seedling tentatively identified by IA personnel and the New York State Museum as golden rain tree (Koelreuteria paniculata) was sampled in this stand (Stanley Smith, Curator of Botany, New York State Museum, personal communication). If positive identification of this species is made during the next growing season, it will represent the first record of natural establishment of this ornamental escapee in New York State (Stanley Smith, personal communication).

Scotch pine and white pine were planted in Stand D2 about 50 years ago as indicated by increment borings (Table 16). Most of the other species apparently established themselves in the area 30 to 40 years ago.

The forest floor was mostly litter-covered, with some moss and bare soil (Table 12).

Stand D3 was located in a mature Scotch pine and Norway spruce plantation. Scotch pine was the most important tree, followed by Norway spruce (Table 17). White ash was the most important sapling and tree seedling (Table 18). The most important shrub was Virginia creeper.

Of the 60 species of herbs sampled in Stand D3, dame's rocket (Hesperis matronalis), garlic mustard, and enchanter's nightshade were most important (Table 19).

Scotch pine and Norway spruce are approximately 50 years old as indicated by increment borings (Table 20). The other tree species have established themselves since the planting of Scotch pine, although a red cedar (Juniperus virginiana) more than 42 years old probably started growth when the area was pastured.

More moss was present than in Stands D1 and D2, but most ground cover was litter (Table 12).

Schoharie Reservoir Temporary Lay Down Area

The Schoharie Reservoir Temporary Lay Down Area comprises about 31 acres and is located on a relatively flat peninsula toward the south end of the reservoir along the east shore (Map 7). This area was surveyed for flora from May through October 1977; 163 species were observed (Table 7).

This area is almost completely wooded with conifer plantations and second growth hardwood forest being the major plant community types (Map 9). Four stands were sampled in this area. In Stand L1, black locust was the most important (Table 21). Sugar maple was the most important sapling. The most important tree seedlings were white ash and black locust (Table 22). Shrubs occurred infrequently and at low densities; only three species were recorded, with red raspberry the most important. Herbs were very sparse in this stand and included only bindweed (Polygonum cilinode), white snakeroot (Eupatorium rugosum), hawkweed (Hieracium sp.), and sedge (Table 23).

Increment borings in this second growth hardwood stand indicated that black locust and white pine became established 40 to 50 years ago, when this area was pasture (Table 24). Sugar maple, white ash, red maple, Scotch pine, and black cherry became established 30 to 40 years ago.

The forest floor was mostly litter-covered, with some rock, bare soil, and very little moss (Table 25).

Stand L2 was located in a mature woods where red oak (Quercus borealis), white pine, and red maple were the most important trees (Table 26). Red maple was the most important sapling, followed by red oak, chestnut oak (Quercus prinus), chestnut (Castanea dentata), white ash, American hornbeam (Carpinus caroliniana), and American beech (Table 27). The most important tree seedling was white ash (Table 28). The shrub layer was more dense than in other stands. The most important shrub was common witch-hazel (Hamamelis virginiana); maple-leaved viburnum (Viburnum acerifolium), lowbush blueberry, and fly honeysuckle (Lonicera canadensis) were also important. Wild sarsaparilla (Aralia nudicaulis), wild lily-of-the-valley, and starflower were the most important herbs of the 17 species sampled (Table 29).

One white pine and one black birch were found to be more than 100 years old (Table 30). The approximate age of this stand was 50 to 85 years.

Although the ground cover was mostly litter, more rock was present in Stand L2 than in other stands in the Schoharie Reservoir Temporary Lay Down Area (Table 25). Small amounts of moss and bare soil also were present.

Stand L3 was located in a mature white pine forest. White pine was the most important tree (Table 31). Red oak was the most important sapling, followed by white pine, sugar maple, red maple, and white ash. White ash was the most important tree seedling; red maple was also important (Table 32). The most important shrub was fly honeysuckle, with common witch-hazel and northern dewberry (Rubus flagellaris) also important (Table 33). The herbaceous layer was dominated by common speedwell, wild lily-of-the-

valley, blue-stemmed goldenrod (Solidago caesia), fringed polygala (Polygala paucifolia), bedstraw, and common cinquefoil (Table 34). Twenty-two species were recorded.

The increment borings indicated that white pine invaded Stand L3 about 55 to 65 years ago (Table 35). The deciduous trees established themselves 30 to 45 years ago.

The predominant ground cover was litter with small amounts of moss, rock, and bare soil (Table 25).

Stand L4 was located in a mature Scotch pine plantation. The most important tree was Scotch pine, followed by white pine (Table 36). Red maple, sugar maple, striped maple, white ash, American beech, and black cherry were the most important saplings. Important seedlings were black cherry, white ash, red maple, American elm, and white pine (Table 37). A golden rain tree seedling also was observed in this stand. The shrub layer was dense, with red raspberry (Rubus strigosus) dominant (Table 38). Of the 54 species of herbs sampled, white snakeroot, shinleaf (Pyrola elliptica), bedstraw, blue-stemmed goldenrod, and common speedwell were the most important (Table 39).

Scotch pine and white pine were planted here approximately 50 years ago, when the area was probably pastured (Table 40).

There was more moss present in Stand L4 than in Stands L1, L2, or L3 (Table 25). However, litter was the predominant ground cover. Equal amounts of bare soil and rock also were present.

Powerhouse-Switchyard Area

The proposed Powerhouse-Switchyard Area comprises about 43 acres and is located on a steep wooded slope on the east side of Schoharie Reservoir (Map 7).

This area also was surveyed for flora from May through October 1977; 186 species were recorded (Table 7).

Two stands were sampled on this steep wooded slope. Stand P1 was located above County Route 39 in a second growth hardwood forest. Sugar maple was the most important tree and sapling (Table 41). Other important trees were black locust, white ash, white pine, black birch, and butternut (Juglans cinerea). American elm and white ash were also important saplings. The most important tree seedling was white ash (Table 42). Riverbank grape (Vitis riparia), red raspberry, and round-leaved dogwood (Cornus rugosa) were the most important shrubs (Table 43). The important herbs were white snakeroot, marginal wood fern, common speedwell, and Christmas fern (Polystichum acrostichoides) (Table 44). At least five sedges (Carex gracillima, C. laxiflora, C. complanata, C. rosea, C. abscondita) were included in the 39 species of herbs sampled in Stand P1.

Most of the trees established themselves in this stand 35 to 50 years ago, as indicated by increment borings (Table 45).

Although most of the forest floor is covered by litter, almost 20% of the ground cover is rock (Table 46). A higher percentage of moss and bare soil was found in this stand than in any of the other stands sampled.

Stand P2 was located below County Route 39 in a mature pine plantation where red pine, Scotch pine, and white ash were the most important trees (Table 47). In the sparse understory, the most important sapling was hop-hornbeam, followed by sugar maple and striped maple (Table 48). White ash, which occurred in all of the quadrats, was the most important tree seedling (Table 49). The most important shrubs were maple-leaved viburnum and blackberry (Table 50). Partridgeberry (Mitchella repens), marginal wood

fern, hay-scented fern, and wild lily-of-the-valley were the most important of the 37 herbs sampled (Table 51).

Stand P2 was shown to be fairly even-aged by increment borings (Table 52). Scotch pine and red pine were planted approximately 50 years ago. The other trees appear to have invaded the area about the same time.

Litter covered the greatest percentage of the forest floor, followed by rock, moss, and bare soil (Table 46).

Gilboa Dam Temporary Lay Down Area

The Gilboa Dam Temporary Lay Down Area is located below Gilboa Dam on the east side of Schoharie Creek (Map 7). A total of 52 species of vascular plants was observed in this area (Table 53) and the major plant communities were described in Burt et al. (1977). Surveys were conducted in this area only during May and June; therefore, this list does not include some summer- and most fall-flowering plants. Four general plant community types were mapped in the vicinity of this area, which is characterized by conifer plantation and hardwood forest, with small openings interspersed (Map 10).

Discussion

Most of the forest around the margin of Schoharie Reservoir has been derived from pastured land. This is evidenced by maps and photographs dated 1916 and 1927, respectively (PASNY 1977), fences (stone and wire), occasional old apple trees scattered in the woods, and open stand species such as red cedar. Increment borings indicated that most hardwoods, particularly in Stands L1 and P2, were established about 50 years ago during and after reservoir construction. However, some of the forest existed prior to reservoir construction. The red oak-white pine-hardwood stand (L2) and the white pine stand (L3) are examples of this more mature forest.

Extensive plantings of Scotch pine, red pine, Norway spruce, and white pine were made by the New York City Board of Water Supply around Schoharie Reservoir in 1923, 1924, 1926, and 1927. Stands D1, D2, D3, L4, and P2 included such plantations. However, the ages of conifers sampled in these stands were not that old or even-aged (Tables 54-56). Increment borings were taken 4.5 feet (breast height) above ground, and the closure of the canopy may have suppressed the growth of some trees, resulting in annual rings that are extemely hard to distinguish. To some extent the age indicated by increment borings of hardwoods also may have been influenced by this factor.

Chufa Standing Crop and Productivity

Results and Discussion

Chufa was sampled at three different elevations at Zone 31 of Schoharie Reservoir (Map 1). The elevation of a particular area determines when it is dewatered and also when it becomes inundated, thereby directly affecting the length of the growing season. Bellrose (1941) determined that planted chufa usually will not flower during a 61-day growing season or less but that most will flower with a growing season greater than 76 days. Flowering is important because some chufa reproduction occurs by means of seeds (Georgia 1919, Muenscher 1935 in Justice and Whitehead 1946). In 1977, chufa flowered at all three elevations, with the lowest elevation (1115 feet) having the shortest growing season (80 days) (Table 57).

Estimated above and below ground (tuber) productivity was determined by the maximum standing crop at each of the three areas. The use of maximum standing crop as a measure of productivity is possible only for populations

in which all individuals die at the same time (Mathews and Westlake 1969). Wills (1965) assumed that chufa fulfills this requirement by basing his measure of productivity on the maximum standing crop. Observations at Schoharie Reservoir agree with this assumption of uniform mortality. It also was observed that most chufa within the same elevation both emerged and reached maturity at the same time.

The middle elevation (1120 feet) had the highest above ground productivity (568.2 $g/m^2/yr$), whereas the highest elevations (1125 feet) had the lowest productivity (427.6 $g/m^2/yr$) (Table 58). The lowest elevation (1115 feet) had a productivity of 485.9 $g/m^2/yr$. These results compare favorably with those of Wills (1965), who obtained chufa productivities of 4980.8 and 4497.7 lbs/acre/yr (558.6 and 504.4 $g/m^2/yr$) in 1962 and 1963, respectively. Wills' results are probably underestimates because he sampled only at the end of the growing season and may have missed the maximum standing crop. These results also are similar to those obtained by Gorham and Somers (1972) for Carex rostrata and Carex aquatilis. These sedges were found to have productivities of 515 and 340 $g/m^2/yr$, respectively.

Tuber production was greatest at the highest elevation (353.1 $g/m^2/yr$) and least at the lowest elevation (140.3 $g/m^2/yr$) (Table 59). The middle elevation had a productivity of 346.3 $g/m^2/yr$. These results are similar to those obtained by Wills (1965), who obtained tuber productivities of 1183.2 and 2486.0 lbs/acre/yr (137.1 and 288.0 $g/m^2/yr$) in 1962 and 1963, respectively. Annual tuber productivity at Schoharie Reservoir may be somewhat overestimated because of the difficulty in separating the current year's tubers from those of previous years.

The chufa at the highest elevation (1125 feet) was past its peak productivity by the end of the sampling period. Many of the shoots had begun to discolor and wilt by this time and few (1%) remained in flower. There also was evidence of slight discoloration at the middle elevation on the last sampling date. In addition, this area had only a small number (5%) of flowering shoots. The lowest elevation, however, showed no signs of any deterioration when inundation occurred. Furthermore, most of the shoots (80%) were still in flower at the time that the area was last sampled and peak production was not reached in this area. The highest standing crop measurements were made when chufa was at its peak of flowering.

Lower B-G Reservoir and Schoharie Reservoir Tree Inundation Study

Results

In November and December 1977, a study was initiated to determine the relationship between annual tree growth and period of inundation for trees growing near the high water mark of Lower B-G and Schoharie Reservoirs. The objective of this study was to assess the effects of periodic inundation on tree growth above elevation 890 feet at Lower B-G Reservoir and above elevation 1130 feet at Schoharie Reservoir

The longer white ash and white pine were inundated during the growing season at Lower B-G Reservoir, the greater the growth, as indicated by highly significant correlation coefficents (Table 60). At Schoharie Reservoir, the correlation was not significant for tree growth versus percent of growing season that trees were inundated for the years 1926 and 1977.

Comparison of the mean annual growth for five years prior to inundation (1968-1972) and five years following inundation (1973-1977) for white pine at Lower B-G Reservoir indicates the trees in the lowest elevation category grew significantly more following inundation (Table 61). White pine in the other four elevation categories showed no significant difference in growth for the two periods. Comparison of elevation categories indicates that the average growth of white pine at elevation categories 890.1-895.0 feet and 895.1-900.0 feet was not significantly different either before or after inundation (Table 62). However, growth in these two categories was significantly greater than the growth in the next two highest elevation categories both before and after inundation.

For white ash sampled at Lower B-G Reservoir, there was no significant difference in the mean annual increment of growth within elevation categories when pre- and post-inundation periods were compared (Table 63). When the elevation categories were compared with each other, the mean annual increment of growth during the post-inundation period at elevation category 890.1-895.0 feet was significantly greater than that of the other elevation categories (Table 64). No other significant relationships were noted.

The 1130.1-1132.5 feet elevation category was the only one to contain trees that were inundated during the growing season during the 51-year period of 1926 through 1977 and growth was significantly greater than for trees in the 1135.1-1140.0 feet and 1140.1-1145.0 feet elevation categories (Table 65). No other significant differences were noted.

The percent of the growing season each tree was inundated was calculated at Lower B-G Reservoir using hourly elevation readings. As might be expected, trees in the lowest elevation category were inundated for the longest period

of time (Table 66). The mean percent of the growing season in elevation categories 890.1-895.0 feet and 895.1-900.0 feet was similar for white pine and white ash. At Schoharie Reservoir, trees that occurred in the 1130.1-1132.5 feet elevation category were the only ones to be inundated and the percent of growing season inundated was very low (Table 67).

Discussion

Gill (1970) indicates that ". . . hardwoods generally show significantly greater tolerance than do conifers . . ." to inundation. Yeager (1949) showed that white ash was one of the more tolerant species to flooding and Hall and Smith (1955) indicate that ash species in general are relatively tolerant to inundation. It was assumed that white pine and red pine were relatively intolerant of inundation as indicated for conifers in general by Gill (1970), although no data pertaining to tolerance of these two species to inundation were found. At Lower B-G Reservoir, both a tolerant (white ash) and an intolerant (white pine) species were sampled and the results indicate that inundation for the last five years has not adversely affected these species. At Schoharie Reservoir, the mean percent of the growing season during which the intolerant red pine were inundated was very small and no adverse effects were noted.

No dead standing trees were observed along the margins of Lower and Upper B-G Reservoirs and Schoharie Reservoir in the areas sampled. Certain mechanical effects of fluctuating water levels were noted during the study. Roots of some trees bordering the reservoirs were exposed and scoured, possibly by ice. Some trees fell into the reservoirs as a result of undermining caused by wave action or fluctuating water levels.

The results indicate that growth was greater for trees periodically inundated than for those that were not. However, these trees also were at the edge of the woods and were, therefore, exposed to less competition for light. Regarding the red pine at Schoharie Reservoir, it is probable that increased radial growth and less constriction of the crown for trees bordering the reservoirs may be the result of less competition for light because the average percent of the growing season inundated was very low (0.8%). At Lower B-G Reservoir, it is likely that inundation and less competition for light both contributed to increased growth of trees bordering the reservoir. The trees bordering the reservoir (890.1-895.0 feet elevation category) showed significantly greater growth than trees in the higher elevation categories and the average percent of the growing season inundated was greater (5.5% for white ash and 4.5% for white pine) than for red pine at Schoharie Reservoir.

BIRDS

Introduction

Studies of nesting and migratory birds conducted at the Prattsville and B-G study sites in 1977 included the compilation of a species list and the determination of the distribution and abundance of major groups of species. Twenty-one species were recorded for the first time at the Prattsville or B-G study sites (Table 68). Thirteen of these species previously had been observed at one of the Schoharie Valley study sites (Burt et al. 1976, 1977) and eight had not been recorded from any of the study sites. They include the eared grebe (*Podiceps nigricollis*), redhead (*Aythya americana*), Virginia rail (*Rallus limicola*), buff-breasted sandpiper (*Tryngites subruficollis*), northern phalarope (*Phalaropus lobatus*), tern (*Sterna* sp.), long-eared owl (*Asio otus*), and pine warbler (*Dendroica pinus*).

Nesting Birds

Introduction

In 1977, nesting bird studies were conducted only at the Prattsville study site. The objectives of these studies were: (1) to determine the species composition and the distribution of breeding birds; (2) to estimate breeding bird density in various plant communities on Dog Hill and at areas near Schoharie Reservoir to be directly affected by the proposed project; (3) to monitor the occurrence of nesting upland game birds on Dog Hill and around Schoharie Reservoir; and (4) to determine the status of the nesting waterfowl at Schoharie Reservoir.

Methods

The species composition and distribution of breeding birds at the Prattsville study site were determined during field trips taken for this purpose and during the course of other field work throughout the reproductive season.

Nesting bird censuses were conducted on Dog Hill in the same three habitat types used in 1976: (1) open meadows and fields (22.0 acres); (2) second growth hardwood forest (40.0 acres); and (3) hemlock forest (22.5 acres). Nesting bird censuses also were conducted at the Schoharie Reservoir Temporary Lay Down Area and the alternate excavation disposal area at the extreme south end of the reservoir (Map 7). Grids with points 148 feet apart were established in each area. Censuses in all areas were conducted between 5:30 am and 10:00 am. The Williams Spot Mapping Method (Williams 1936) was used to estimate breeding bird density.

Auditory censuses were conducted for upland game birds on Dog Hill and around Schoharie Reservoir. Surveys for drumming ruffed grouse (*Bonasa umbellus*) and gobbling wild turkey (*Meleagris gallopavo*) were conducted on Dog Hill and around Schoharie Reservoir between 5:30 am and 10:00 am. About 2.9 miles of road on Dog Hill (Maps 11 and 12) and 8.6 miles of road that traverse the east and west sides of Schoharie Reservoir (Map 13) were surveyed for grouse and turkey. The investigator stopped every half mile for five minutes to listen for grouse and turkey. The location of all birds heard were plotted on a map.

Censuses for woodcock (*Scolopax minor*) were conducted at six locations on Dog Hill (Map 14) by a count of singing males (Mendall and Aldous 1943;

Sheldon 1961). Censuses were conducted in April starting about ½ hour before sunset. Each area was censused two to four times with an interval of at least five days between the first and last census. All males observed in courtship flight or heard peenting were counted.

Waterfowl use of Schoharie Reservoir during the reproductive period was estimated by nest searches, marking of ducklings, and intensive observations. Nest searches were conducted in May and June. In May, the vegetation was relatively low and a complete search for ground nests was conducted. By June, the vegetation was extremely dense and nest searches consisted of an investigator criss-crossing the area to be searched and sweeping the vegetation with a 6-foot stick. This method was designed to flush the female from the nest. Nests that had been predated, were unattended, or on which the female "sat tight" were not located with this method. When a nest was located, the following data were recorded: date, location, species, number of eggs, distance from water, habitat type description, nest concealment (Appendix 2), stage of egg development, information on duck behavior, and evidence of predation. Stage of egg development was determined by candling, using the method of Weller (1956).

Ducklings were marked by two methods in order to differentiate between broods. Amaranth dye was injected into the egg with a syringe any time after the twentieth day of development (Evans 1951). The needle hole was sealed with collodion. The second method was to capture ducklings by hand or with a dip net and dye them with Calcozine Green MX and Calcozine Rhodamine BX. The ducklings were held five minutes and released at the point of capture.

Regular observations for waterfowl were conducted from March through August. These observations were conducted on foot, from a canoe, and from blinds. Three blinds were constructed in the backwater and one at Loeffler Pool. The species, sex, age, and location of all waterfowl observed as well as the number, size, and location of ducklings in each brood were recorded. Criteria for aging wood duck (Aix sponsa) broods were from Dreis (1954), for mallard (Anas platyrhynchos) broods from Southwick (1953), and for common merganser (Mergus merganser) broods from Erskine (1971). Age classes used in the text are from Blankenship et al (1953) (Appendix 3).

Complete censuses for waterfowl in the backwater were conducted during the nesting period. Two to three observers were situated in blinds while another observer used a canoe to flush all waterfowl in the area. The "beatout" method of Blankenship et al. (1953) was used in an attempt to obtain a complete count of ducklings at Loeffler Pool.

Results

Burt et al. (1977) listed 101 species of birds as nesting at the Prattsville study site. In 1977, the following six additional nesting species were observed:

1. American black duck (Anas rubripes). The American black duck nested in the backwater of Schoharie Reservoir; details of this observation are described below in the section dealing with nesting waterfowl. The only other IA record of nesting black ducks was along Cole Hollow Creek at the Breakabeen study site (Burt et al. 1977).

2. Northern goshawk (Accipiter gentilis). The northern goshawk nested on Dog Hill in 1977; results of nest observations are reported below in the section dealing with nesting birds on Dog Hill. Previously, the goshawk was recorded as a nesting species at the Breakabeen study site (Burt 1975).

Bull (1974) indicated that the goshawk has shown a "dramatic upsurge" in the number of breeding pairs in New York State within the last 20 years.

3. Black-billed cuckoo (Coccyzus erythropthalmus). This species was observed in the backwater of Schoharie Reservoir during the nesting season. Previously, it had been reported as an uncommon breeding bird at the Breakabeen and B-G study sites.

4. Long-eared owl. The long-eared owl was heard calling at night in the Schoharie Reservoir backwater on 21 April and 15 May. This represents the first IA record of this species from any of the Schoharie Valley study sites. Bull (1974) indicated that this species is "fairly widely distributed" in central and western New York but that there are no nesting records for the species from Schoharie, Greene, or Delaware Counties. The nearest nesting record was from Altamont in Albany County.

5. Golden-winged warbler (Vermivora chrysoptera). This species was observed fairly frequently during the nesting season in brushy fields at the Breakabeen study site. It was not recorded from the brushy fields on Dog Hill and the only record of a singing male at the Prattsville study site was from a brushy opening about ½ mile north of the Gilboa Dam.

6. Pine warbler. The pine warbler was not previously recorded from any of the Schoharie Valley study sites by IA personnel. During the nesting season, it was observed and heard singing numerous times from pine plantations along Schoharie Reservoir at Zone 3 and above Zone 6. Bull (1974) stated that the pine warbler is "...very local and quite rare" during the nesting season except in Suffolk County on Long Island. According to Bull, this species has not been reported as nesting in Schoharie, Greene, or

Delaware Counties. The nearest record is from the Albany Pine Barrens in Albany County.

Dog Hill

Nesting Bird Censuses

The second-growth hardwood forest was censused six times in 1977 (16, 27 May; 1, 4, 17, 24 June). As in 1976, the ovenbird (*Seiurus aurocapillus*), red-eyed vireo (*Vireo olivaceus*), and American redstart (*Setophaga ruticilla*) were the three most abundant species (Table 69).

The estimated number of pairs of breeding birds per 100 acres was about 11% higher in 1977 than 1976.

The northern goshawk nest was located approximately in the center of this bird census grid. The nest was first observed on 18 May and periodic observations of the nest were conducted through 14 July (Table 70). Direct observations into the nest were made by climbing a tree near the nest or the nest tree itself. The nest was located about 30 feet from the ground in a quaking aspen. The surrounding area was wooded but the nest tree was situated along an abandoned logging trail.

The tree near the nest was climbed on 24 May and three eggs were observed. On 27 May, the mood of the adult goshawks changed from mildly to extremely aggressive and an attempt to observe the nest on 31 May was curtailed because of their extremely aggressive behavior. On 1 June, two young in downy white plumage were observed but the third egg did not hatch. The estimated age of the chicks was 5 days because it was assumed that the reason the adults became more aggressive on 27 May was that the eggs had hatched. Continued observations indicated that both young fledged about 7 July when they were

about 42 days old. Goshawks were reported to fledge in 49 days by Schnell (1958) and in 40 days by Bond (1942).

The behavior of the adults toward the observer was generally one of extreme aggression. Both the male and female dove within inches of the observer though they never made contact. Schnell (1958) noted that in this species, the female is generally more aggressive than the male during the reproductive season. However, in this pair the male was usually more aggressive than the female.

The hemlock forest was censused five times in 1977 (8 May; 6, 16, 23 June; 11 July). As in 1976, the black-throated green warbler (Dendroica virens) was the most abundant bird recorded (Table 71). The ovenbird and red-eyed vireo were the next most abundant birds observed. There were an estimated 5 more pairs of breeding birds per 100 acres in 1977 than in 1976.

The open meadows and fields were censused five times in 1977 (25 May; 1, 14, 22, 30 June). The common yellowthroat (Geothlypis trichas) and chestnut-sided warbler (Dendroica pensylvanica) were the most abundant birds observed (Table 72). A substantial decrease in the number of field sparrows (Spizella pusilla) was noted in 1977, along with a substantial increase in chestnut-sided warblers. There were an estimated 20 fewer pairs per 100 acres in 1977 than in 1976.

Upland Game Birds

Ruffed Grouse and Wild Turkey

The 2.9-mile route established on Dog Hill to count drumming ruffed grouse and gobbling wild turkey was surveyed on 26 and 30 April and on 5 May (Maps 11 and 12). One to three drumming ruffed grouse were heard during

these surveys (Table 73). Subsequent observations indicated that at least two broods of grouse were produced on Dog Hill. One brood was observed near Beaver Pond 3 and the other near the south end of the upper reservoir site (Map 11).

No wild turkey were heard or observed during these field trips. However, turkey tracks were observed in the snow near the north end of the upper reservoir site on 31 March and one was heard gobbling on 9 June near an old field (Map 12). No turkey broods were observed.

Woodcock

Six field areas were censused for singing male woodcock on Dog Hill in 1977 (Map 14). These areas were censused two to four times and all except Area 3 contained one to two woodcock engaged in courtship behavior (Table 74). The maximum number of courting woodcock assumed to be in the remaining five areas was nine.

Waterfowl

Observations for waterfowl were conducted periodically at the beaver ponds on Dog Hill during spring 1977. Three species were observed (Table 75). During subsequent observations no broods or hens behaving as if they had broods were observed.

Schoharie Reservoir

Nesting Bird Census

Nesting bird censuses were conducted on 8 and 22 June at the Alternate Excavation Disposal Area at the south end of Schoharie Reservoir (Map 7). The common yellowthroat and veery (*Catharus fuscescens*) were the most abundant birds recorded (Table 76).

A 36-acre plot was censused for nesting birds at the Schoharie Reservoir Temporary Lay Down Area (Map 7) on 21 June and 5 July. The red-eyed vireo and American redstart were the most numerous species censused (Table 77). The remaining species were birds commonly observed in second growth hardwood forests and conifer plantations in the area.

The approximately 45 acres of open water, emergent vegetation, and riparian woods that comprise the Schoharie Reservoir backwater were censused for nesting birds on 27 May and 28 June. The red-winged blackbird (Agelaius phoeniceus) and song sparrow (Passerella melodia) were the most abundant species observed (Table 78). The reproductive status of waterfowl within the backwater is reported below in the section regarding nesting waterfowl.

Upland Game Birds

The roads along the east and west sides of Schoharie Reservoir were surveyed for drumming ruffed grouse and gobbling wild turkey on 2 and 11 May (Map 13). No grouse were heard on these surveys. However, at least one grouse was heard drumming in the woods of the Alternate Excavation Disposal Area and a brood was observed just west of the Gilboa Dam on 27 June. During the 2 May survey, a Tom turkey was observed and heard gobbling on the west side of the reservoir. Another turkey was heard gobbling on 24 May in the woods adjacent to Zone 7. A brood of six wild turkey was observed crossing the road on the west side of the reservoir on 15 June. This is the first observation of a turkey brood at the Prattsville study site by IA personnel. The only other turkey observation occurred on 21 December, when two turkey were flushed from trees in the Schoharie Reservoir Temporary Lay Down Area.

Nesting Waterfowl

The wood duck, mallard, American black duck, common merganser, and domestic ducks (mallard and pekin) nested at Schoharie Reservoir in 1977. Each species will be considered separately in the results. In addition, blue-winged teal (*Anas discors*) observations will be included. There is no indication that this species nests at the study site although it remained in the area until late spring.

Nesting season chronology was divided into three time periods: prenesting, nesting, and brood rearing. These time periods overlap to a certain extent. The prenesting period began when the species was first sighted in the spring and ended when the first egg was laid. The nesting period was from when the first egg was laid until the last egg hatched. This period was divided into four categories: nest initiation period, egg laying period, incubation period, and hatching period. The brood rearing period began when the first clutch hatched and ended when the ducklings fledged. Nesting chronology for wood ducks, mallards, and common mergansers is given in Tables 79, 80, and 81. Time periods in these tables were calculated by aging broods and then back-dating, using standard clutch sizes and incubation periods of 12 eggs and 29 days for wood ducks (Haramis 1975), 10 eggs and 28 days for mallards (Johnsgard 1975), and 9 eggs and 32 days for common mergansers (Erskine 1971, Johnsgard 1975).

Wood Ducks

Prenesting Period

Wood ducks were first observed on 14 March, which coincides with arrival dates in central New York (Haramis 1975). By 14 March, most of the Schoharie Reservoir backwater was ice-free but the main body was still iced over.

During the prenesting period, wood ducks were occupied with feeding, resting, and searching for nesting sites. No courtship behavior was observed because wood ducks are paired when they arrive at their nesting grounds (Johnsgard 1975). In addition, there was an excess of males at the study site prior to nesting (Table 82), which is normal for surface-feeding ducks (Johnsgard 1975).

During the prenesting period most wood ducks were observed in Zone 38 (Table 82). This zone was protected from wind and had shallow water favorable for waterfowl feeding. The lush growth of inundated herbaceous vegetation in this area probably serves as a substrate and food source for invertebrates needed by nesting waterfowl (Schroeder 1973).

The largest number of wood duck pairs observed prior to nesting was eight (7 April) (Table 82). It is assumed that at least this many pairs attempted to nest at the study site because subsequently seven broods were observed.

Nesting Period

The first successful nest was initiated on 18 April and the last on 13 May, giving a nest initiation period of 26 days (Table 79). Haramis (1975) found the nest initiation period to be 66 days (29 March to 1 June) and the same period calculated from Klein's (1954) hatching data is 51 days (6 April to 27 May). The period of nest initiation corresponded to the peak of nest initiation reported by Haramis and Klein.

Females were on nests incubating from 30 April (first nest) to 23 June (last clutch to hatch). Nest loss could not be determined because no nests were found. The fact that a maximum of eight pairs was observed during the

prenesting period and that seven broods were observed may indicate that nest loss was low. Male wood ducks were last observed during the nesting season on 20 June. This agrees with Johnsgard (1975), who stated that male wood ducks desert the female while they are incubating the eggs. Presumably the male wood ducks went off the study site to molt. Habitat use by both females and males during the nesting period was primarily in Zones 38, 53, 37, 52, and 51 (Table 82).

Brood Rearing Period

The brood rearing period was considered to start with the first clutch hatching on 29 May and ended with two ducklings attaining flight capability by 31 August. Seven broods, totaling 44 young, hatched from 29 May through 23 June (Table 83). Benson and Foley (1962) reported the first three weeks in June to be the peak of hatching for this part of New York State.

Broods ranged from 3 to 10 in size when first observed. The Ia age class average 6.5 ducklings. This appears to be about normal because Klein (1954) found the Ia age class to average about 6.6 and Haramis (1975) found it to be 7.9. The larger broods in the Ia class reported by Haramis (1975) are a result of the bulk of his study population coming from nest boxes placed over water. This eliminated losses incurred in overland movement from nest site to brood habitat. If it is assumed the number of ducklings leaving the nest on the Prattsville study site was similar to that found by Haramis (1975) and Klein (1954) (11.93 and 11.20, respectively), an average loss of 5.2 ducklings per brood occurred between hatching and first observation.

Survival from the Ia to the IIa age class (59%) compares with published results of Baker (1971), Haramis (1975), and McGilvey (1969), who reported

52%, 60%, and 53% survival to age class II, respectively. McGilvrey (1969) found that mortality was so low after ducklings reached age class II that counts of this age class were reliable as estimates of overall survivorship to fledge. Survivorship from age class IIa to fledging in this study was only 7.7% (2 of 26). Overall survivorship from age class Ia to fledging in this study was 4.5%. Klein (1954) found overall survivorship to be 33%.

Low wood duck survival at the Prattsville study site could be the result of low water levels, predation, and failure of the site to meet nutritional requirements. Drawdown of the backwater began in late May and by the last week in June the area was dewatered. This created open mud flats between water and cover, making feeding and escape from predation difficult. The decrease in water level at Loeffler Pool was more gradual than at the backwater but by the first week in July it was very low and Zone 43 was not used by waterfowl after 5 July.

The actual extent of predation is unknown. Raccoons were plentiful at the backwater as evidenced by tracks. Snapping turtles, a known predator of wood ducks (Alexander 1943, Coulter 1957), were also numerous in Loeffler Pool (Table 84). In addition, predation of waterfowl by snapping turtles is greater when water levels are low (Coulter 1957).

Normal development of wood duck ducklings from hatching to fledging takes from 65 to 70 days (Johnsgard 1975). Johnson (1971) found the time taken for development was related to the amount of protein in the diet. In this study two ducklings fledged in 88 ± 4 days which suggests that the nutritional requirements were not met.

Habitat use by broods was quite restricted (Table 85). Six broods were observed only on Loeffler Pool. The seventh brood was found in parts of

Zones 50, 52, 53, and 54 that were adjacent to each other. This brood moved to Loeffler Pool on 1 July, after the backwater became completely dewatered. This concentrated ducklings in a diminishing habitat at Loeffler Pool.

Adults fed little in Loeffler Pool. Adult male wood ducks did not use Loeffler Pool after 8 June and females left the area to feed in Zones 37, 38, 51, 52, and 53. The hen-brood bonds were broken by 7 July, which agrees with Ball et al. (1975), who reported that this bond usually lasts about 31 days.

Two wood duck ducklings from different broods were captured and dyed. It is believed that they did not retain the dye or were predated because no subsequent observations were made of dyed ducklings.

Mallards

Prenesting Period

Mallards were first observed in the backwater on 9 March. The only area free of ice at that time was Johnson Hollow Brook and part of Zone 37. The main body of the reservoir was iced over except for the inlets of tributaries.

Observations from 9 March through 8 April (Table 86) indicate that most mallards were paired when they arrived at the study site with a few unpaired males present.

The maximum number of mallard pairs observed during nest initiation was 16 on 25 April (Table 86). It is expected that most of these pairs attempted to nest at the study site because they were there just prior to the peak of the nest initiation period.

Habitat use during the prenesting period was primarily in Zones 37, 48, 38, and 54 (Table 86). Zone 54 was deep water with emergent black willow furnishing loafing sites. Zones 37, 38, and 48 contained shallow water

flooding dead herbaceous vegetation and were used for feeding. The food source was probably invertebrates needed to meet nesting requirements.

Nesting Period

Mallard nests were initiated for a period of 52 days from 10 April through 31 May (Table 80). During this period males in small groups and lone females were observed more frequently than previously (Table 86), which suggests that females were occupied with nesting.

Courtship flights were last observed on 12, 16, and 20 May, just before the end of the nest initiation period. Observations after 20 May resulted in a low number of pairs (Table 86).

The first male to show signs of molt was observed on 6 June. It could not be determined if males spent the flightless period on the study site. Although no molted feathers were found, males in partial molt were observed until fall. After 17 June, male mallards were conspicuously absent from the backwater area but were still observed on the main body of the reservoir.

Nest searches were conducted in May and June (Maps 15 and 16). Six mallard nests were located in May (Table 87). Four of these nests were believed to be full clutches of 6, 10, 11, and 9 eggs for a mean of 9 eggs, which is normal (Johnsgard 1975). One other nest was predated before it was complete and the sixth had an unknown number of eggs removed from it by a predator.

Five of the six nests were hidden predominantly by reed canary grass. Based on Keith's (1961) criteria for nest concealment (Appendix 2), four were rated as very good and two as fair (Table 87). The two rated as fair

(nests 1 and 3) were destroyed by avian predators. A great horned owl killed the female on nest 1 while she was incubating and it is believed that a crow predated nest 3 while the female was off the nest. Nest 2 was predated by a mammal, as indicated by tooth marks on some remaining eggs. The female on nest 8 was flushed from the nest once on 31 May. She returned to lay one more egg and was not observed again. The one successful nest (nest 5) was hidden under a box elder tree that had washed up on the bank of Schoharie Creek. Six of the eleven egges were injected with amaranth dye about eight days before hatching.

Brood Rearing Period

The brood rearing period started with the first clutch hatching on 16 May and ended on 5 August because no flightless ducklings were observed after that date. Seven broods totaling 36 ducklings hatched from 16 May through 6 July. This agrees with Benson and Foley (1962) for length of nesting season but the peak in nesting was later at Schoharie Reservoir.

Broods ranged from 2 to 10 in size when first observed (Table 88). Five of the seven broods were in the Ia age class when first observed and averaged 5.2 ducklings per brood. Assuming nine is the average clutch size (this study), an average of 3.8 ducklings per brood was lost before the first observation. Nine to 12 (25% to 33%) of the 36 ducklings fledged.

Broods 1 and 2 were the most successful in that they fledged three and six ducklings, respectively. Brood 1 was raised primarily on the main body of the reservoir. Brood 2 used the backwater area (Zones 47, 50, and 54). Just prior to fledging, it moved to Loeffler Pool and then to the main body of the reservoir. These broods fledged in 58 and 54 days, respectively,

which is normal for mallards (Johnsgard 1975) and indicates that their nutritional requirements were met.

Brood 3 was raised primarily on Loeffler Pool. One surviving duckling was last observed in Zone 54 on 28 July, when it was approximately 53 days old and close to fledging.

Broods 4 and 7 were each observed only once and did not survive for very long. Low water levels may have had an influence on brood 7's failure to survive. Ball et al. (1975) report that loss of complete broods early in development is not uncommon. Two ducklings from brood 7 were captured and dyed but never observed again.

Brood 5 was observed three times from 22 June through 13 July. The first two times were in Zone 54 of the backwater. By 13 July water was very low in the backwater area and this brood moved to the main body of the reservoir. On this date, one duckling from this brood was observed hiding among rocks in Zone 33 and was assumed not to survive.

Brood 6 used the main body of the reservoir. It was observed four times in or adjacent to Zone 5. Two individuals from this brood were close to fledging when last observed.

Observation of six broods for which no nests were found plus the six unsuccessful nests located indicates a minimum of 12 nesting attempts. It is possible that some unsuccessful attempts and some broods lost early in development went undetected. The seventh brood, which was first observed on 7 July, was probably the result of a second nesting attempt.

American Black Ducks

American black ducks were first observed in the Schoharie Reservoir backwater on 4 March. After 11 March through May, low numbers were observed

(Table 89). On 8 June, a black duck brood of three (size class Ib, Southwick 1953) was observed at Loeffler Pool (Zone 43). This brood was never observed again and was assumed not to survive.

Blue-winged Teal

Blue-winged teals were first observed on 31 March in the backwater area. This duck is known to arrive later on the breeding grounds and to nest a few weeks later than mallards or wood ducks in New York State (Benson and Foley 1962).

Although two males and one female were observed from 31 March through 16 May, no courtship or breeding behavior was observed (Table 90). Blue-winged teals were not at the study site after 16 May.

Benson and Foley (1962) report that blue-winged teals nest only as an occasional pair in south central New York State. Therefore the northern Catskills is peripheral habitat for blue-winged teals and a nesting pair would occur only occasionally at Schoharie Reservoir.

Common Mergansers

The prenesting period (Table 81) lasted for 41 days from 11 March, when three males were seen, until 20 April. Male common mergansers were observed only three times after 11 March during the spring of 1977 (Table 91). Only one pair of common mergansers was observed in the spring (18 April). Male common mergansers left Schoharie Reservoir after breeding.

Common mergansers were nesting from 20 April to 8 June. A brood of seven was first observed on 7 June. When observed again on 14 June, there were only two young. The second brood was first observed on 8 June with 15 young; on 13 June there were 17 young. It is possible that two individuals

from the smaller brood moved to the larger brood and three others died from some unknown cause or that five from the small brood died and two added to the larger brood were still in the process of hatching when that brood was first observed.

One duckling from the small brood was captured and weighed (77g) on 7 June. Based on growth curves developed by Erskine (1971), this brood was one or two days old and the assumed hatching date was 5 June. Nest initiation and start of incubation were calculated, using 32 days as the incubation period (Erskine 1972, Johnsgard 1975), 9 as the average clutch size, and assuming one egg is laid per day (Johnsgard 1975). The calculated date of nest initiation was 25 April and the calculated start of incubation was 4 May.

On 9 June, a duckling from the large brood was captured and weighed (100 ± 5g). Using Erskine's (1971) growth curve and the duckling's down characteristics, it was determined that age was about two days. Assumed hatching date was 8 June. A brood of this size could be from a single clutch or a double clutch (Erskine 1972). If it was a single clutch, nest initiation was calculated to be 19 April; if it was a double, nest initiation was 27 April. Calculated start of incubation was 6 May. Hatching was close to the beginning of the peak reported by Benson and Foley (1962) for broods hatched in the Adirondacks.

Both broods were observed throughout the summer ranging over the entire reservoir with the larger brood sometimes moving into the backwater (Map 17). Mortality was low, with 16 to 18 (67% to 75%) of 24 fledging. One brood of seven lost five young in its first week of development and the other brood of 17 lost one after the brood was about half grown.

The smaller brood fledged on 15 August and 14 of the larger brood were observed to fly on 16 August. The common mergansers flew when about 73 days old, which agrees with Johnsgard (1975) and Erskine (1971), who reported that it requires 60 to 70 days to fledge.

The common merganser produced 11 young at Schoharie Reservoir in 1975, 14 in 1976, and 18 in 1977. The only previous common merganser broods reported for the Catskills are from the southwestern part of this region in Delaware and Broome Counties (Bull 1974). This population has existed since 1954 and started to increase in 1964, according to Bull. There is no documentation of common mergansers having nested in Schoharie or Greene Counties previously.

Semidomestic Ducks

Semidomestic ducks have been observed in the Schoharie Reservoir backwater in 1976 and 1977. In 1977, ten adults and five ducklings comprised this group, which consisted of four types: (1) five adult pekin duck (*Anas bochas*), which is the common white domestic duck; (2) one adult Muscovy duck (*Cairina moschata*), which is found only as an escapee in the Northeast; (3) semidomestic mallard (three adults and five ducklings), which is common in inhabited areas of New York State; and (4) one adult Cayuga type mallard (Scott 1972), which is found as a domestic duck in the Northeast but may also arise from wild stock (Table 92).

The semidomestic mallards and the Cayuga duck were behaviorally different than wild mallards in that they were much less wary. They were approached to within 20 yards without flushing on a number of occasions. Of the two female semidomestic mallards, only the smallest was observed to fly. The small semidomestic female mallard looked like a wild female

mallard except it was smaller, stockier in shape, darker, and had a distinguishable white line over and behind its eye. The Cayuga duck was black with white on the breast, front of neck, throat, and primaries. Feet and tarsus were orange and it had a slight greenish tinge to the head. It was assumed to be a male because it had the upper tail covert sex feathers and bill coloration of the male mallard. It appeared to be slightly larger than the wild mallard but smaller than the pekin ducks.

Four pekin ducks were observed regularly in the backwater area from 21 April through 18 July. About 12 eggs laid by these ducks were found lying on the ground (not in nests) or in the water. Most eggs had been predated by crows or grackles when found but a few were still intact. A fifth pekin duck nested on the west side of Schoharie Creek across from the New York City Department of Water Resources building (Table 93). This duck was observed three times before being killed and eaten by a mammal while on its nest.

Pekin ducks appeared to compete with wild ducks for food. They were observed to chase mallards twice and wood ducks once from an area where they were feeding. Wild ducks were never observed to feed in close proximity to pekin ducks. High use of certain areas by pekin ducks kept wild ducks from using those areas for feeding.

The muscovy duck was first observed on 3 August. It spent most of its time on Schoharie Creek near Prattsville and appeared to have very little interaction with other ducks.

A large semidomestic mallard nested on the west side of Schoharie Creek across from the Department of Water Resources building (Table 93).

Its nest contained six pekin duck eggs and 15 mallard eggs when it was predated on 31 May. The small female semidomestic mallard was observed on one occasion (31 May) with a male mallard that appeared normal but did not act normal in that it let the observer approach to within 35 yards without flushing. Throughout June, this duck was observed with the Cayuga duck near and south of Zone 40. On 7 July, these two ducks were observed with a brood of five ducklings just to the south of Zone 40. All observations of this brood were in riffles and pools of Schoharie Creek between Zone 40 and the Prattsville bridge. The behavior of the adults and the brood was much different than that observed in wild mallards in the following ways: (1) the male stayed with the brood until it fledged; (2) the young stayed in open water rather than move into dense vegetation when approached; (3) the young were not heard to peep as wild mallard ducklings do; (4) the adults remained relatively calm when approached and did not display any of the behavioral traits exhibited by wild mallards when their broods are threatened. On 31 August, three almost fully developed ducklings were observed with the adults and were assumed to have fledged.

Summary

The wood duck, mallard, American black duck, common merganser, and semidomestic mallard nested at Schoharie Reservoir in 1977 (Table 86). The number of ducklings observed in 1977 was greater than in the two previous years (Table 94). This is probably the result of more intensive observation and not necessarily a greater number of ducklings. The common mergansers were quite successful, with 16 to 18 (67% to 75%) of 24 ducklings fledging. Dabbling ducks (wood ducks, mallards, and black ducks) were much less

successful, with only 11 to 14 (13% to 17%) of 83 ducklings fledging. One semidomestic mallard fledged three of five ducklings. Overall, 30 to 35 (27% to 31%) of a total of 112 ducklings fledged.

Common merganser broods did not appear to be detrimentally affected by water supply drawdown. They use deep water for feeding and escape and do not need emergent vegetation for feeding or escape habitat.

The most important breeding habitats for dabbling ducks were the backsets on each side of the backwater area. These areas were used extensively by waterfowl and appeared to furnish the nutritional requirements for nesting. Survival of dabbling duck ducklings was low because of a diminishing brood habitat brought about by the lowering of water levels for water supply purposes.

Migratory Water Birds

Introduction

The distribution and abundance of migratory water birds were monitored during the spring and fall migrations at Lower and Upper B-G Reservoirs, Schoharie Reservoir, and the beaver ponds on Dog Hill. The major groups of birds for which data were collected include diving birds, wading birds, waterfowl, raptors, and shore birds. The bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*) will be considered under a separate section entitled "Endangered Species" because they were the only endangered species (either plant or animal) observed at the study site.

Methods

Observations during the spring and fall migrations for migratory water birds were conducted in the same manner as in 1975 and 1976 (Burt et al. 1976, 1977). In addition, periodic surveys were conducted in the winter and summer for bald eagles. In April, an aerial reconnaissance for possible bald eagle nests took place in a Bell 47G98 helicopter piloted by Walter Glass of the Mohawk Helicopter Service. The flight was made at elevations of 50 to 100 feet above treetop and the air speed was maintained at 40 mph when possible. An area totaling about 12,000 acres was surveyed. This included all the project features of the proposed Prattsville Project, Lower and Upper B-G Reservoirs, and a ½-mile buffer zone around the entire area. The survey was conducted in mid-April because the trees had not leafed out and detailed information from New York State's only active bald eagle nest indicated that incubation at this latitude is well under way by that time (Rauber 1976).

Results

Lower and Upper B-G Reservoirs

Spring Migration

At Lower B-G Reservoir, 18 species of birds comprising 376 individuals were observed during the spring 1977 migration (Table 95). Twelve of these species were waterfowl; they represented 78.5% of the birds observed. The Canada goose (*Branta canadensis*) (n = 70, 18.6%) and common merganser (69, 18.4%) were the most abundant species recorded. Of the three groups of waterfowl observed, ducks comprised 47.5% (n = 140) of the total, mergansers 28.1% (83), and geese 23.7% (70) (Table 96). The estimated number of waterfowl use days (WUD) was about 450 (Table 97), which is similar to the number recorded during the spring migrations of 1975 and 1976 (Figure 1).

A total of 990 birds comprising 26 species was observed at Upper B-G Reservoir during the spring migration (Table 98). The 15 species of waterfowl accounted for 93.8% (n = 929) of the birds recorded, with the Canada goose (388, 39.2%) and American black duck (284, 28.7%) the most abundant. As at Lower B-G Reservoir, ducks comprised the largest group of waterfowl (n = 520, 56.0%) at Upper B-G Reservoir; however the relative abundance of mergansers was much lower than at Lower B-G Reservoir (Table 99). Surface-feeding ducks were much more abundant than diving ducks. The estimated WUD was 1510 (Table 100), which was similar to that recorded during the spring 1976 migration but lower than that recorded during the spring 1975 migration (Figure 1).

During three years of study, the combined Lower and Upper B-G Reservoirs spring WUD was highest in 1975. The estimated WUD for both reservoirs was similar in 1976 and 1977 (Figure 1).

Fall Migration

At Lower B-G Reservoir, 21 species of birds comprising 359 individuals were observed during the five months of fall migration (Table 101). Waterfowl were the most abundant group, accounting for 77.2% (n = 277) of the total. The Canada goose was the most abundant species recorded (n = 233, 65.0%). Duck and merganser numbers were very low (Table 102). The estimated WUD was 925 (Table 103), which represents the lowest value during four years of study (Figure 1).

At Upper B-G Reservoir, 39 species comprising 6776 individuals were recorded during the fall migration (Table 104). Waterfowl accounted for 93.0% (n = 6299) of this total, with the Canada goose by far the most

abundant species (4607, 68.0%). Of the three major groups of waterfowl, geese accounted for 85.5% (n = 5382) of the total, ducks for 13.9% (876), and mergansers for 0.3% (16) (Table 105). The Canada goose accounted for 73.2% of all waterfowl and the snow goose (Anser caerulescens) for 12.3% (n = 775). All the snow geese were observed on 8 November in one large flock. They were were probably forced to land on the reservoir by the extreme weather conditions, which consisted of heavy rain and strong south to southwest winds. On 8 November, an estimated 1006 waterfowl were on Upper B-G Reservoir; this represents the largest number of waterfowl observed at any time on the three reservoirs.

The estimated WUD for Upper B-G Reservoir was 12978 (Table 106), which is more than twice any previous fall WUD for Upper B-G Reservoir (Figure 1). The major reason for the increased WUD was the use of Upper B-G Reservoir by Canada geese as a resting and loafing area between feeding periods in the surrounding agricultural fields. From 18 October through 5 December, 200 to 250 Canada geese were observed on 20 of 25 field trips. It was determined that most of these geese were feeding in corn and hay fields near Mackey, New York, which is about 1.5 miles east of Upper B-G Reservoir. In addition, a small group of geese fed in the corn fields in Schoharie Valley near North Blenheim, New York. Observations indicated that the geese fed in the fields between 6:00 am and 9:30 am. Canada geese were observed feeding in the corn fields near Mackey on 8, 11, and 17 November and in a hay field near Mackey on 3 December.

During the fall 1977 migration, three species of birds were observed at Upper B-G Reservoir that were not previously recorded by IA personnel at any of the Schoharie Valley study sites. They are:

1. Eared grebe. One individual was observed on 30 August. Bull (1974) indicated that it is a "very rare" migrant in this part of New York State.

2. Buff-breasted sandpiper. This species was observed on 1 and 2 September. On 1 September, two individuals were observed at about 11:30 am. At about 5:30 pm on 1 September and on 2 September, three individuals were observed. In all cases, these birds were observed on top of the dike, apparently feeding in the herbaceous vegetation along the road. Bull (1974) listed the buff-breasted sandpiper as a "rare but regular fall migrant." He stated that "usually only one or two individuals are recorded each fall" from New York State.

3. Tern spp. On 20 September, two terns (common or Arctic) were observed at Upper B-G Reservoir.

Schoharie Reservoir

Spring Migration

During the spring 1977 migration at Schoharie Reservoir, 34 species of birds comprising 1507 individuals were recorded (Table 107). Waterfowl comprised 88.0% (n = 1326) of this total; the mallard (n = 522, 34.6%) and wood duck (308, 20.4%) were most numerous. Ducks accounted for 94.3% (n = 1250) of all waterfowl recorded; however, geese and merganser relative abundance was low (0.2% and 3.4%, respectively) (Table 108). The estimated WUD was 2580 (Table 109), which was similar to that estimated for the spring 1976 migration (Figure 1). The total spring WUD for Lower B-G Reservoir, Upper B-G Reservoir, and Schoharie Reservoir was about 4500 for the spring 1976 and spring 1977 migrations (Figure 1).

Fall Migration

During the fall migration, 51 species comprising 7525 individuals were recorded at Schoharie Reservoir (Table 110). Waterfowl (n = 5137, 68.3%) and shore birds (2049, 27.2%) were the two most abundant groups of birds. Mallards and American black ducks accounted for 43.6% (n = 3280) of the birds observed. The killdeer (Charadrius vociferus) (n = 1029, 13.7%) and Canada goose (880, 11.7%) also were abundant. Of the waterfowl, ducks (n = 3388, 73.6%) were the most numerous group, followed by geese (1093, 23.8%) and mergansers (63, 1.4%) (Table 111). Surface-feeding ducks were much more numerous than diving ducks.

The estimated WUD was 10587 (Table 112), which represents a 49% decrease from the maximum WUD calculated for 1975 (Figure 1). One possible reason for this decrease was the extremely high water levels at Schoharie Reservoir that prevailed throughout the fall migration period (Figure 2). This high water prevented waterfowl access to benthos food sources used in 1975 and chufa tubers used in 1976.

Comparison of the three reservoirs indicates that the peak waterfowl abundance during the spring migration occurs at the end of March and during the first half of April (Figure 3). During the fall migration, the increase in waterfowl use begins earliest at Schoharie Reservoir where peak numbers were recorded in mid-October. At Upper B-G Reservoir, peak waterfowl numbers were recorded during the first half of November.

Total fall WUD for Lower B-G Reservoir, Upper B-G Reservoir, and Schoharie Reservoir has been between about 24500 and 24700 for 1975 through 1977 (Figure 1). The decreases noted at Schoharie Reservoir in 1976 and 1977 were compensated for by increases at the B-G Reservoirs. As noted

above, the decrease at Schoharie Reservoir is the result of high water levels. The major decrease at Schoharie Reservoir in 1977 when compared with 1975 was in surface-feeding duck use, which decreased by about 5100 WUD. There also was a substantial decrease in Canada goose use in 1977 when compared with 1975 (about 3700 WUD). Surface-feeding duck use at Upper B-G Reservoir was relatively light; therefore, decrease in WUD for this group was not compensated for at either of the B-G Reservoirs. However, the same is not true for Canada geese; it is possible that geese that might have used Schoharie Reservoir under different water level conditions were at Upper B-G Reservoir in 1977.

Thirteen species of shore birds were observed at Schoharie Reservoir during the fall 1977 migration (Table 110). The northern phalarope (Phalaropus lobatus) represents the only previously unrecorded species at the Prattsville study site. In addition, this species has not been positively identified from the B-G study site though a phalarope of undetermined species was observed at Upper B-G Reservoir. Bull (1974) indicated that this species is a rare to fairly common migrant inland in the fall.

Systematic observations of shore birds began in early July. In July and the first week of August, killdeer and spotted sandpipers (Actitis macularia comprised the bulk of shore birds observed (Figure 4). Toward the end of August, spotted sandpiper numbers decreased while killdeer and other shore birds showed a substantial increase. The largest number of shore bird use days was recorded from 29 August through 4 September, when more than 1000 use days occurred. Shore birds were more abundant in 1977 than 1975 or 1976 (Figure 5). There were an estimated 5056 use days in 1977, which compares with 1056 and 2152 for 1975 and 1976, respectively. Part of this increase is because observations

were conducted during the first three weeks of July in 1977 (638 use days) but not during the other two years. However, during the peak shore bird months of August and September, shore bird use days were consistently higher in 1977 than during the other two years. Shore bird use of Schoharie Reservoir was reduced to near zero at the end of September 1977 because rising water levels inundated the mud flats.

Dog Hill

Spring and Fall Migration

Waterfowl observed on the Dog Hill beaver ponds during the spring migration comprised three species; the American black duck was most numerous (n = 19, 40.4%), followed by the wood duck (16, 34.0%) and mallard (4, 8.5%) (Table 75).

During the fall migration three species of waterfowl totaling 122 individuals were observed on 11 field trips (Table 113). As in the spring, the American black duck was the most abundant waterfowl observed (n = 72, 59.0%), followed by the mallard (14, 11.5%) and wood duck (1, 0.8%).

Endangered Species

As noted previously, the bald eagle and osprey represent the only two endangered species observed at the Prattsville study site. The southern subspecies of the bald eagle (*Haliaeetus leucocephalus leucocephalus*) has been considered endangered since 1967 whereas the northern subspecies (*H. l. alascanus*) has been considered endangered or threatened (endangered in New York State) in the contiguous 48 states since March 1978 (United States Department of the Interior 1978). The osprey is listed as endangered in New York State but not by the federal government.

Bald Eagle Observations

Bald eagles were observed at the B-G study site four times during the winter of 1976-77 (Table 114). Three observations were at Lower B-G Reservoir and one at Upper B-G Reservoir. This represents a decrease in bald eagle observations when compared to the winter of 1975-76, when 17 sightings were reported. The bald eagle was observed on one occasion during the summer of 1977. This represents only the second summer bald eagle observation at the B-G study site since bald eagles were first observed at the Schoharie Valley study sites on 9 July 1975. Both summer observations occurred at Upper B-G Reservoir. A total of 23 bald eagle observations has been recorded from the B-G study site since 9 July 1975 and all have occurred in the winter and summer (Table 114).

One bald eagle observation was recorded at Schoharie Reservoir during the winter of 1976-77 (Table 115). This observation consisted of two individuals flying fairly low over the backwater. Seventeen bald eagle observations were recorded from 6 June through 2 September 1977. Eight of these observations were of immature birds, eight were of adults, and one was of a bird of undetermined age. Seven of the observations of immature birds were in the backwater as were three of the remaining eight observations. All but two of the observations occurred in either the backwater or Zones 5, 6, and 7. This is consistent with observations in previous years, when bald eagle observations tended to be clumped in these two areas (Map 18).

A total of 81 bald eagle observations has been recorded from Schoharie Reservoir during the observation period of 15 July 1975 through 31 December 1977 (Table 115). These observations consistently occurred in the winter and summer with no observations in April, most of May, October, and November

(Figure 6). As noted previously (Burt et al. 1977), this is the primary reason it is felt that bald eagles observed in winter are the northern subspecies and those observed in summer are the southern subspecies. To further assess the possibility of bald eagle nesting in the area, an aerial search for bald eagle nests was conducted in April 1977. The area covered at the Prattsville and B-G study sites, about 12,000 acres, was surveyed along a 60-mile flight path (Map 19). No bald eagles or bald eagle nests were observed during this survey.

Osprey Observations

At the B-G study site, one osprey observation was recorded during the spring 1977 migration and nine during the fall 1977 migration (Table 116). A total of 40 osprey observations has been recorded at the B-G study site since May 1974 and the period of occurrence during the two migratory periods has been similar for the past four years (Figure 7).

Eight osprey observations were recorded at Schoharie Reservoir during the spring 1977 migration (Table 117). Most were recorded at the backwater. During the fall migration, nine observations of osprey occurred. A total of 47 observations has been recorded since August 1975 and the period of occurrence has been similar during the spring and fall migrations (Figure 7).

MAMMALS

Introduction

The major emphasis of the mammal studies at the Prattsville study site has been on wintering white-tailed deer (Odocoileus virginianus borealis). The white-tailed deer study was conducted during the winters of 1976-77 and 1977-78. During the first winter, it consisted of ground reconnaissance for deer on Dog Hill. During the second winter, the study was enlarged to include aerial surveys for deer at Dog Hill, Schoharie Reservoir, and the proposed Transmission ROWs, ground surveys around Schoharie Reservoir, and dead deer surveys on Dog Hill and at Schoharie Reservoir. The winter occurrence of other mammals was recorded during the track surveys and muskrat (Ondatra z. zibethicus) and beaver (Castor canadensis) activities were monitored during the summer.

Methods

Track counts for white-tailed deer were conducted on Dog Hill along a 4.0-mile route during the winter of 1976-77 and along the same route plus a 0.5-mile addition (sections 17A, 17B, and 17C) during the winter of 1977-78 (Map 20).

The route traversed four plant community types: (1) second growth hardwood forest, (2) conifer forest, (3) hemlock-red maple swamp forest, and (4) open meadows and fields. When possible, the route was surveyed a day or two after a snowfall, and all tracks (including other mammals and game birds) that crossed it were recorded along with the habitat type. Individual animal prints crossing the route were designated as tracks and paths made by more than one animal were designated as trails. Track counts yielded data

regarding deer relative abundance in various habitat types and with changing snow depths (Bloom 1978, Kearney and Gilbert 1976, McCaffrey 1976, Wetzel et al. 1975, Telfer 1970).

Aerial surveys were conducted in a Cessna 172 single engine airplane during the winter of 1977-78. These surveys were conducted on a few days after a fresh snowfall of 10 inches or more. A grid with flight lines about ¼-mile apart was established on United States Geological Survey (USGS) maps. Approximately 32.4 square miles were surveyed at the Prattsville study site and surrounding areas (Map 21). The pilot was instructed to fly along these lines and to maintain as slow an air speed as possible (usually about 90 mph). The airplane was usually 100 to 200 feet above the hilltops and 1000 to 1500 feet above the valleys. Two observers accompanied the pilot; the observer in front plotted all observations on the USGS maps. Areas of light or heavy deer activity were plotted separately on the map and the location of all deer observed was recorded. A separate set of USGS maps was used for each flight.

Ground surveys for wintering white-tailed deer near Schoharie Reservoir were conducted in areas said to be deer wintering areas (Free 1975) and areas that may be directly affected by the proposed project (alternate excavation disposal area, Schoharie Reservoir Temporary Lay Down Area, Gilboa Dam Temporary Lay Down Area, Powerhouse-Switchyard Area, Haul Road) (Map 7).

Dead deer surveys were conducted around Schoharie Reservoir and on Dog Hill using the methods of Severinghaus (1961) (Map 22). The areas to be surveyed were traversed by one to three investigators. On a previously prepared base map the routes, areas covered, and locations of all dead deer found were plotted. The sex of each dead deer found was recorded,

the lower jaw was collected for age determination, and the bone marrow was examined for possible symptoms of malnutrition (Cheatum 1949). Other notes on the condition of the deer and possible causes of death were recorded.

Measurements of snow depth and compaction (Verme 1968) were made at five locations around Schoharie Reservoir and on Dog Hill during the deer surveys. An index for winter severity was calculated for the winters of 1976-77 and 1977-78 from weather data obtained from the U. S. Weather Bureau in Cobleskill, New York based on Picton's and Knight's (1971) methods.

Winter mammal observations were recorded during the deer track counts and the occurrence of muskrats and beavers was recorded during other field work.

Results and Discussion

Winter Mammal Observations on Dog Hill

During the winter of 1977-78, notes were taken on the tracks of all mammals observed. Fourteen species plus unidentified small mammals (mice and/or shrews) and weasels (*Mustela* spp.) were observed (Table 118). The most abundant tracks observed were those of the snowshoe hare (*Lepus americanus virginianus*), white-tailed deer, and cottontail rabbit (*Sylvilagus floridanus mearsii*). Bobcat (*Lynx rufus*) tracks were observed on 7 and 20 March in the hemlock-red maple forest and represent the first observation of this species at the Prattsville study site.

Wintering White-tailed Deer

During the winter of 1976-77, the deer route was traversed 11 times from 8 November 1976 through 21 March 1977 (Table 119). The hemlock-red maple

swamp forest was the most heavily used habitat type on a per mile of habitat basis and an estimated 54% of the tracks and trails were located in this habitat (Table 120). The other three habitat types received 13% to 19% of the use on a per mile of habitat basis. The relatively large numbers of tracks and trails recorded on 20 January and 9 and 16 February represent counts made four or more days after a snowfall rather than the usual one or two days and do not necessarily represent more deer. These results indicate that some deer were on Dog Hill all winter. In addition, deer moved about in all habitat types and no well-used trails having a trough-like appearance were noted. Snow depth on Dog Hill did not exceed 16 inches except in some drifted areas. In addition, the snow remained soft and deer were able to dig through it to food supplies near the ground for the entire winter.

During the winter of 1977-78, the route was traversed 13 times from 28 November 1977 through 27 March 1978 (Table 121). As during the previous winter, the largest percentage of deer tracks and trails per mile of habitat was in the hemlock-red maple swamp forest (Table 122). During the winter of 1977-78, the percentage of tracks and trails in the hemlock forest increased while the percentage in the second growth hardwood forest decreased when compared with the winter of 1976-77.

Seven surveys were conducted from 28 November 1977 through 31 January 1978 and the average number of tracks and trails recorded was 55. This is comparable to the average of 88 tracks and trails per day recorded during the winter of 1976-77 because this number is inflated as a result of three surveys being conducted four or more days after a snowfall as noted above. During the winter of 1977-78, a reduction in deer tracks was noted, beginning with the 13 February survey. No trails were observed after that

date. This reduction of deer use of Dog Hill occurred after a 25-inch snowfall on 6 and 7 February and an average snow depth of 28 inches was recorded in the hardwoods on 13 February. Prior to this date, mostly single deer tracks were observed on Dog Hill even though a 22-inch snow depth was recorded in the hardwoods on 23 January. Track count data indicate that deer had not returned to Dog Hill in their former abundance by the end of March even though the snow depth in the hardwoods was reduced to about 18 inches and bare ground was evident in the field.

After the 13 February 1978 survey, all conifer woods on Dog Hill were carefully searched for deer signs. On 16 February, the hemlock-red maple swamp forest was searched and no fresh deer tracks were observed. On 28 February, the hemlock stand which is traversed by section 9 of the deer track route was searched and no tracks were observed (Map 20). A hemlock stand at the south end of the upper reservoir site was searched on 8 March and one fresh deer track was observed along the southern border adjacent to a field.

During the winter of 1977-78, the study was enlarged to include aerial surveys which encompassed about 32.4 square miles and ground surveys near Schoharie Reservoir. In addition, a dead deer survey was conducted on Dog Hill and around Schoharie Reservoir.

Map 21?

see p 65

The first aerial survey was flown on 24 January 1978 and all areas of concentrated deer activity were plotted on a map (Map ~~22~~ 21). Deer activity was noted in most areas on Dog Hill (as indicated by the 23 January track counts) and other areas flown. However, concentrated activity was observed near the crests of the hills and on the slopes in areas of red cedar and young white pine.

One area of relatively heavy use was a young open white pine area to the west of the upper reservoir site on Dog Hill (Map 23). On 25 January, a 6000-foot route was traversed in this area and 14 heavily used trails and 115 tracks or lightly used trails were counted. This is about 114 tracks and trails per mile, which compares with 17 tracks and trails per mile recorded on 23 January along the deer track route at the upper reservoir site. In addition, no heavily used trails were recorded at the upper reservoir site.

A second aerial survey was conducted on 16 February, some nine days after a 25-inch snowfall (Map 24). Areas of heavy deer use were separated from those having light use. This was possible because the deep snow had created heavy concentration areas with numerous well-used trails. Light use areas had a few lightly used trails or individual tracks. Most deer had moved farther down slopes when compared with the 25 January aerial survey. The east-facing slopes of Schoharie Valley received particularly heavy use. Another area of very heavy deer activity was noted in the conifer areas (red cedar and white pine) just north of Prattsville, New York.

Subsequent ground surveys substantiated the aerial survey observations of light activity on the hill (for example, Dog Hill surveys, Table 121) and the heavy activity on the slopes. On 1 March, a 4.2-mile segment of the road on the west side of Schoharie Reservoir was surveyed for deer sign and 60 well used trails and 197 tracks and lightly used trails were counted (61 tracks and trails per mile). On the same day, a 5.9-mile segment of road on the east side of the reservoir was surveyed and 27 trails and 94 tracks were observed (21 per mile). Another area of heavy use was observed on the west side of Schoharie Creek just north of Gilboa Dam and a ground survey on

2 March along an approximately 1.0-mile route yielded 23 well used trails and 28 tracks (51 trails and tracks per mile).

During the winter of 1977-78, deer browsed on numerous woody species near the reservoir and adjacent slopes (Table 123). Fourteen of the 31 species are listed as starvation food by the DEC. In all areas surveyed, apple and red cedar were heavily browsed when available. Deer browsing activity was particularly heavy at the margin of the reservoir. Snow depths on the ice of the reservoir were usually only 8 to 12 inches and deer fed on almost anything they could reach. Deer fed sparingly on emergent black willow but heavy use of cottonwood was noted.

During March and April, 1978, surveys for dead deer were conducted around Schoharie Reservoir including all areas to be directly affected by the proposed project (776 acres), in the vicinity of the proposed haul road (165 acres) and on Dog Hill in the area of the proposed upper reservoir (248 acres) (Map 22). All dead deer observed in the survey area as well as all those observed in unsurveyed areas at other times during the spring of 1978 were recorded.

these references ok

A total of 49 dead deer was found (Table 124) and their locations were plotted on a map (Map 22). One dead deer was found on Dog Hill (#38) and one was found near the proposed haul road (#39) during the dead deer surveys. Twenty-eight dead deer were found near Schoharie Reservoir during the dead deer survey and 19 during the course of other field work.

The largest concentration of dead deer was at the north end of Schoharie Reservoir. Six of these deer (#5 through #10) had fallen from the Gilboa Dam. The causes of their falls are not known but it is probable that dogs chased at least some of them over the dam. Two deer (#11 and #12) that were

observed on the ice of Schoharie Reservoir probably had been killed by dogs; dogs and crows were subsequently observed feeding on these carcasses.

Of the 49 dead deer the age and sex of 47 were recorded; 74% (n = 35) were born in 1977 (fawns). Twenty-one (60%) of the fawns were female and the remainder male. Twelve adult deer comprised 26% of the 47 deer, with most (83%) being female.

The femur bone marrow of 34 fawns was inspected using Cheatum's criteria (1949) for determining the fat content, it was determined that 5 (15%) had a fat content of greater than 50% and 29 (88%) less than or equal to 50%. Of the 29, 19 (66%) had a fat content estimated to be 1.5%. The bone marrow fat content was determined for 11 adults; 8 (73%) were greater than 50% and the remainder were 50% or less. Only one adult had a very low (1.5%) fat content.

Based on weather data collected at Cobleskill, New York since the winter of 1956-57 and Picton's and Knight's (1971) winter severity index, the winter of 1977-78 was the second most severe of the past 22, with 21566 winter severity points (Table 125). For the winter of 1976-77, 10155 severity points were calculated, making it the ninth most severe winter. The trend of a series of relatively mild winters being followed by a series of moderate to severe winters seems to be continuing in this area (Figure 8). According to Severinghaus (1972), "Factors making a severe winter for deer are the number of days with snow depths greater than 15 inches and greater than 20 inches." According to Severinghaus, 60 or more days with 15 inches or 50 or more days with 20 inches on the ground cause the beginning of serious winter deer losses. During the winter of 1977-78, there were 55 days with 15 or more inches of snow on the ground (Table 126) and 40 days with 20 or more inches of snow on the ground, which are close to conditions Severinghaus considers critical for Adirondack deer.

The weather data plus deer movement patterns, feeding habits, and signs of malnutrition indicate that the winter of 1977-78 was a severe winter for deer and based on Severinghaus's (1972) and Burt's (1977d) analyses of deer density-winter weather relationships, a reduction in the deer herd can be expected. In addition, it is apparent that the upper reservoir site on Dog Hill is not used as a deer concentration area during severe winters. Most of the deer in the region of Dog Hill tend to move off the tops of the hills and winter on the steep slopes or in the valley during severe winters. In addition, the results of this study indicate that deer can be expected to remain on Dog Hill during less severe winters but that no concentration areas will develop.

Snowshoe Hare and Cottontail Rabbit

Snowshoe hare and cottontail rabbit tracks and trails were numerous enough to be analyzed according to habitat type along the 4.0-mile deer survey route on Dog Hill (4.5 miles during the winter of 1977-78) (Map 20). During the winter of 1976-77, the largest percentage of hare tracks and trails was observed in the second growth hardwood forest (Table 127). However, when these figures were adjusted to a per unit basis (tracks per mile of habitat), the hemlock-red maple swamp forest was the most heavily used habitat (Table 128).

During the winter of 1977-78, a 0.5-mile section was added to the route; 0.3 miles of the additional section traversed a young white pine forest (sections 17B and 17C, Map 20). This plant community was evaluated separately because of the particularly heavy hare activity. The white pine forest contained the largest percentage of hare tracks even though it comprised the smallest percentage of plant community type surveyed (Table 129). On a per

mile of habitat basis, this plant community type accounted for 62% of the hare tracks and trails (Table 130).

The largest percentage of cottontail rabbit tracks along the route and on a per mile of habitat basis were counted in the open meadows and fields habitat in both 1976-77 (Tables 131 and 132) and 1977-78 (Tables 133 and 134). Cottontail rabbit activity observed in the second growth hardwood forest generally was associated with small openings in these woods.

Muskrat and Beaver Observations

Muskrats were observed at Schoharie Reservoir at various times from March through November 1977. Muskrat observations were more frequent after water supply drawdown began in late May because they were forced to move about on exposed mud flats. Muskrat denning activity was recorded at seven areas on the main body of the reservoir and four areas in the backwater (Map 25). The only muskrat house observed was located at the tip of land between Zones 48 and 49 and was washed away during high water.

The backwater was dewatered at the end of June except for Johnson Hollow Brook and Schoharie Creek. Muskrats continued to exist in the shallow water of Johnson Hollow Brook in Zones 47, 49, and 50. On 17 June one young muskrat was observed in this area.

On the main body of the reservoir, muskrats were observed to follow the water level down with their holes, especially on the muddy banks on Zones 2, 4, 5, 8, 10, 29, 31, and 32. On 28 July (reservoir elevation 1105 feet), measurements were taken for some of these series of holes. In Zone 4, a series of holes and burrows extended about 150 feet down a relatively gentle unvegetated slope from the 1130-foot elevation. The last hole was about 65 feet from the water and the muskrats were still active in the area. An

inactive series of holes occurred at the north end of Zone 5; the holes began about 130 feet down the slope from the 1130-foot elevation and ended about 60 feet from the water. At the south end of Zone 5, an active series of holes began about 150 feet down the slope from the 1130-foot elevation and ended about 40 feet from the water. Another extensive series of holes was noted in Zone 8, where one abandoned series began at the 1130-foot elevation and ended 75 feet from the water. An active series about 150 feet away had its lowest hole about 15 feet from the water and extended an additional 20 feet up the slope.

Muskrats frequently were observed carrying vegetation and their cuttings were observed floating on the reservoir and inside their den entrances. Plant species observed include black willow (Salix nigra), meadowsweet, sedge (Carex crinita), chufa, common horsetail (Equisetum arvense), reed canary grass (Phalaris arundinacea), bulrush (Scirpus cyperinus), and spikebush (Eleocharis sp.).

Beaver lodges at and near Schoharie Reservoir were observed in Zones 42 and 46 and below Gilboa Dam on the east side of Schoharie Creek (Map 25). During numerous observations, only two beavers were observed at Zone 42 (one adult and one yearling); one adult was observed at Zone 46. One adult was observed near the lodge below Gilboa Dam on one occasion. The only beaver activity recorded on the main body of the reservoir occurred on 7 June, when one adult was observed in Zone 5.

Beavers were observed eight times in Beaver Pond 1 on Dog Hill from 11 March through 7 October 1977 (Map 11). One or two adults were observed on each occasion; no young of the year were observed. These beavers were continuing to cut down aspen and other tree species around the pond. They

also were expanding their activities into an adjacent alder swamp east of the beaver pond.

WHITE-TAILED DEER HUNTER SURVEY

Introduction

In 1977, a white-tailed deer hunter survey was conducted at the Prattsville study site. Objectives of the survey were to: (1) determine the county of origin of hunters on Dog Hill and (2) estimate hunter density and the number of hunter use days (HUD).

Methods

The 1977 white-tailed deer hunting season took place from 21 November through 13 December. The survey was conducted on 10 days: opening day, the second day, five of six weekend days, Thanksgiving Day, the last day, and one other weekday chosen at random. The survey route traversed 19.5 miles of roads on and near Dog Hill (Map 26).

All vehicles observed along the route were tallied and their license plate numbers recorded. Included were vehicles associated with hunting camps, which were marked as such. The county of registration of most vehicles with New York State license plates was determined.

To estimate hunter density and HUD, it was assumed that there were 2.5 hunters per vehicle (Burt 1977d). The number of vehicles on the route on unsurveyed days was estimated from data collected on surveyed days. The number of vehicles on the route on 23 and 25 November was assumed to be the same as the number counted on 24 November. The first Saturday of the season (26 November) could not be surveyed because of a snow storm. This is usually the second busiest day during the hunting season in this area but

was assumed to have the same number of vehicles as recorded on the first Sunday (27 November) because of the heavy snow. The number of vehicles assumed to be on the route for the remaining unsurveyed days, which were all weekdays, was the same as that recorded on 8 December. To calculate hunter density, a 12.5 square mile area encompassing the roads comprising the route was used.

Results

Hunter Origin

About 195 miles of road were surveyed on 10 days. A total of 177 vehicles was counted; 146 (82.5%) were identified as to New York State county of registration, 18 (10.2%) New York State plates were not identified, and 13 (7.3%) vehicles had out-of-state plates (Table 135). Schenectady and Albany counties were represented by 18.1% (n = 32) and 10.2% (18), respectively, of the cars. On a regional basis, the Capital Region had the largest number of vehicles (n = 57, 45.6%), followed by the New York City Region (44, 35.2%) (Table 136).

Hunter Density and Hunter Use Days (HUD)

The greatest number of vehicles was observed on opening day (21 November), when 49 were counted; the least observed was three on 8 and 13 December (Table 137). A total of 177 cars was tallied on the 10 survey days, with an average of 0.91 vehicles per mile.

In the area used to estimate hunter density, 19.5 miles of road were surveyed and 4.5 miles were unsurveyed. The total number of vehicles assumed to be on the surveyed and unsurveyed roads was 314 (Table 138). The

total HUD was estimated at 788, with an average hunter density of 2.7 per square mile per day. The largest estimated number of hunters per square mile occurred on opening day (12.0) and the second day (7.4).

Discussion

During the 1975 hunter survey at the Prattsville study site the miles of roads (46.7 miles) and area surveyed (39 square miles) were larger than in 1977 (Burt et al. 1976). The percentage of vehicles observed from the Mohawk Valley and Northern Catskill Regions was similar during both surveys, but the largest number of vehicles was from the New York City Region in 1975, whereas in 1977 the largest number was from the Capital Region. This is because the 1975 survey included state land east of Dog Hill which had a relatively high proportion of New York City region hunters.

The estimated number of hunters per square mile per day in 1975 was 3.6. The area surveyed included large sections of state land, which receives more hunting pressure than private land. The estimated hunter density per square mile per day near the upper reservoir site was 2.5 for 1975 (PASNY 1977, based on Burt et al. 1976 data). This is in close agreement with the estimated hunters per square mile per day of 2.7 calculated for 1977.

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Table 1. Plant taxa observed along the Primary Transmission ROW between the proposed Prattsville Pumped Storage Project and the existing Gilboa-New Scotland Transmission ROW.

Community: 1 = hemlock-white pine-hardwood forest
2 = hemlock ravine forest
3 = fields
4 = marsh

Scientific Name	Common Name	Community			
Trees					
Acer rubrum	red maple	1	2	3	4
Acer saccharum	sugar maple	1	2		
Betula lenta	black birch	1			
Betula lutea	yellow birch		2		
Betula papyrifera	paper birch	1	2		
Carpinus caroliniana	American hornbeam	1			
Carya sp.	hickory	1			
Fagus grandifolia	American beech	1	2		
Fraxinus americana	white ash	1	2		
Juglans cinerea	butternut		2		
Juniperus virginiana	red cedar			3	
Ostrya virginiana	hop-hornbeam	1	2		
Pinus resinosa	red pine	1			
Pinus strobus	white pine	1			
Populus grandidentata	large-toothed aspen	1			
Populus tremuloides	quaking aspen	1		3	
Prunus pensylvanica	fire cherry	1			4
Prunus serotina	black cherry	1			
Prunus virginiana	choke cherry	1			
Pyrus malus	apple	1			
Quercus alba	white oak	1			
Quercus borealis	red oak	1			
Robinia pseudoacacia	black locust			3	
Tilia americana	basswood	1			
Tsuga canadensis	hemlock	1	2		
Ulmus americana	American elm		2		
Shrubs					
Acer pensylvanicum	striped maple		2		
Alnus rugosa	speckled alder				4
Berberis vulgaris	European barberry			3	
Hamamelis virginiana	common witch-hazel	1			
Lonicera tatarica	Tartarian honeysuckle			3	
Rhus typhina	staghorn sumac			3	
Rubus allegheniensis	blackberry	1		3	
Rubus odoratus	flowering raspberry	1			
Rubus strigosus	red raspberry	1		3	4
Salix sp.	willow				4
Sambucus canadensis	common elderberry				4
Sambucus pubens	red elderberry			3	

Table 1. (Continued)

Scientific Name	Common Name	Community			
Shrubs, continued					
Spiraea latifolia	meadowsweet				4
Spiraea tomentosa	steeplebush				4
Vaccinium angustifolium	lowbush blueberry	1			
Herbs					
Achillea millefolium	yarrow	1		3	
Anemone quinquefolia	wood-anemone	1			
Antennaria neglecta	pussytoes	1			
Aquilegia canadensis	columbine	1			
Aralia nudicaulis	wild sarsaparilla		2		
Arisaema triphyllum	jack-in-the-pulpit		2		
Asarum canadense	wild ginger		2		
Asclepias syriaca	common milkweed			3	
Asplenium platyneuron	ebony-spleenwort	1			
Aster acuminatus	whorled wood aster		2		
Aster divaricatus	white wood aster	1	2		
Athyrium filix-femina	lady fern	1	2		
Barbarea vulgaris	winter-cress			3	
Botrychium matricariaefolium	daisy-leaf grape fern		2		
Carex crinita	sedge				4
Carex gracillima	drooping sedge	1	2		
Carex pensylvanica	sedge	1			
Carex spp.	sedges	1	2		4
Chrysanthemum leucanthemum	ox-eye daisy			3	
Circaea canadensis	enchanter's nightshade		2		
Coptis trifolia	goldthread	1			
Cystopteris fragilis	fragile fern		2		
Dactylis glomerata	orchard grass			3	
Daucus carota	wild carrot			3	
Dennstaedtia punctilobula	hay-scented fern	1		3	
Dentaria diphylla	toothwort		2		
Dryopteris intermedia	fancy fern	1	2		
Dryopteris marginalis	marginal wood fern	1	2		
Epipactis helleborine	helleborine	1			
Erigeron pulchellus	robin's plaintain			3	
Equisetum arvense	field horsetail			3	
Equisetum sylvaticum	wood horsetail	1			
Fragaria virginiana	wild strawberry	1		3	
Galium mollugo	bedstraw			3	
Galium triflorum	bedstraw		2		
Hieracium aurantiacum	devil's paintbrush			3	
Hieracium pratense	hawkweed			3	
Hypericum perforatum	St. John's wort			3	4
Iris versicolor	blue flag				4
Juncus effusus	rush				4
Lotus corniculatus	bird's foot trefoil			3	
Luzula campestris	wood rush	1			
Lychnis alba	white campion			3	

Table 1. (Continued)

Scientific Name	Common Name	Community			
Herbs, continued					
Lycopodium clavatum	staghorn clubmoss	1			
Lycopodium flabelliforme	crow-foot clubmoss	1			
Lycopodium lucidulum	shining clubmoss		2		
Lycopodium obscurum	tree clubmoss	1			
Maianthemum canadense	wild lily-of-the-valley	1	2		
Mitchella repens	partridge berry	1	2		
Monotropa uniflora	Indian pipe	1	2		
Onoclea sensibilis	sensitive fern				4
Osmunda cinnamomea	cinnamon fern				4
Osmunda claytoniana	interrupted fern	1		3	
Oxalis sp.	wood-sorrel	1			
Phleum pratense	timothy			3	
Plantago lanceolata	English plaintain			3	
Poa pratensis	Kentucky bluegrass			3	
Poa sp.	bluegrass	1			
Polygala paucifolia	fringed polygala	1			
Polypodium virginianum	common polypody		2		
Polystichum acrostichoides	Christmas fern	1			
Potentilla recta	rough-fruited cinquefoil			3	
Potentilla simplex	common cinquefoil	1		3	
Pteridium aquilinum	bracken	1			
Pyrola elliptica	shinleaf	1			
Ranunculus acris	buttercup	1		3	
Rubus pubescens	dwarf blackberry		2		
Rumex acetosella	sheep sorrel	1		3	
Rumex crispus	curly dock			3	
Saxifraga pensylvanica	swamp saxifrage	1			
Senecio obovatus	roundleaf ragwort		2		
Sisyrinchium angustifolium	blue-eyed grass			3	
Smilacina racemosa	false Solomon's seal	1	2		
Solidago graminifolia	flat-topped goldenrod			3	
Solidago sp.	goldenrod	1		3	4
Stellaria longifolia	long-leaved chickweed			3	
Thelypteris noveboracensis	New York fern	1	2		
Thymus serpyllum	wild thyme			3	
Tragopogon pratensis	goat's beard			3	
Trientalis borealis	starflower	1	2		
Trifolium pratense	red clover			3	
Trifolium repens	white clover			3	
Typha latifolia	common cat-tail				4
Uvularia sessilifolia	sessile-leaved bellwort	1	2		
Veratrum viride	false helleborine				4
Veronica chamaedrys	bird's-eye	1			
Veronica officinalis	common speedwell	1		3	
Viola sp.	violet	1	2		
Waldsteinia fragarioides	barren strawberry	1			

Table 2. Plant taxa observed in the Alternate Transmission ROW "C" on Bull Hill and Brown Mountain in July 1977.

Community: 1 = hemlock-white pine-hardwood forest
2 = hemlock ravine forest
3 = fields

Scientific Name	Common Name	Community		
Trees				
Acer negundo	box elder			3
Acer rubrum	red maple	1	2	3
Acer saccharum	sugar maple	1	2	
Betula lenta	black birch	1		
Betula lutea	yellow birch		2	
Betula papyrifera	paper birch	1	2	
Fagus grandifolia	American beech	1	2	
Fraxinus americana	white ash	1	2	
Juglans cinerea	butternut			3
Juniperus virginiana	red cedar	1		3
Ostrva virginiana	hop-hornbeam	1	2	
Pinus resinosa	red pine	1		
Pinus strobus	white pine	1		3
Populus tremuloides	quaking aspen	1		3
Prunus virginiana	choke cherry	1		
Pyrus malus	apple	1		3
Quercus borealis	red oak	1		
Tsuga canadensis	hemlock	1	2	
Ulmus americana	American elm		2	
Shrubs				
Acer pensylvanicum	striped maple	1	2	
Alnus rugosa	speckled alder			3
Berberis vulgaris	European barberry			3
Rhododendron nudiflorum	pinxter	1		
Rhus typhina	staghorn sumac			3
Rubus allegheniensis	blackberry	1		3
Rubus strigosus	red raspberry	1		3
Salix rigida	red-tipped willow			3
Salix sp.	willow			3
Spiraea latifolia	meadowsweet			3
Syringa vulgaris	common lilac			3
Vaccinium angustifolium	lowbush blueberry	1		
Viburnum acerifolium	maple-leaved viburnum	1		
Herbs				
Achillea millefolium	yarrow	1		3
Ambrosia artemisiifolia	common ragweed			3
Anaphalis margaritacea	pearly everlasting			3
Anemone virginiana	thimbleweed			3
Anthoxanthum odoratum	sweet vernal grass			3
Aquilegia canadensis	columbine	1		
Aralia nudicaulis	wild sarsaparilla	1	2	

Table 2. (Continued)

Scientific Name	Common Name	Community		
Arctium minus	burdock			3
Arisaema triphyllum	jack-in-the-pulpit		2	
Asarum canadense	wild ginger		2	
Asclepias syriaca	common milkweed			3
Aster acuminatus	whorled wood aster		2	
Aster divaricatus	white wood aster	1	2	
Athyrium filix-femina	lady fern	1	2	3
Brachyelytrum erectum	grass	1		
Carex gracillima	drooping sedge	1	2	
Carex hystericina	sedge			3
Carex spp.	sedges	1		3
Chrysanthemum leucanthemum	ox-eye daisy			3
Cichorium intybus	chicory			3
Circaea canadensis	enchanter's nightshade	1	2	
Cirsium arvense	Canada thistle			3
Cirsium vulgare	bull-thistle			3
Dactylis glomerata	orchard grass			3
Daucus carota	wild carrot			3
Dianthus armeria	deptford pink			3
Dryopteris intermedia	fancy fern	1	2	
Dryopteris marginalis	marginal wood fern	1	2	
Epipactis helleborine	helleborine	1		
Equisetum arvense	field horsetail			3
Eupatorium perfoliatum	boneset			3
Fragaria virginiana	wild strawberry	1		3
Galeopsis tetrahit	hemp-nettle			3
Galium mollugo	bedstraw			3
Galium triflorum	bedstraw	1	2	
Geum aleppicum	avens			3
Hieracium aurantiacum	devil's paintbrush			3
Hypericum perforatum	St. John's wort			3
Inula helenium	elecampane			3
Leontodon automalis	fall dandelion			3
Leonurus cardiaca	motherwort			3
Linaria vulgaris	butter and eggs			3
Lotus corniculatus	bird's foot trefoil			3
Lycopodium lucidulum	shining clubmoss		2	
Maianthemum canadense	wild lily-of-the-valley	1	2	
Malva moschata	musk mallow			3
Medicago lupulina	black medick			3
Melampyrum lineare	cow wheat	1		
Melilotus alba	white sweet clover			3
Melilotus officinalis	yellow sweet clover			3
Mitchella repens	partridge berry	1	2	
Monotropha uniflora	Indian pipe	1	2	
Nepeta cataria	catnip			3

Table 2. (Continued)

Scientific Name	Common Name	Community		
Oenothera biennis	evening primrose			3
Onoclea sensibilis	sensitive fern			3
Oxalis sp.	wood-sorrel	1		3
Pastinaca sativa	wild parsnip			3
Phalaris arundinacea	reed canary grass			3
Phleum pratense	timothy			3
Poa sp.	bluegrass	1		3
Polypodium virginianum	common polypody		2	
Polystichum acrostichoides	Christmas fern	1		
Potentilla simplex	common cinquefoil	1		3
Prunella vulgaris	selfheal	1		
Pteridium aquilinum	bracken	1		
Ranunculus acris	buttercup	1		3
Rumex acetosella	sheep sorrel	1		3
Rumex crispus	curly dock			3
Satureja vulgaris	wild basil			3
Scirpus atrovirens	bulrush			3
Setaria glauca	foxtail			3
Silene cucubalus	bladder campion			3
Smilacina racemosa	false Solomon's seal	1	2	
Solanum dulcamara	nightshade			3
Solidago spp.	goldenrods	1		3
Stellaria longifolia	long-leaved chickweed			3
Thelypteris noveboracensis	New York fern	1	2	
Thymus serphyllum	wild thyme			3
Tragopogon pratensis	goat's beard			3
Trientalis borealis	starflower	1	2	
Trifolium agrarium	yellow clover			3
Trifolium pratense	red clover			3
Trifolium repens	white clover			3
Urtica dioica	stinging nettle			3
Uvularia sessilifolia	sessile-leaved bellwort	1	2	
Verbascum thapsus	common mullein			3
Verbena hastata	blue vervain			3
Veronica chamaedrys	bird's-eye	1		
Veronica officinalis	common speedwell	1		3
Viola sp.	violet	1	2	

Table 3. Plant taxa observed in the Alternate Transmission ROW "D" on Bull Hill and Brown Mountain in July 1977.

Community: 1 = hemlock-white pine-hardwood forest
2 = hemlock ravine forest
3 = fields

Scientific Name	Common Name	Community		
Trees				
Acer rubrum	red maple	1		3
Acer saccharum	sugar maple	1		3
Betula lenta	black birch	1		
Betula lutea	yellow birch		2	
Betula papryifera	paper birch	1	2	3
Fagus grandifolia	American beech	1	2	
Fraxinus americana	white ash	1	2	3
Juglans cinerea	butternut			3
Juniperus virginiana	red cedar	1		3
Ostrya virginiana	hop-hornbeam	1	2	
Pinus strobus	white pine	1	2	3
Populus tremuloides	quaking aspen	1		3
Prunus serotina	black cherry	1		3
Pyrus malus	apple	1		3
Quercus borealis	red oak	1		
Robinia pseudoacacia	black locust			3
Tilia americana	basswood	1	2	
Tsuga canadensis	hemlock	1	2	3
Ulmus americana	American elm		2	
Shrubs				
Acer pensylvanicum	striped maple		2	
Alnus rugosa	speckled alder			3
Berberis vulgaris	European barberry			3
Parthenocissus quinquefolia	Virginia creeper			3
Rhus typhina	staghorn sumac			3
Rubus allegheniensis	blackberry	1		3
Rubus odoratus	flowering raspberry	1	2	
Rubus strigosus	red raspberry	1		3
Salix sp.	willow			3
Spiraea tomentosa	steeplebush			3
Vaccinium angustifolium	lowbush blueberry	1		3
Herbs				
Achillea millefolium	yarrow	1		3
Agrimonia pubescens	agrimony			3
Ambrosia artemisiifolia	common ragweed			3
Anaphalis margaritacea	pearly everlasting			3
Anemone virginiana	thimbleweed			3
Anthoxanthum odoratum	sweet vernal grass			3
Aquilegia canadensis	columbine	1		
Aralia nudicaulis	wild sarsaparilla	1	2	

Table 3. (Continued)

Scientific Name	Common Name	Community		
Arctium minus	burdock			3
Arisaema triphyllum	jack-in-the-pulpit		2	
Asarum canadense	wild ginger		2	
Asclepias syriaca	common milkweed			3
Asplenium platyneuron	ebony-spleenwort	1		
Aster acuminatus	whorled wood aster		2	
Aster divaricatus	white wood aster	1	2	
Aster macrophyllus	aster			3
Athyrium filix-femina	lady fern	1	2	3
Carex gracillima	drooping sedge	1	2	
Carex spp.	sedges	1		3
Chrysanthemum leucanthemum	ox-eye daisy			3
Cichorium intybus	chicory			3
Circaea canadensis	enchanter's nightshade	1	2	
Cirsium arvense	Canada thistle			3
Cirsium vulgare	bull-thistle			3
Dactylis glomerata	orchard grass			3
Daucus carota	wild carrot			3
Dianthus armeria	deptford pink			3
Dryopteris intermedia	fancy fern	1	2	
Dryopteris marginalis	marginal wood fern	1	2	
Epipactis helleborine	helleborine	1	2	
Equisetum arvense	field horsetail			3
Eupatorium perfoliatum	boneset			3
Fragaria virginiana	wild strawberry	1		3
Galeopsis tetrahit	hemp-nettle			3
Galium mollugo	bedstraw			3
Galium triflorum	bedstraw	1	2	
Geum aleppicum	avens			3
Geum canadense	avens	1		3
Hieracium aurantiacum	devil's paintbrush			3
Hypericum perforatum	hawkweed			3
Leontodon autumnalis	fall dandelion			3
Leonurus cardiaca	motherwort			3
Lepidium campestre	cow-cress			3
Linaria vulgaris	butter and eggs			3
Lotus corniculatus	bird's foot trefoil			3
Lycopodium lucidulum	shining clubmoss		2	
Lysimachia ciliata	fringed loosestrife			3
Maianthemum canadense	wild lily-of-the-valley	1	2	
Malva moschata	musk mallow			3
Medeola virginiana	Indian cucumber	1	2	
Medicago lupulina	black medick			3
Melilotus alba	white sweet clover			3
Mitchella repens	partridge berry	1	2	
Monotropha uniflora	Indian pipe	1	2	
Nepeta cataria	catnip			3
Oenothera biennis	evening primrose			3
Onoclea sensibilis	sensitive fern			3
Oxalis sp.	wood-sorrel	1		3

Table 3. (Continued)

Scientific Name	Common Name	Community		
Pastinaca sativa	wild parsnip			3
Phleum pratense	timothy			3
Plantago major	common plantain			3
Poa sp.	bluegrass	1		3
Polypodium virginianum	common polypody		2	
Polystichum acrostichoides	Christmas fern	1		
Prunella vulgaris	selfheal	1		3
Pteridium aquilinum	bracken	1		
Potentilla simplex	common cinquefoil	1		3
Ranunculus acris	buttercup	1		3
Rudbeckia hirta	black-eyed Susan			3
Rumex acetosella	sheep sorrel	1		
Rumex crispus	curly-dock			3
Saponaria officinalis	bouncing-bet			3
Satureja vulgaris	wild basil			3
Scirpus atrovirens	bulrush			3
Sedum telephium	live-forever			3
Silene cucubalus	bladder campion			3
Smilacina racemosa	false Solomon's seal	1	2	
Solanum dulcamara	nightshade			3
Solidago spp.	goldenrods	1		3
Stellaria longifolia	long-leaved chickweed			3
Thalictrum polygamum	tall meadow rue			3
Thelypteris noveboracensis	New York fern	1	2	
Thymus serphyllum	wild thyme			3
Tragopogon pratensis	goat's beard			3
Trientalis borealis	starflower	1	2	
Trifolium agrarium	yellow clover			3
Trifolium pratense	red clover			3
Trifolium repens	white clover			3
Tussilago farfara	coltsfoot		2	3
Typha latifolia	common cat-tail			3
Urtica dioica	stinging nettle			3
Uvularia sessilifolia	sessile-leaved bellwort	1	2	
Verbascum thapsus	common mullein			3
Verbena hastata	blue vervain			3
Veronica chamaedrys	bird's eye	1		
Veronica officinalis	common speedwell	1		3
Viola sp.	violet		2	

Table 4. Plant taxa observed in the Alternate Transmission ROWs "E" and "F" on Bull Hill in July 1977.

Community: 1 = hemlock-white pine-hardwood forest
2 = hemlock ravine forest
3 = fields
4 = marsh
5 = hemlock-red maple swamp forest

Scientific Name	Common Name	Community				
Trees						
Acer rubrum	red maple	1	2	3	4	5
Acer saccharum	sugar maple	1	2			
Betula lenta	black birch	1				5
Betula lutea	yellow birch		2			5
Betula papyrifera	paper birch	1	2			
Fagus grandifolia	American beech	1	2			
Fraxinus americana	white ash	1	2			
Juniperus virginiana	red cedar			3		
Ostrya virginiana	hop-hornbeam	1	2			
Pinus strobus	white pine	1		3		5
Prunus serotina	black cherry	1				
Pyrus malus	apple	1		3		
Quercus borealis	red oak	1				5
Tsuga canadensis	hemlock	1	2			5
Shrubs						
Acer pensylvanicum	striped maple	1	2			
Alnus rugosa	speckled alder					5
Berberis vulgaris	European barberry			3		
Gaultheria hispidula	creeping snowberry	1				
Rubus allegheniensis	blackberry	1			4	
Rubus flagellaris	dewberry	1		3		
Rubus strigosus	red raspberry	1		3		
Spiraea latifolia	meadowsweet				4	
Spiraea tomentosa	steeplebush			3		
Vaccinium angustifolium	lowbush blueberry	1		3		
Vaccinium corymbosum	highbush blueberry			3		
Herbs						
Achillea millefolium	yarrow	1		3	4	
Agropyron repens	quack-grass			3		
Agrostis sp.	bent-grass			3		
Anaphalis margaritacea	pearly everlasting	1		3		
Antennaria neglecta	pussytoes	1		3		
Anthoxanthum odoratum	sweet vernal grass	1				
Aralia nudicaulis	wild sarsaparilla		2			5
Arisaema triphyllum	jack-in-the-pulpit		2			5
Asarum canadense	wild ginger		2			
Aster acuminatus	whorled wood aster		2		4	5
Aster divaricatus	white wood aster	1	2			

Table 4. (Continued)

Scientific Name	Common Name	Community				
Athyrium filix-femina	lady fern	1	2		4	
Calla palustris	wild calla					5
Carex crinita	sedge				4	
Carex gracillima	drooping sedge	1	2	3		
Carex lurida	sedge					5
Carex spp.	sedges	1	2	3	4	5
Chrysanthemum leucanthemum	ox-eye daisy	1		3		
Circaea canadensis	enchanter's nightshade		2			5
Cirsium pumilum	pasture thistle			3		
Clintonia borealis	corn-lily					5
Coptis trifolia	goldthread	1				5
Cornus canadensis	dwarf cornel					5
Cypripedium acaule	moccasin flower	1				
Cystopteris fragilis	fragile fern		2			
Dactylis glomerata	orchard grass			3		
Danthonia spicata	poverty-grass			3		
Dennstaedtia punctilobula	hay-scented fern			3		
Dryopteris X boottii	Boott's wood fern					5
Dryopteris cristata	crested wood fern	1			4	5
Dryopteris intermedia	fancy fern	1	2			5
Dryopteris marginalis	marginal wood fern	1	2			
Dryopteris spinulosa	spinulose wood fern	1				5
Epipactis helleborine	helleborine	1				
Equisetum sylvaticum	wood horsetail	1				5
Fragaria virginiana	wild strawberry	1		3	4	
Galeopsis tetrahit	hemp-nettle			3		
Galium mollugo	bedstraw			3		
Galium trifidum	bedstraw					5
Galium triflorum	bedstraw		2			
Geum aleppicum	avens					5
Glyceria striata	fowl-mannagrass					5
Habenaria lacera	ragged fringed orchis			3	4	
Hieracium aurantiacum	devil's paintbrush			3		
Hieracium pilosella	mouse-ear hawkweed			3		
Hieracium pratense	hawkweed	1		3	4	
Hypericum mutilum	dwarf St. John's wort				4	
Hypericum perforatum	St. John's wort			3	4	
Hypericum virginicum	marsh St. John's wort					5
Impatiens biflora	jewelweed				4	5
Iris versicolor	blue flag				4	5
Juncus effusus	rush				4	
Juncus tenuis	path rush			3		
Linaria vulgaris	butter and eggs			3		
Lotus corniculatus	bird's foot trefoil			3		
Luzula campestris	wood rush	1		3		
Lycopodium clavatum	staghorn clubmoss	1				
Lycopodium lucidulum	shining clubmoss	1	2			

Table 4. (Continued)

Scientific Name	Common Name	Community				
Lycopodium obscurum	tree clubmoss	1				5
Lycopus virginicus	bugleweed					5
Maianthemum canadense	wild lily-of-the-valley	1	2			5
Medeola virginiana	Indian cucumber					5
Mitchella repens	partridge berry	1	2			
Monotropha uniflora	Indian pipe	1	2			
Nasturtium officinale	water-cress					5
Onoclea sensibilis	sensitive fern	1			4	5
Osmunda cinnamonea	cinnamon fern	1			4	5
Osmunda claytoniana	interrupted fern	1				
Oxalis montana	common wood-sorrel					5
Oxalis sp.	wood-sorrel	1				5
Panicum sp.	panic-grass			3		
Phleum pratense	timothy			3		
Poa sp.	bluegrass	1		3		
Polygonum sagittatum	arrow-leaved tearthumb				4	5
Polypodium virginianum	common polypody		2			
Potentilla recta	rough-fruited cinquefoil			3		
Potentilla simplex	common cinquefoil	1		3		
Prunella vulgaris	selfheal	1		3		
Ranunculus acris	buttercup	1		3		
Rumex acetosella	sheep sorrel	1		3		
Rumex crispus	curly dock			3		
Scirpus atrovirens	bulrush					5
Scutellaria lateriflora	mad-dog skullcap				4	5
Solidago graminifolia	flat-topped goldenrod			3		
Solidago nemoralis	little gray goldenrod			3		
Solidago rugosa	rough goldenrod			3	4	
Stellaria longifolia	long-leaved chickweed			3		
Thelypteris noveboracensis	New York fern	1	2		4	
Thelypteris palustris	marsh fern					5
Thymus serpyllum	wild thyme			3		
Tragopogon pratensis	goat's beard			3		
Trientalis borealis	starflower	1	2			5
Trifolium agrarium	yellow clover			3		
Trifolium pratense	red clover			3		
Trifolium repens	white clover			3		
Trillium undulatum	painted trillium					5
Uvularia sessilifolia	sessile-leaved bellwort	1	2			
Veratrum viride	false helleborine					5
Veronica chamaedrys	bird's-eye	1				5
Veronica officinalis	common speedwell	1		3		
Viola fimbriatula	downy blue biolet			3		
Viola sp.	violet	1				
Vicia cracca	cow vetch			3		

Table 5. Plant taxa observed in the vicinity of the Haul Road between Schoharie Reservoir and the upper reservoir site in July 1977.

Community: 1 = second growth white pine-hardwood forest
2 = white pine plantation
3 = red pine plantation
4 = hemlock-hardwood forest
5 = fields

Scientific Name	Common Name	Community				
Trees						
Acer rubrum	red maple	1	2			5
Acer saccharum	sugar maple	1	2	3	4	
Betula lenta	black birch	1			4	
Betula lutea	yellow birch				4	
Betula papyrifera	paper birch	1			4	
Carpinus caroliniana	American hornbeam				4	
Carya glabra	pignut	1				
Carya ovata	shagbark hickory	1			4	
Fagus grandifolia	American beech		2		4	
Fraxinus americana	white ash	1	2	3		
Juniperus virginiana	red cedar	1				5
Ostrya virginiana	hop-hornbeam	1				
Picea glauca	white spruce			3		
Pinus resinosa	red pine			3		
Pinus strobus	white pine	1	2		4	5
Pinus sylvestris	Scotch pine	1				
Populus tremuloides	quaking aspen	1				
Prunus serotina	black cherry	1	2			5
Pyrus malus	apple	1				5
Quercus borealis	red oak	1				
Tilia americana	basswood			3	4	
Tsuga canadensis	hemlock	1			4	
Ulmus americana	American elm		2			
Shrubs						
Acer pensylvanicum	striped maple				4	
Berberis vulgaris	European barberry					5
Prunus virginiana	choke cherry	1	2			
Rhus typhina	staghorn sumac					5
Ribes rotundifolia	roundleaf gooseberry	1				
Rosa sp.	rose					5
Rubus allegheniensis	blackberry	1				5
Rubus strigosus	red raspberry	1	2			5
Salix bebbiana	long-beaked willow	1				
Spiraea latifolia	meadowsweet	1	2			5
Spiraea tomentosa	steeplebush					5
Vaccinium angustifolium	lowbush blueberry	1				5
Vaccinium corymbosum	highbush blueberry					5

Table 5. (Continued)

Scientific Name	Common Name	Community				
Herbs						
Achillea millefolium	yarrow	1				5
Agrimonia grypsosepala	agrimony				4	
Agrostis sp.	bent-grass	1	2			5
Anaphalis margaritacea	pearly everlasting	1				5
Anthoxanthum odoratum	sweet vernal grass					5
Aquilegia canadensis	columbine	1				
Arisaema triphyllum	jack-in-the-pulpit	1				
Aster divaricatus	white wood aster	1				
Aster macrophyllus	aster	1				
Aster umbellatus	flat-topped aster	1				
Athyrium filix-femina	lady fern	1	2			
Carex crinita	sedge	1				5
Carex gracillima	drooping sedge	1	2	3		
Carex laxiflora	sedge				4	
Carex lurida	sedge	1				
Carex pensylvanica	sedge	1				5
Carex sp.	sedge	1			4	5
Chrysanthemum leucanthemum	ox-eye daisy	1				5
Circaea canadensis	enchanter's nightshade		2		4	
Cirsium sp.	thistle		2			
Danthonia spicata	poverty-grass	1				5
Daucus carota	wild carrot					5
Dennstaedtia punctilobula	hay-scented fern		2			
Dryopteris cristata	crested wood fern				4	
Dryopteris intermedia	fancy fern	1	2	3		
Dryopteris marginalis	marginal wood fern	1			4	5
Dryopteris spinulosa	spinulose wood fern				4	
Epipactis helleborine	helleborine	1	2		4	
Equisetum arvense	field horsetail					5
Equisetum sylvaticum	wood horsetail				4	
Fragaria virginiana	wild strawberry	1	2			5
Galium trifidum	bedstraw		2			
Galium triflorum	bedstraw	1	2			
Geranium robertianum	herb-robert		2			
Geum aleppicum	avens					5
Geum canadense	avens				4	
Glyceria striata	mannagrass		2			
Gymnocarpium dryopteris	oak fern				4	
Hieracium pratense	hawkweed	1	2			5
Hypericum perforatum	St. John's wort	1				5
Juncus effusus	rush					5
Luzula campestris	wood rush		2			
Lycopodium flabelliforme	crow-foot clubmoss	1	2			
Lycopodium obscurum	tree clubmoss		2			
Lysimachia ciliata	fringed loosestrife	1				5
Maianthemum canadense	wild lily-of-the-valley	1			4	5
Mitchella repens	partridge berry	1			4	
Monotropa uniflora	Indian pipe	1				

Table 5. (Continued)

Scientific Name	Common Name	Community				
Oenothera tetragona	sundrops	1				
Onoclea sensibilis	sensitive fern	1				5
Osmunda cinnamomea	cinnamon fern					5
Osmunda claytoniana	interrupted fern		2			
Oxalis sp.	wood sorrel					5
Phleum pratense	timothy	1				5
Poa compressa	Canada bluegrass					5
Polygonum sagittatum	arrow-leaved tearthumb		2			
Polypodium virginianum	common polypody	1				
Polystichum acrostichoides	Christmas fern	1			4	
Potentilla simplex	common cinquefoil	1				5
Prunella vulgaris	self-heal	1				
Pteridium aquilinum	bracken			3		
Pyrola elliptica	shinleaf		2			
Ranunculus acris	buttercup	1				5
Rubus pubescens	dwarf blackberry	1				
Rumex acetosella	sheep sorrel	1				5
Satureja vulgaris	wild basil		2			
Saxifraga pensylvanica	swamp saxifrage				4	
Senecio obovatus	roundleaf ragwort				4	
Sisyrinchium angustifolium	blue-eyed grass					5
Solidago bicolor	silverrod	1				5
Solidago caesia	blue-stemmed goldenrod	1			4	
Solidago gigantea	goldenrod					5
Solidago graminifolia	flat-topped goldenrod	1				5
Solidago juncea	early goldenrod	1				5
Solidago nemoralis	little gray goldenrod					5
Solidago rugosa	rough goldenrod	1				5
Thelypteris noveboracensis	New York fern		2			
Thelypteris palustris	marsh fern					5
Thymus serpyllum	wild thyme	1				5
Tiarella cordifolia	false miterwort				4	
Trientalis borealis	starflower	1			4	
Trifolium agrarium	yellow clover	1				5
Trifolium pratense	red clover	1				5
Uvularia sessilifolia	sessile-leaved bellwort		2		4	
Verbena hastata	blue vervain					
Veronica officinalis	common speedwell	1	2	3		5
Viola sp.	violet		2		4	
Waldsteinia fragarioides	barren strawberry	1	2			

Table 6. Plant taxa observed in the Proposed MFSO in December 1977.

Community: 1 = hemlock-white pine-hardwood forest
2 = ravine and ledge
3 = mixed conifer plantation
4 = roadside and reservoir margin

Scientific Name	Common Name	Community			
Trees					
Acer negundo	box elder	1			
Acer pensylvanicum	striped maple	1	2		
Acer rubrum	red maple	1			
Acer saccharum	sugar maple	1		3	
Amelanchier sp.	juneberry	1		3	
Betula lenta	black birch	1			
Betula lutea	yellow birch	1			
Betula papyrifera	paper birch	1			
Carpinus caroliniana	American hornbeam	1			
Carya cordiformis	bitternut	1			
Carya ovata	shagbark hickory	1			
Fagus grandifolia	American beech	1		3	
Fraxinus americana	white ash	1		3	
Juniperus virginiana	red cedar	1			
Ostrya virginiana	hop-hornbeam	1		3	
Picea abies	Norway spruce	1			
Pinus resinosa	red pine			3	
Pinus strobus	white pine	1		3	
Pinus sylvestris	Scotch pine			3	
Populus grandidentata	large-toothed aspen	1			
Populus tremuloides	quaking aspen	1			
Prunus serotina	black cherry	1		3	
Prunus virginiana	choke cherry	1			
Pyrus malus	apple	1			
Quercus borealis	red oak	1			
Robinia pseudoacacia	black locust	1			
Tilia americana	basswood	1			4
Tsuga canadensis	hemlock	1	2		
Ulmus americana	American elm	1			
Shrubs					
Alnus rugosa	speckled alder	1			
Berberis vulgaris	European barberry	1			
Celastrus scandens	climbing bittersweet	1			
Cornus alternifolia	alternate-leaved dogwood	1		3	4
Cornus amomum	silky dogwood	1			4
Cornus rugosa	round-leaf dogwood				4
Hamamelis virginiana	common witch-hazel	1			
Rhus typhina	staghorn sumac		2		4
Rubus allegheniensis	blackberry	1			
Rubus odoratus	flowering raspberry	1			4
Sambucus canadensis	common elderberry	1			
Sambucus pubens	red elderberry	1			
Spiraea latifolia	meadowsweet		2		4
Taxus canadensis	American yew		2		
Viburnum acerifolium	maple-leaved viburnum	1			
Vitis riparia	riverbank grape	1			
Herbs					
Achillea millefolium	yarrow				4
Anemone virginiana	thimbleweed	1			
Antennaria neglecta	pussytoes		2		
Aquilegia canadensis	columbine	1	2		
Arctium lappa	great burdock				4
Arctium minus	burdock	1			4
Aster divaricatus	white wood aster	1			
Athyrium filix-femina	lady fern	1			

Table 6. (Continued)

Scientific Name	Common Name	Community			
Herbs (Continued)					
Carex sp.	sedge	1			4
Cirsium vulgare	Canada thistle				4
Danthonia spicata	poverty-grass		2		4
Daucus carota	wild carrot		2		4
Dryopteris intermedia	fancy fern	1			
Dryopteris marginalis	marginal wood fern	1	2		
Epifagus virginiana	beech drops	1			
Eupatorium rugosum	white snakeroot	1			
Fragaria vesca	woodland strawberry	1			
Galeopsis tetrahit	hemp-nettle	1			
Geum canadense	avens	1		3	
Hieracium sp.	hawkweed				4
Hypericum perforatum	St. John's wort		2		4
Leonurus cardiaca	motherwort	1			
Linaria vulgaris	butter and eggs		2		4
Monotropa uniflora	Indian pipe	1			
Oenothera biennis	evening primrose				4
Onoclea sensibilis	sensitive fern	1			
Oryzopsis racemosa	rice grass	1			
Phleum pratense	timothy		2		4
Phytolacca americana	poke	1			
Polypodium virginianum	common polypody	1	2		
Potentilla simplex	common cinquefoil	1			
Prunella vulgaris	selfheal	1			4
Ranunculus abortivus	kidneyleaf buttercup	1			
Solanum dulcamara	nightshade		2		4
Solidago caesia	blue-stemmed goldenrod	1			
Solidago rugosa	rough goldenrod	1			
Thymus serpyllum	wild thyme		2		
Verbascum thapsus	common mullein		2		4

Table 7. Vascular plants observed at the alternate excavation disposal area, Schoharie Reservoir Temporary Lay Down Area, and Powerhouse-Switchyard Area from May 1977 through November 1977. Arranged alphabetically by families, nomenclature follows Gleason and Cronquist (1963).

EDA = Excavation Disposal Area
TLDA = Schoharie Reservoir Temporary Lay Down Area
PSA = Powerhouse-Switchyard Area

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
EQUISETOPHYTA				
EQUISETACEAE				
Equisetum arvense	field horsetail	X		X
Equisetum sylvaticum	wood horsetail			X
LYCOPODIOPHYTA				
LYCOPODIACEAE				
Lycopodium flabelliforme	crow-foot clubmoss		X	
POLYPODIOPHYTA				
OPHIOGLOSSACEAE				
Botrychium dissectum	grape fern		X	X
Botrychium lanceolatum	triangle grape fern		X	
Botrychium matricariaefolium	daisy-leaf grape fern		X	X
OSMUNDACEAE				
Osmunda cinnamomea	cinnamon fern			X
Osmunda claytoniana	interrupted fern			X
POLYPODIACEAE				
Adiantum pedatum	maidenhair-fern			X
Asplenium platyneuron	ebony-spleenwort	X		X
Athyrium filix-femina	lady fern	X	X	X
Dennstaedtia punctilobula	hay-scented fern		X	X
Dryopteris X *boottii*	Boott's wood fern	X		
Dryopteris cristata	crested wood fern	X		
Dryopteris intermedia	fancy fern	X	X	X
Dryopteris marginalis	marginal wood fern	X	X	X
Dryopteris spinulosa	spinulose wood fern	X		X
Dryopteris X *triploidea*	hybrid wood fern	X		
Gymnocarpium dryopteris	oak fern			X
Matteuccia struthiopteris	ostrich fern	X		
Onoclea sensibilis	sensitive fern	X	X	X
Polypodium virginianum	common polypody		X	X
Polystichum acrostichoides	Christmas fern	X	X	X
Pteridium aquilinum	bracken		X	
Thelypteris noveboracensis	New York fern	X		X
Thelypteris phegopteris	northern beech fern	X		
PINOPHYTA				
CUPRESSACEAE				
Juniperus virginiana	red cedar	X	X	X
PINACEAE				
Larix decidua	European larch	X		
Picea abies	Norway spruce	X		X
Pinus resinosa	red pine	X	X	X
Pinus strobus	white pine	X	X	X
Pinus sylvestris	Scotch pine	X	X	X
Tsuga canadensis	hemlock		X	X

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
MAGNOLIOPHYTA - DICOTYLEDONEAE				
ACERACEAE				
Acer negundo	box elder	X		X
Acer pensylvanicum	striped maple	X	X	X
Acer rubrum	red maple	X	X	X
Acer saccharum	sugar maple	X	X	X
Acer spicatum	mountain maple		X	
ANACARDIACEAE				
Rhus radicans	poison ivy	X	X	
Rhus typhina	staghorn sumac	X		X
APOCYNACEAE				
Apocynum androsaemifolium	dogbane	X	X	
ARALIACEAE				
Aralia nudicaulis	wild sarsaparilla		X	X
ASCLEPIADACEAE				
Asclepias syriaca	common milkweed	X		X
BALSAMINACEAE				
Impatiens biflora	jewelweed		X	
Impatiens pallida	jewelweed	X		
BERBERIDACEAE				
Berberis vulgaris	European barberry	X	X	X
Berberis thundbergii	Japanese barberry	X	X	
BETULACEAE				
Alnus rugosa	speckled alder			X
Betula lenta	black birch		X	X
Betula lutea	yellow birch			X
Betula papyrifera	paper birch		X	X
Carpinus caroliniana	American hornbeam		X	X
Corylus cornuta	beaked hazel		X	
Ostrya virginiana	hop-hornbeam	X	X	X
BORAGINACEAE				
Myosotis scorpioides	true forget-me-not	X		
CAPRIFOLIACEAE				
Diervilla lonicera	bush honeysuckle		X	X
Lonicera canadensis	fly honeysuckle		X	X
Sambucus canadensis	common elderberry	X		
Sambucus pubens	red elderberry	X		
Viburnum acerifolium	maple-leaved viburnum		X	X
CARYOPHYLLACEAE				
Dianthus armeria	deptford pink		X	X
Saponaria offinalis	bouncing bet	X		X
Silene cucubalus	bladder campion	X		
Stellaria aquatica	giant chickweed	X		
CELASTRACEAE				
Celastrus scandens	climbing bittersweet	X	X	X
COMPOSITAE (ASTERACEAE)				
Achillea millefolium	yarrow		X	X
Ambrosia artemisiifolia	common ragweed			X
Anaphalis margaretacea	pearly everlasting			X

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
COMPOSITAE (ASTERACEAE) (Continued)				
Antennaria neglecta	pussytoes		X	
Arctium minus	burdock	X		X
Aster acuminatus	whorled wood aster		X	
Aster cordifolius	aster			X
Aster divaricatus	white wood aster	X	X	X
Aster lateriflorus	aster	X		
Aster prenanthoides	crooked-stemmed aster	X		X
Aster puniceus	aster	X		
Aster umbellatus	flat-topped aster	X		
Aster undulatus	aster			X
Chrysanthemum leucanthemum	ox-eye daisy			X
Cirsium arvense	Canada thistle			X
Cirsium vulgare	bull thistle		X	
Conyza canadensis	horseweed			X
Erigeron annuus	daisy fleabane	X		
Eupatorium perfoliatum	boneset			X
Eupatorium rugosum	white snakeroot		X	X
Hieracium aurantiacum	devil's paintbrush			X
Hieracium pratense	hawkweed	X	X	X
Lapsana communis	nipplewort	X		
Leontodon autumnalis	fall dandelion			X
Prenanthes attissima	tall white lettuce		X	
Senecio obovatus	roundleaf ragwort		X	X
Solidago bicolor	silverrod		X	X
Solidago caesia	blue-stemmed goldenrod		X	X
Solidago gigantea	goldenrod	X		
Solidago graminifolia	flat-topped goldenrod	X	X	X
Solidago juncea	early goldenrod		X	
Solidago rugosa	rough goldenrod	X	X	X
Tanacetum vulgare	tansy	X		X
Taraxacum officinale	dandelion	X	X	X
Tragopogon pratense	goat's beard			X
Tussilago farfara	colts foot			X
CONVOLVULACEAE				
Convolvulus sepium	hedge-bindweed	X		
CORNACEAE				
Cornus alternifolia	alternate-leaved dogwood		X	X
Cornus racemosa	gray dogwood	X		
Cornus rugosa	round-leaf dogwood		X	X
CRASSULACEAE				
Sedum telephium	live-forever	X		
CRUCIFERAE				
Alliaria officinalis	garlic-mustard	X	X	X
Arabis laevigata	smooth rock-cress		X	X
Arabis lyrata	rock-cress		X	
Barbarea vulgaris	winter-cress	X		X
Berteroa incana	hoary alyssum		X	
Cardamine pensylvanica	bitter-cress	X		X
Dentaria diphylla	toothwort	X		
Hesperis matronalis	dame's rocket	X	X	X
Rorippa islandica	yellow cress	X		
ERICACEAE				
Gaultheria procumbens	wintergreen		X	X
Kalmia latifolia	mountain laurel		X	
Monotropa uniflora	Indian pipe		X	X
Pyrola elliptica	shinleaf	X	X	
Vaccinium angustifolium	lowbush blueberry		X	X

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
EUPHORBIACEAE				
Acalypha rhomboidea	three-seeded mercury			X
FAGACEAE				
Castanea dentata	chestnut		X	
Fagus grandifolia	American beech	X	X	X
Quercus alba	white oak		X	
Quercus borealis	red oak	X	X	X
Quercus prinus	chestnut oak		X	
GERANIACEAE				
Geraranium robertianum	herb-robert	X	X	X
HAMAMELIDACEAE				
Hamamelis virginiana	common witch-hazel		X	X
HYPERICACEAE				
Hypericum perforatum	St. John's wort	X	X	X
JUGLANDACEAE				
Carya cordiformis	bitternut	X		
Carya glabra	pignut			X
Carya ovata	shagbark hickory		X	X
Juglans cinerea	butternut	X		X
LABIATAE				
Galeopsis tetrahit	hemp-nettle	X		
Glechoma hederacea	ground-ivy	X	X	X
Hedeoma pulegioides	pennyroyal			X
Leonurus cardiaca	motherwort	X	X	X
Lycopus virginicus	bugleweed	X		
Prunella vulgaris	selfheal	X	X	X
Satureja vulgaris	wild basil	X	X	X
Scutellaria laterifolia	mad-dog skullcap	X		
Thymus serpyllum	wild thyme		X	X
LEGUMINOSAE				
Coronilla varia	crown vetch		X	
Lotus corniculatus	bird's foot trefoil			X
Medicago lupulina	black medick		X	
Melilotus alba	white clover			X
Melilotus officinalis	yellow clover			X
Robinia pseudoacacia	black locust	X	X	X
Strophostyles helveola	wild bean	X		
Trifolium agrarium	yellow clover			X
Trifolium pratense	red clover			X
Vicia cracca	cow vetch			X
LOBELIACEAE				
Lobelia inflata	Indian tobacco	X	X	
OLEACEAE				
Fraxinus americana	white ash	X	X	X
ONAGRACEAE				
Circaea canadensis	enchanter's nightshade	X	X	X
Circaea quadrisulcata	enchanter's nightshade	X	X	X
Oenothera biennis	evening primrose			X
OROBANCHACEAE				
Epifagus virginiana	beech drops			X

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
OXALIDAXEAE				
Oxalis sp.	wood-sorrel	X	X	X
PAPAVERACEAE				
Chelidonium majus	celandine	X		
Sanguinaria canadensis	bloodroot	X		
PLANTAGINACEAE				
Plantago lanceolata	English plantain			X
POLYGALACEAE				
Polygala paucifolia	fringed polygala		X	
POLYGONACEAE				
Polygonum cilinode	bindweed	X	X	X
Polygonum sagittatum	arrow-leaved tearthumb		X	X
Polygonum virginianum	Virginia knotweed	X	X	
Rumex acetosella	sheep sorrel		X	X
Rumex obtusifolius	bitter dock	X		
PRIMULACEAE				
Lysimachia ciliata	fringed loosestrife	X		X
Lysimachia nummularia	moneywort	X	X	
Lysimachia terrestris	yellow loosestrife		X	
Trientalis borealis	starflower	X	X	X
RANUNCULACEAE				
Actea alba	white baneberry		X	X
Anemone quinquefolia	wood anemone		X	
Anemone virginiana	thimbleweed		X	X
Aquilegia canadensis	columbine		X	X
Clematis virginiana	virgin's bower	X		X
Ranunculus abortivus	kidneyleaf buttercup	X	X	X
Ranunculus acris	buttercup	X	X	X
Thalictrum polygamum	tall meadow rue	X		X
ROSACEAE				
Agrimonia grypsosepala	agrimony			X
Amelanchier arborea	Juneberry		X	
Fragaria vesca	woodland strawberry		X	X
Fragaria virginiana	wild strawberry			X
Geum aleppicum	avens		X	
Geum canadense	avens	X	X	X
Potentilla recta	rough-fruited cinquefoil			X
Potentilla simplex	common cinquefoil	X	X	X
Prunus serotina	black cherry	X	X	X
Prunus virginiana	choke cherry	X	X	X
Pyrus malus	apple	X	X	X
Rubus allegheniensis	blackberry		X	X
Rubus flagellaris	northern dewberry	X	X	X
Rubus odoratus	flowering raspberry	X		X
Rubus strigosus	red raspberry	X	X	X
Spiraea latifolia	meadowsweet	X	X	X
Waldensteinia fragarioides	barren strawberry		X	
RUBIACEAE				
Galium aparine	cleavers	X	X	
Galium triflorum	bedstraw	X	X	X
Galium verum	yellow bedstraw			X
Mitchella repens	patridge-berry		X	X

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
SALICACEAE				
Populus grandidentata	large-toothed aspen		X	X
Populus tremuloides	quaking aspen		X	X
Salix discolor	pussy willow			X
SAPINDACEAE				
Koelreuteria paniculata	golden rain tree	X	X	
SAXIFRAGACEAE				
Ribes lacustre	swamp currant			X
Tiarella cordifolia	false miterwort	X		X
SCROPHULARIACEAE				
Linaria vulgaris	butter and eggs		X	X
Melampyrum lineare	cow-wheat		X	
Scrophularia lanceolata	figwort	X		
Verbascum thapsus	common mullein		X	X
Veronica chamaedrys	bird's-eye	X		
Veronica officinalis	common speedwell	X	X	X
Veronica serpyllifolia	speedwell			X
SOLANACEAE				
Solanum dulcamara	nightshade	X	X	X
TILIACEAE				
Tilia americana	basswood	X	X	X
ULMACEAE				
Ulmus americana	American elm	X	X	X
UMBELLIFERAE				
Daucus carota	wild carrot			X
Zizia aurea	golden alexanders	X		
URTICACEAE				
Pilea pumila	clearweed	X		
Urtica dioica	stinging nettle	X		
VERBENACEAE				
Verbena hastata	blue vervain	X		X
Verbena urticifolia	white vervain	X		X
VIOLACEAE				
Viola cucullata	marsh blue violet		X	
Viola rostrata	long-spurred violet			X
VITACEAE				
Parthenocissus quinquefolia	Virginia creeper	X	X	X
Vitis riparia	riverbank grape	X	X	X
MAGNOLIOPHYTA - MONOCOTYLEDONEAE				
ARACEAE				
Arisaema triphyllum	jack-in-the-pulpit	X	X	X
CYPERACEAE				
Carex abscondita	sedge		X	X
Carex complanata	sedge		X	X
Carex crinita	sedge	X	X	X
Carex debilis	sedge		X	
Carex deweyana	sedge		X	X
Carex festucacea	sedge	X	X	

Table 7. (Continued)

Scientific Name	Common Name	Location		
		EDA	TLDA	PSA
CYPERACEAE (Continued)				
Carex gracillima	drooping sedge	X	X	X
Carex intumescens	sedge	X		
Carex laxiflora	sedge			X
Carex lupulina	sedge		X	
Carex lurida	sedge			X
Carex pensylvanica	sedge		X	
Carex rosea	sedge		X	X
Carex scoparia	sedge		X	
Carex swannii	sedge	X	X	X
Scirpus cyperinus	wool grass			X
GRAMINEAE				
Agropyron repens	quack grass			X
Agrostis perennans	autumn bent	X	X	
Anthoxanthum odoratum	sweet vernal grass	X	X	X
Bromus inermis	smooth brome	X		X
Bromus latiglumis	brome-grass	X		
Cinna latifolia	wood reed	X		
Dactylis glomerata	orchard grass		X	X
Danthonia spicata	poverty-grass		X	X
Digitaria ischaemum	crab grass			X
Echinochloa crusgalli	barnyard grass		X	
Elymus villosus	wild rye	X	X	
Glyceria striata	mannagrass	X	X	X
Hystrix patula	bottle brush grass	X		
Leersia virginica	whitegrass	X		
Muhlenbergia frondosa	wirestem muhly	X		
Muhlenbergia mexicana	muhly			X
Oryzopsis racemosa	rice grass			X
Panicum capillare	witch grass			X
Panicum clandestinum	panic-grass	X		
Panicum lanuginosum	panic-grass		X	
Phalaris arundinacea	reed canary grass	X	X	X
Phleum pratense	timothy		X	X
Poa compressa	Canada bluegrass		X	X
Poa pratensis	Kentucky bluegrass			X
Setaria viridis	green foxtail			X
IRIDACEAE				
Iris versicolor	blue flag		X	
JUNCACEAE				
Juncus tenuis	path rush		X	X
Luzula campestris	wood rush			X
LILACEAE				
Maianthemum canadense	wild lily-of-the-valley	X	X	X
Polygonatum biflorum	Solomon's seal	X		
Polygonatum pubescens	Solomon's seal		X	
Smilacina racemosa	false Solomon's seal	X	X	
Trillium erectum	purple trillium	X		
Trillium undulatum	painted trillium		X	
ORCHIDACEAE				
Corallorhiza maculata	spotted coral-root		X	
Epipactis helleborine	hslleborine	X	X	X
Goodyera pubescens	rattlesnake plantain		X	
Spiranthes cernua	common ladies'-tresses			X
Spiranthes gracilis	slender landies'-tresses		X	

Table 8. Tree and sapling analysis for Stand D1, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Pinus resinosa	red pine	1.00	97.6	782	99.4	585092	99.9	296.9
Fraxinus americana	white ash	0.03	2.4	5	0.6	417	0.1	3.1
SAPLINGS								
Fraxinus americana	white ash	1.00	90.9	1182	96.9	11229	86.7	274.5
Ulmus americana	American elm	0.05	4.5	23	1.9	1116	8.6	15.0
Acer negundo	box elder	0.05	4.5	15	1.3	602	4.7	10.5

Table 9. Tree seedling and shrub analysis for Stand D1, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
TREE SEEDLINGS								
Fraxinus americana	white ash	0.65	59.1	9500	70.4	1182.5	66.2	195.7
Prunus serotina	black cherry	0.18	15.9	1000	7.4	467.5	26.2	49.5
Acer saccharum	sugar maple	0.15	13.6	1500	11.1	120.0	6.7	31.4
Prunus virginiana	choke cherry	0.05	4.5	750	5.6	10.0	0.6	10.7
Quercus borealis	red oak	0.05	4.5	500	3.7	5.0	0.3	8.5
Acer rubrum	red maple	0.03	2.3	250	1.9	2.5	0.1	4.3
SHRUBS								
Parthenocissus quinquefolia	Virginia creeper	0.08	37.5	4250	77.3	47.5	51.4	166.2
Vitis riparia	riverbank grape	0.08	37.5	500	9.1	32.5	35.1	81.7
Rhus radicans	poison ivy	0.03	12.5	750	13.6	10.0	10.8	36.9
Sambucus canadensis	common elderberry	0.03	12.5	0	0.0	2.5	2.7	15.2

Table 10. Herbaceous plant analysis for Stand D1, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Circaea canadensis	enchanter's nightshade	0.43	9.7	2190.0	34.4	44.1
Alliaria officinalis	garlic-mustard	0.83	18.9	922.5	14.5	33.4
Dryopteris intermedia	fancy fern	0.30	6.9	810.0	12.7	19.6
Athyrium filix-femina	lady fern	0.30	6.9	697.5	11.0	17.9
Galeopsis tetrahit	hemp-nettle	0.45	10.3	160.0	2.5	12.8
Geranium robertianum	herb-robert	0.25	5.7	60.0	0.9	6.6
Dryopteris spinulosa	spinulose wood fern	0.15	3.4	160.0	2.5	5.9
Impatiens sp.	jewelweed	0.10	2.3	190.0	3.0	5.3
Carex spp.	sedge	0.18	4.0	42.5	0.7	4.7
Onoclea sensibilis	sensitive fern	0.08	1.7	180.0	2.8	4.5
Veronica officinalis	common speedwell	0.15	3.4	55.0	0.9	4.3
Polystichum acrostichoides	Christmas fern	0.05	1.1	150.0	2.4	3.5
Dryopteris marginalis	marginal wood fern	0.08	1.7	110.0	1.7	3.4
Oxalis sp.	wood-sorrel	0.13	2.9	25.0	0.4	3.3
Hesperis matronalis	dame's rocket	0.10	2.3	42.5	0.7	3.0
Scutellaria lateriflora	mad-dog skullcap	0.03	0.6	137.5	2.2	2.8
Elymus villosus	wild rye	0.10	2.3	27.5	0.4	2.7
Lysimachia ciliata	fringed loosestrife	0.10	2.3	22.5	0.4	2.7
Satureja vulgaris	wild basil	0.10	2.3	12.5	0.2	2.5
Arisaema triphyllum	jack-in-the-pulpit	0.08	1.7	42.5	0.7	2.4
Polygonum cilinode	bindweed	0.03	0.6	100.0	1.6	2.2
Aster prenanthoides	crooked-stemmed aster	0.08	1.7	20.0	0.3	2.0
Dryopteris x triploidea	hybrid wood fern	0.03	0.6	87.5	1.4	2.0
Thalictrum polygamum	tall meadow rue	0.05	1.1	17.5	0.3	1.4
Strophostyles helveola	wild bean	0.05	1.1	15.0	0.2	1.3
Saponaria officinalis	bouncing bet	0.05	1.1	12.5	0.2	1.3
Carex festucacea	sedge	0.03	0.6	20.0	0.3	0.9
Carex gracillima	drooping sedge	0.03	0.6	17.5	0.3	0.9
Aster umbellatus	flat-topped aster	0.03	0.6	15.0	0.2	0.8
Polygonum virginianum	Virginia knotweed	0.03	0.6	10.0	0.2	0.8
Chelidonium majus	celandine	0.03	0.6	5.0	0.1	0.7
Clematis virginiana	virgin's bower	0.03	0.6	5.0	0.1	0.7

Table 11. Age and diameter at breast height (dbh) of trees in Stand D1, alternate excavation disposal area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Pinus resinosa	red pine	44	360
		44	355
		43+	360
		43	395
		41+	270
		40+	170
		40	290
		39+	410
		37+	315
		37	273
		35+	329
		35+	285
		34+	297
		34+	280
		33+	300
		33+	285
		33+	200
		32+	305
		27	210
		24+	120
Fraxinus americana	white ash	20	103

* + indicates center of tree not reached; less than 5 years additional.

Table 12. Mean percent litter, moss, bare soil, and rock in three stands in the alternate excavation disposal area.

Stand	% Litter	% Moss	% Bare Soil	% Rock
D1 (red pine plantation)	99.2	0.1	0.0	0.0
D2 (white pine-Scotch pine plantation)	94.7	3.9	0.3	0.0
D3 (Scotch pine-Norway spruce plantation)	80.8	17.8	1.0	0.1

Table 13. Tree and sapling analysis for Stand D2, alternate excavation disposal area.

Scietific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Pinus strobus	white pine	0.78	36.9	359	4[illegible].6	242002	52.8	135.3
Pinus sylvestris	Scotch pine	0.73	34.5	295	37.5	152397	33.3	105.3
Prunus serotina	black cherry	0.28	13.1	69	8.8	41476	9.0	30.9
Ulmus americana	American elm	0.20	9.5	39	5.0	16595	3.7	18.2
Fraxinus americana	white ash	0.08	3.6	15	1.9	3851	0.8	6.3
Acer rubrum	red maple	0.05	2.4	10	1.3	1893	0.4	4.1
SAPLINGS								
Fraxinus americana	white ash	0.70	26.7	105	31.9	2006	25.7	84.3
Pinus strobus	white pine	0.60	22.9	76	23.1	2713	34.8	80.8
Prunus serotina	black cherry	0.70	26.7	84	25.6	1529	19.6	71.9
Ulmus americana	American elm	0.33	12.4	37	11.3	877	11.2	34.9
Picea abies	Norway spruce	0.13	4.8	10	3.1	198	2.6	10.5
Acer rubrum	red maple	0.10	3.8	8	2.5	291	3.8	10.1
Pinus sylvestris	Scotch pine	0.05	1.9	4	1.3	143	1.9	5.1
Acer saccharum	sugar maple	0.03	1.0	4	1.3	22	0.3	2.6

Table 14. Tree seedling and shrub analysis for Stand D2, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
TREE SEEDLINGS								
Fraxinus americana	white ash	0.88	32.1	55000	59.5	1425.0	64.9	156.5
Prunus serotina	black cherry	0.60	22.0	19250	20.8	295.0	13.4	56.2
Prunus virginiana	choke cherry	0.35	12.8	8000	8.6	287.5	13.1	34.5
Acer rubrum	red maple	0.28	10.1	3500	3.8	60.0	2.7	16.6
Ulmus americana	American elm	0.23	8.3	2750	3.0	50.0	2.3	13.6
Acer saccharum	sugar maple	0.15	5.5	1250	1.4	40.0	1.8	8.7
Pinus strobus	white pine	0.10	3.7	1250	1.4	10.0	0.5	5.6
Carya cordiformis	bitternut	0.05	1.8	750	0.8	12.5	0.6	3.2
Koelreuteria paniculata	golden rain tree	0.03	0.9	250	0.3	5.0	0.2	1.4
Tilia americana	basswood	0.03	0.9	250	0.3	2.5	0.1	1.3
Acer pensylvanicum	striped maple	0.03	0.9	250	0.3	2.5	0.1	1.3
Acer negundo	box alder	0.03	0.9	0	0.0	5.0	0.2	1.1
SHRUBS								
Parthenocissus quinquefolia	Virginia creeper	0.63	45.5	49000	77.8	975.0	72.4	195.7
Vitis riparia	riverbank grape	0.23	16.4	3000	4.8	157.5	11.7	32.9
Rubus strigosis	red raspberry	0.18	12.7	3250	5.2	75.0	5.6	23.5
Rubus fragellaris	northern dewberry	0.10	7.3	2500	4.0	77.5	5.8	17.1
Cornus racemosa	gray dogwood	0.08	5.5	2250	3.6	27.5	2.0	11.1
Berberis vulgaris	European barberry	0.10	7.3	1500	2.4	15.0	1.1	10.8
Rhus radicans	poison ivy	0.05	3.6	1250	2.0	15.0	1.1	6.7
Celastrus scandens	bittersweet	0.03	1.8	250	0.4	5.0	0.4	2.6

Table 15. Herbaceous plant analysis for Stand D2, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Alliaria officinalis	garlic-mustard	0.55	8.7	1142.5	19.7	28.4
Galium triflorum	bedstraw	0.70	11.1	535.0	9.2	20.3
Dryopteris intermedia	fancy fern	0.23	3.6	662.5	11.5	15.1
Geranium robertianum	herb-robert	0.38	5.9	442.5	7.6	13.5
Circaea canadensis	enchanter's nightshade	0.23	3.6	505.0	8.7	12.3
Galeopsis tetrahit	hemp-nettle	0.40	6.3	312.5	5.4	11.7
Hesperis matronalis	dame's rocket	0.23	3.6	277.5	4.8	8.4
Veronica officinalis	common speedwell	0.25	4.0	220.0	3.8	7.8
Dryopteris spinulosa	spinulose wood fern	0.25	4.0	202.5	3.5	7.5
Athyrium filix-femina	lady fern	0.13	2.0	317.5	5.5	7.5
Oxalis sp.	wood-sorrel	0.38	5.9	72.5	1.3	7.2
Impatiens ap.	jewelweed	0.23	3.6	165.0	2.9	6.5
Solanum dulcamara	nightshade	0.25	4.0	42.5	0.7	4.7
Carex deweyana	sedge	0.05	0.8	160.0	2.8	3.6
Circaea quadrisulcata	enchanter's nightshade	0.13	2.0	87.5	1.5	3.5
Carex rosea	sedge	0.08	1.2	107.5	1.9	3.1
Satureja vulgaris	wild basil	0.15	2.4	37.5	0.6	3.0
Carex festucacea	sedge	0.13	2.0	60.0	1.0	3.0
Carex spp.	sedge	0.15	2.4	35.0	0.6	3.0
Geum canadense	avens	0.13	2.0	27.5	0.5	2.5
Maianthemum canadense	wild lily-of-the-valley	0.13	2.0	22.5	0.4	2.4
Cardamine pensylvanica	bitter-cress	0.13	2.0	15.0	0.3	2.3
Ranunculus abortivus	kidneyleaf buttercup	0.10	1.6	12.5	0.2	1.8
Polystichum acrostichoides	Christmas fern	0.03	0.4	62.5	1.1	1.5
Apocynum androsaemifolium	dogbane	0.05	0.8	35.0	0.6	1.4
Potentilla simplex	common cinquefoil	0.08	1.2	10.0	0.2	1.4
Agrostis perennans	autumn bent	0.08	1.2	10.0	0.2	1.4
Solidago rugosa	rough goldenrod	0.08	1.2	10.0	0.2	1.4
Elymus villosus	wild rye	0.08	1.2	7.5	0.1	1.3
Polygonum virginianum	Virginia knotweed	0.05	0.8	20.0	0.3	1.1
Scutellaria lateriflora	mad-dog skullcap	0.05	0.8	17.5	0.3	1.1
Carex swannii	sedge	0.05	0.8	15.0	0.3	1.1
Dryopteris marginalis	marginal wood fern	0.03	0.4	30.0	0.5	0.9
Arisaema triphyllum	jack-in-the-pulpit	0.05	0.8	5.0	0.1	0.9
Aster prenanthoides	crooked-stemmed aster	0.05	0.8	5.0	0.1	0.9
Taraxacum officinale	dandelion	0.05	0.8	5.0	0.1	0.9
Chelidonium majus	celandine	0.03	0.4	25.0	0.4	0.8
Carex gracillima	drooping sedge	0.03	0.4	17.5	0.3	0.7
Polygonum cilinode	bindweed	0.03	0.4	12.5	0.2	0.6
Lapsana communis	nipplewort	0.03	0.4	7.5	0.1	0.5
Lycopus virginicus	bugleweed	0.03	0.4	5.0	0.1	0.5
Prunella vulgaris	selfheal	0.03	0.4	5.0	0.1	0.5
Pilea pumila	clearweed	0.03	0.4	5.0	0.1	0.5
Thelypteris phegopteris	northern beech fern	0.03	0.4	2.5	0.0	0.4
Thalictrum polygamum	tall meadow rue	0.03	0.4	2.5	0.0	0.4
Pyrola elliptica	shinleaf	0.03	0.4	2.5	0.0	0.4
Anthoxanthum odoratum	sweet vernal grass	0.03	0.4	2.5	0.0	0.4
Hieracium sp.	hawkweed	0.03	0.4	2.5	0.0	0.4

Table 16. Age and diameter at breast height (dbh) of trees in Stand D2, alternate excavation disposal area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Pinus strobus	white pine	37+	375
		37	275
		35+	365
		35+	265
		32+	255
		32+	160
		31+	365
		30+	340
		21+	280
Pinus sylvestris	Scotch pine	45	330
		44	240
		43+	280
		42	185
		36+	275
		36+	250
		36+	205
		34	200
Fraxinus americana	white ash	30	235
		24+	125
		23+	165
Prunus serotina	black cherry	41	420
		36+	580
		21	195
Acer rubrum	red maple	34	190
		23+	110
Ulmus americana	American elm	28	160
		27+	110

* + indicates center of tree not reached; less than 5 years additional.

Table 17. Tree and sapling analysis for Stand D3, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Pinus sylvestris	Scotch pine	0.93	50.0	292	56.9	199086	60.5	167.4
Picea abies	Norway spruce	0.73	39.2	196	38.1	123225	37.4	114.7
Juniperus virginiana	red cedar	0.08	4.1	10	1.9	1629	0.5	6.5
Prunus serotina	black cherry	0.05	2.7	6	1.3	1378	0.4	4.4
Fraxinus americana	white ash	0.05	2.7	6	1.3	803	0.3	4.3
Ulmus americana	American elm	0.03	1.4	3	0.6	2708	0.9	2.9
SAPLINGS								
Fraxinus americana	white ash	1.00	58.0	261	79.4	3602	55.1	192.5
Picea abies	Norway spruce	0.45	26.1	43	13.1	2120	32.5	71.7
Pinus sylvestris	Scotch pine	0.15	8.7	14	4.4	449	7.1	20.2
Juniperus virginiana	red cedar	0.05	2.9	4	1.3	278	4.4	8.6
Ulmus americana	American elm	0.03	1.4	2	0.6	24	0.4	2.4
Acer negundo	box elder	0.03	1.4	2	0.6	17	0.3	2.3
Prunus virginiana	choke cherry	0.03	1.4	2	0.6	20	0.3	2.3

Table 18. Tree seedling and shrub analysis for Stand D3, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
TREE SEEDLINGS								
Fraxinus americana	white ash	0.78	63.3	49500	90.8	827.5	90.9	245.0
Prunus serotina	black cherry	0.25	20.4	3000	5.5	37.5	4.1	30.0
Acer negundo	box elder	0.08	6.1	1000	1.8	10.0	1.1	9.0
Acer saccharum	sugar maple	0.05	4.1	500	0.9	27.5	3.0	8.0
Pinus strobus	white pine	0.03	2.0	250	0.5	2.5	0.3	2.8
Picea abies	Norway spruce	0.03	2.0	250	0.5	2.5	0.3	2.8
Acer pensylvanicum	striped maple	0.03	2.0	0	0.0	2.5	0.3	2.3
SHRUBS								
Parthenocissus quinquefolia	Virginia creeper	0.33	54.2	24750	84.6	425.0	89.0	227.8
Vitis riparia	riverbank grape	0.18	29.2	2500	8.5	30.0	6.3	44.0
Rubus strigosus	red raspberry	0.08	12.5	1750	6.0	20.0	4.2	22.7
Berberis vulgaris	European barberry	0.03	4.2	250	0.9	2.5	0.5	5.6

Table 19. Herbaceous plant analysis for Stand D3, alternate excavation disposal area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Hesperis matronalis	dame's rocket	0.68	6.9	877.5	14.5	21.4
Alliaria officinalis	garlic-mustard	0.85	8.7	762.5	12.6	21.3
Circaea canadensis	enchanter's nightshade	0.55	5.6	890.0	14.7	20.3
Pilea pumila	clearweed	0.20	2.1	410.0	6.8	8.9
Circaea quadrisulcata	enchanter's nightshade	0.18	1.8	407.5	6.7	8.5
Galeopsis tetrahit	hemp-nettle	0.50	5.1	205.0	3.4	8.5
Oxalis sp.	wood-sorrel	0.58	5.9	135.0	2.2	8.1
Carex spp.	sedge	0.48	4.9	142.5	2.4	7.3
Galium triflorum	bedstraw	0.38	3.8	165.0	2.7	6.5
Satureja vulgaris	wild basil	0.38	3.8	162.5	2.7	6.5
Lysimachia nummularia	moneywort	0.10	1.0	242.5	4.0	5.0
Solidago rugosa	rough goldenrod	0.28	2.8	112.5	1.9	4.7
Geranium robertianum	herb-robert	0.28	2.8	95.0	1.6	4.4
Panicum clandestinum	panic-grass	0.13	1.3	150.0	2.5	3.8
Geum canadense	avens	0.30	3.1	40.0	0.7	3.8
Dryopteris spinulosa	spinulose wood fern	0.20	2.1	95.0	1.6	3.7
Aster prenanthoides	crooked-stemmed aster	0.25	2.6	62.5	1.0	3.6
Veronica officinalis	common speedwell	0.23	2.3	65.0	1.1	3.4
Elymus villosus	wild rye	0.25	2.6	42.5	0.7	3.3
Dryopteris intermedia	fancy fern	0.15	1.5	90.0	1.5	3.0
Prunella vulgaris	selfheal	0.23	2.3	32.5	0.5	2.8
Athyrium filix-femina	lady fern	0.10	1.0	107.5	1.8	2.8
Scutellaria lateriflora	mad-dog skullcap	0.15	1.5	45.0	0.7	2.2
Solanum dulcamara	nightshade	0.18	1.8	22.5	0.4	2.2
Aster umbellatus	flat-topped aster	0.15	1.5	35.0	0.6	2.1
Leersia virginica	whitegrass	0.08	0.8	77.5	1.3	2.1
Bromus latiglumis	brome-grass	0.15	1.5	20.0	0.3	1.8
Leonurus cardiaca	motherwort	0.05	0.5	80.0	1.3	1.8
Glechoma hederacea	ground-ivy	0.13	1.3	30.0	0.5	1.8
Impatiens sp.	jewelweed	0.10	1.0	40.0	0.7	1.7
Arisaema triphyllum	jack-in-the-pulpit	0.13	1.3	20.0	0.3	1.6
Agrostis perennans	autumn bent	0.13	1.3	20.0	0.3	1.6
Solidago gigantea	goldenrod	0.05	0.5	50.0	0.8	1.3
Taraxacum officinale	dandelion	0.10	1.0	10.0	0.2	1.2
Anthoxanthum odoratum	sweet vernal grass	0.08	0.8	25.0	0.4	1.2
Clematis virginiana	virgin's bower	0.05	0.5	40.0	0.7	1.2
Stellaria aquatica	giant chickweed	0.03	0.3	50.0	0.8	1.1
Polygonum virginianum	Virginia knotweed	0.08	0.8	17.5	0.3	1.1
Carex deweyana	sedge	0.08	0.8	15.0	0.2	1.0
Aster puniceus	aster	0.08	0.8	12.5	0.2	1.0
Ranunculus acris	buttercup	0.08	0.8	7.5	0.1	0.9
Chelidonium majus	celandine	0.05	0.5	20.0	0.3	0.8
Thalictrum polygamum	tall meadow rue	0.05	0.5	20.0	0.3	0.8
Muhlenbergia frondosa	wirestem muhly	0.05	0.5	10.0	0.2	0.7
Erigeron annuus	daisy fleabane	0.05	0.5	7.5	0.1	0.6
Urtica dioica	stinging nettle	0.05	0.5	7.5	0.1	0.6
Ranunculus abortivus	kidneyleaf buttercup	0.05	0.5	7.5	0.1	0.6
Lysimachia ciliata	fringed loosestrife	0.05	0.5	7.5	0.1	0.6
Carex festucacea	sedge	0.05	0.5	5.0	0.1	0.6
Veronica chamaedrys	bird's-eye	0.05	0.5	5.0	0.1	0.6
Epipactis helleborine	helleborine	0.03	0.3	12.5	0.2	0.5
Convolvulus sepium	hedge-bindweed	0.03	0.3	7.5	0.1	0.4
Aster lateriflorus	aster	0.03	0.3	5.0	0.1	0.4
Hieracium pratense	hawkweed	0.03	0.3	5.0	0.1	0.4
Trientalis borealis	starflower	0.03	0.3	2.5	0.0	0.3
Verbena urticifolia	white vervain	0.03	0.3	2.5	0.0	0.3
Saponaria officinalis	bouncing bet	0.03	0.3	2.5	0.0	0.3
Cardamine pensylvanica	bitter-cress	0.03	0.3	2.5	0.0	0.3
Phalaris arundinacea	reed canary grass	0.03	0.3	2.5	0.0	0.3
Viola sp.	violet	0.03	0.3	2.5	0.0	0.3

Table 20. Age and diameter at breast height (dbh) of trees in Stand D3, alternate excavation disposal area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Picea abies	Norway spruce	34	328
		32	105
		31+	395
		31+	206
		31	341
		31	209
		31	112
		29+	429
		27+	158
		27+	113
		23+	169
Pinus sylvestris	Scotch pine	47	324
		46	262
		45	411
		43+	305
		43	258
		42+	271
		41+	288
		40+	346
		39+	248
Fraxinus americana	white ash	26	132
		21+	129
Juniperus virginiana	red cedar	42+	144
Prunus serotina	black cherry	29+	171
Ulmus americana	American elm	38+	339

* + indicates center of tree not reached; less than 5 years additional.

Table 21. Tree and sapling analysis for Stand L1, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Robinia pseudoacacia	black locust	0.88	34.7	308	41.9	212520.0	72.2	148.8
Acer saccharum	sugar maple	0.70	27.7	216	29.4	3045.6	10.4	67.5
Acer rubrum	red maple	0.33	12.9	64	8.8	1526.8	3.8	25.5
Pinus strobus	white pine	0.20	7.9	46	6.3	2936.4	7.3	21.5
Prunus serotina	black cherry	0.20	7.9	55	7.5	1525.5	3.8	19.2
Fraxinus americana	white ash	0.13	5.0	23	3.1	416.3	1.1	9.2
Pinus sylvestris	Scotch pine	0.05	2.0	14	1.9	452.2	1.1	5.0
Carya ovata	shagbark hickory	0.03	1.0	5	0.6	79.6	0.2	1.8
Quercus borealis	red oak	0.03	1.0	5	0.6	59.1	0.2	1.8
SAPLINGS								
Acer saccharum	sugar maple	1.00	64.5	1029	84.4	37764.0	81.0	229.9
Fraxinus americana	white ash	0.38	24.2	122	10.0	4965.0	10.7	44.9
Prunus serotina	black cherry	0.08	4.8	38	3.1	2341.0	5.0	12.9
Acer rubrum	red maple	0.10	6.5	31	2.5	1544.0	3.3	12.3

Table 22. Tree seedling and shrub analysis for Stand L1, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
TREE SEEDLINGS								
Fraxinus americana	white ash	0.73	43.3	41500	69.7	130.0	40.9	153.9
Robinia pseudoacacia	black locust	0.75	44.8	16250	27.3	97.5	30.7	102.8
Acer saccharum	sugar maple	0.05	3.0	250	0.4	75.0	23.6	27.0
Acer rubrum	red maple	0.08	4.5	750	1.3	7.5	2.4	8.2
Prunus serotina	black cherry	0.05	3.0	500	0.8	5.0	1.6	5.4
Quercus borealis	red oak	0.03	1.5	250	0.4	2.5	0.8	2.7
SHRUBS								
Rubus strigosus	red raspberry	0.10	66.7	1500	66.7	10.0	33.3	166.7
Vitis riparia	riverbank grape	0.03	16.7	250	11.1	12.5	41.7	69.5
Cornus alternifolia	alternate-leaved dogwood	0.03	16.7	500	22.2	7.5	25.0	63.9

Table 23. Herbaceous plant analysis for Stand L1, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Polygonum cilinode	bindweed	0.05	40.0	5.0	40.0	80.0
Eupatorium rugosum	white snakeroot	0.03	20.0	2.5	20.0	40.0
Hieracium sp.	hawkweed	0.03	20.0	2.5	20.0	40.0
Carex sp.	sedge	0.03	20.0	2.5	20.0	40.0

Table 24. Age and diameter at breast height (dbh) of trees in Stand L1, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Robinia pseudoacacia	black locust	48	379
		48	273
		47+	289
		47	283
		46+	260
		43+	250
		42+	220
Acer saccharum	sugar maple	38	118
		37	113
		36	160
		36	114
		34+	134
		33+	118
Fraxinus americana	white ash	36	163
		34	113
		32+	118
		32	103
		30+	147
Pinus strobus	white pine	51+	300
		46	312
		42+	314
		40+	172
Acer rubrum	red maple	37	225
		36	132
		35	150
Pinus sylvestris	Scotch pine	39+	160
		37+	189
		37	172
Prunus serotina	black cherry	33+	186
		32+	210
		30+	126
Carya ovata	shagbark hickory	46	130
Quercus borealis	red oak	43+	112

* + indicates center of tree not reached; less than 5 years additional.

Table 25. Mean percent litter, moss, bare soil, and rock in four stands in the Schoharie Reservoir Temporary Lay Down Area.

Stand	% Litter	% Moss	% Bare Soil	% Rock
L1 (second growth hardwood forest)	92.9	0.4	2.7	3.3
L2 (red oak-white pine-hardwood forest)	86.0	3.7	0.8	8.4
L3 (white pine forest)	97.4	0.7	0.2	0.5
L4 (Scotch pine plantation)	90.3	8.1	0.4	0.4

Table 26. Tree analysis for Stand L2, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
Quercus borealis	red oak	0.73	26.1	166	31.9	180359	46.8	104.8
Pinus strobus	white pine	0.70	25.2	117	22.5	128361	33.4	81.1
Acer rubrum	red maple	0.75	27.0	156	30.0	50107	13.0	70.0
Betula lenta	black birch	0.13	4.5	16	3.1	4576	1.2	8.8
Fagus grandifolia	American beech	0.10	3.6	16	3.1	5178	1.4	8.1
Betula papyrifera	paper birch	0.10	3.6	13	2.5	4823	1.3	7.4
Quercus prinus	chestnut oak	0.10	3.6	13	2.5	2682	0.7	6.8
Tsuga canadensis	hemlock	0.05	1.8	7	1.3	5251	1.3	4.4
Fraxinus americana	white ash	0.05	1.8	7	1.3	2747	0.7	3.8
Populus grandidentata	large-toothed aspen	0.03	0.9	3	0.6	689	0.2	1.7
Amelanchier sp.	juneberry	0.03	0.9	3	0.6	323	0.1	1.6
Prunus serotina	black cherry	0.03	0.9	3	0.6	255	0.1	1.6

Table 27. Sapling anaylysis for Stand L2, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
Acer rubrum	red maple	0.55	18.0	134	20.0	3457	23.1	61.1
Quercus borealis	red oak	0.55	18.0	122	18.1	2843	18.9	55.0
Quercus prinus	chestnut oak	0.33	10.7	67	10.0	1776	11.8	32.5
Castanea dentata	chestnut	0.25	8.2	50	7.5	1065	7.1	22.8
Fraxinus americana	white ash	0.23	7.4	46	6.9	1260	8.4	22.7
Carpinus caroliniana	American hornbeam	0.23	7.4	67	10.0	704	4.7	22.1
Fagus grandifolia	American beech	0.23	7.4	46	6.9	1099	7.3	21.6
Amelanchier sp.	juneberry	0.23	7.4	46	6.9	653	4.4	18.7
Pinus strobus	white pine	0.15	4.9	38	5.6	1144	7.6	18.1
Prunus serotina	black cherry	0.13	4.1	21	3.1	483	3.2	10.4
Betula lenta	black birch	0.08	2.5	13	1.9	212	1.4	5.8
Acer saccharum	sugar maple	0.05	1.6	8	1.3	55	0.4	3.3
Quercus alba	white oak	0.03	0.8	4	0.6	186	1.3	2.7
Ostrya virginiana	hop-hornbeam	0.03	0.8	4	0.6	36	0.3	1.7
Acer pensylvanicum	striped maple	0.03	0.8	4	0.6	32	0.2	1.6

Table 28. Tree seedling and shrub analysis for Stand L2, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
TREE SEEDLINGS								
Fraxinus americana	white ash	0.60	24.2	25500	53.1	140.0	12.5	89.8
Acer rubrum	red maple	0.45	18.2	7000	14.6	250.0	22.4	55.2
Quercus borealis	red oak	0.60	24.2	8500	17.7	87.5	7.8	49.7
Castanea dentata	chestnut	0.15	6.1	500	1.0	287.5	25.7	32.8
Fagus grandifolia	American beech	0.03	1.0	750	1.6	200.0	17.9	20.5
Pinus strobus	white pine	0.20	8.1	2000	4.2	45.0	4.0	16.3
Amelanchier sp.	juneberry	0.15	6.1	1500	3.1	27.5	2.5	11.7
Carpinus caroliniana	American hornbeam	0.13	5.1	750	1.6	47.5	4.3	11.0
Robinia pseudoacacia	black locust	0.10	4.0	1000	2.1	10.0	0.9	7.0
Carya ovata	shagbark hickory	0.03	1.0	0	0.0	17.5	1.6	2.6
Prunus serotina	black cherry	0.03	1.0	250	0.5	2.5	0.2	1.7
Acer pensylvanicum	striped maple	0.03	1.0	250	0.5	2.5	0.2	1.7
SHRUBS								
Hamamelis virginiana	common witch-hazel	0.70	49.1	6750	18.8	1967.5	74.9	142.8
Viburnum acerifolium	maple-leaved viburnum	0.20	14.0	10000	27.8	300.0	11.4	53.2
Vaccinium angustifolium	lowbush blueberry	0.20	14.0	11500	31.9	170.0	6.5	52.4
Lonicera canadensis	fly honeysuckle	0.13	8.8	5750	16.0	72.5	2.8	27.6
Kalmia latifolia	mountain laurel	0.10	7.0	1500	4.2	15.0	0.6	11.8
Corylus cornuta	beaked hazel	0.05	3.5	250	0.7	22.5	0.9	5.1
Cornus alternifolia	alternate-leaved dogwood	0.03	1.8	0	0.0	75.0	2.9	4.7
Diervilla canadensis	bush honeysuckle	0.03	1.8	250	0.7	5.0	0.2	2.7

Table 29. Herbaceous plant analysis for Stand L2, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Aralia nudicaulis	wild sarsaparilla	0.35	13.7	245.0	34.1	47.8
Maianthemum canadense	wild lily-of-the-valley	0.55	21.6	152.5	21.3	42.9
Trientalis borealis	starflower	0.55	21.6	75.0	10.5	32.1
Gaultheria procumbens	wintergreen	0.33	12.7	45.0	6.3	19.0
Mitchella repens	partridge-berry	0.18	6.9	30.0	4.2	11.1
Aster divaricatus	white wood aster	0.13	4.9	35.0	4.9	9.8
Aster acuminatus	whorled wood aster	0.05	2.0	40.0	5.6	7.6
Solidago caesia	blue-stemmed goldenrod	0.05	2.0	25.0	3.5	5.5
Solidago bicolor	silverrod	0.08	2.9	7.5	1.0	3.9
Trillium undulatum	painted trillium	0.03	1.0	20.0	2.8	3.8
Prenanthes altissima	tall white lettuce	0.05	2.0	12.5	1.7	3.7
Smilacena racemosa	false Solomon's seal	0.05	2.0	10.0	1.4	3.4
Monotropa uniflora	Indian pipe	0.05	2.0	5.0	0.7	2.7
Pteridium aquilinum	bracken	0.05	2.0	5.0	0.7	2.7
Solidago juncea	early goldenrod	0.03	1.0	5.0	0.7	1.7
Polygonatum pubescens	Solomon's seal	0.03	1.0	2.5	0.3	1.3
Veronica officinalis	common speedwell	0.03	1.0	2.5	0.3	1.3

Table 30. Age and diameter at breast height (dbh) of trees in Stand L2, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Acer rubrum	red maple	86+	186
		83+	259
		78+	147
		66+	254
		59+	177
Fagus grandifolia	American beech	85	205
		83+	194
		82+	202
		79+	273
		48	105
Quercus borealis	red oak	89+	349
		81+	384
		64+	448
		49+	127
		46+	140
Betula papyrifera	paper birch	81+	249
		79+	250
		67+	197
		56+	160
Pinus strobus	white pine	101	625
		76+	109
		62+	124
		51+	154
Quercus prinus	chestnut oak	76+	223
		53	105
		49+	183
		49+	104
Betula lenta	black birch	109+	321
		70+	205
		58+	111
Fraxinus americana	white ash	56+	223
		54	224
Tsuga canadensis	hemlock	92	371
		73	231
Amelanchier sp.	juneberry	53+	117
Populus grandidentata	large-toothed aspen	49+	171
Prunus serotina	black cherry	43+	104

* + indicates center of tree not reached; less than 5 years additional.

Table 31. Tree and sapling analysis for Stand L3, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Pinus strobus	white pine	0.95	50.7	429	72.5	415186	90.2	213.4
Quercus borealis	red oak	0.23	12.0	37	6.3	9250	2.0	20.3
Acer rubrum	red maple	0.15	8.0	26	4.4	10699	2.3	14.7
Robinia pseudoacacia	black locust	0.10	5.3	33	5.6	6910	1.5	12.4
Prunus serotina	black cherry	0.13	6.7	19	3.1	4950	1.0	10.8
Fraxinus americana	white ash	0.10	5.3	15	2.5	5282	1.1	8.9
Betula papyrifera	paper birch	0.08	4.0	11	1.9	3897	0.9	6.8
Populus grandidentata	large-toothed aspen	0.08	4.0	11	1.9	2811	0.6	6.5
Ulmus americana	American elm	0.05	2.7	7	1.3	873	0.2	4.2
Acer saccharum	sugar maple	0.03	1.3	4	0.6	360	0.1	2.0
SAPLINGS								
Quercus borealis	red oak	0.78	29.2	197	38.8	4078	35.1	103.1
Pinus strobus	white pine	0.33	12.3	79	15.6	2165	18.8	46.7
Acer saccharum	sugar maple	0.45	17.0	73	14.4	1365	11.8	43.2
Acer rubrum	red maple	0.38	14.2	57	11.3	1750	15.2	40.7
Fraxinus americana	white ash	0.38	14.2	57	11.3	1288	11.1	36.6
Ulmus americana	American elm	0.10	3.8	13	2.5	633	5.3	11.6
Carpinus caroliniana	American hornbeam	0.15	5.7	19	3.8	184	1.6	11.1
Prunus serotina	black cherry	0.08	2.8	10	1.9	93	0.8	5.5
Betula papyrifera	paper birch	0.03	0.9	3	0.6	38	0.3	1.8

Table 32. Tree seedling analysis for Stand L3, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Fraxinus americana	white ash	0.90	33.0	38500	50.3	505.0	42.3	125.6
Acer rubrum	red maple	0.55	20.2	23750	31.0	157.5	13.2	64.4
Pinus strobus	white pine	0.28	10.1	4000	5.2	90.0	7.5	22.8
Carpinus caroliniana	American hornbeam	0.15	5.5	2000	2.6	140.0	11.7	19.8
Prunus serotina	black cherry	0.28	10.1	3500	4.6	50.0	4.2	18.9
Acer saccharum	sugar maple	0.05	1.8	0	0.0	135.0	11.3	13.1
Acer pennsylvanicum	striped maple	0.10	3.7	1000	1.3	55.0	4.6	9.6
Quercus borealis	red oak	0.08	2.8	1000	1.3	10.0	0.8	4.9
Ulmus americana	American elm	0.08	2.8	750	1.0	12.5	1.0	4.8
Prunus virginiana	choke cherry	0.08	2.8	750	1.0	7.5	0.6	4.4
Juniperus virginiana	red cedar	0.05	1.8	500	0.7	5.0	0.4	2.9
Robinia pseudoacacia	black locust	0.05	1.8	250	0.3	5.0	0.4	2.5
Fagus grandifolia	American beech	0.03	0.9	250	0.3	5.0	0.4	1.6
Amelanchier sp.	juneberry	0.03	0.9	0	0.0	7.5	0.6	1.5
Tsuga canadensis	hemlock	0.03	0.9	250	0.3	2.5	0.2	1.4
Populus tremuloides	quaking aspen	0.03	0.9	0	0.0	5.0	0.4	1.3

Table 33. Shrub analysis for Stand L3, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Lonicera canadensis	fly honeysuckle	0.18	38.9	9000	63.2	127.5	33.1	135.2
Hamamelis virginiana	common witch-hazel	0.05	11.1	250	1.8	155.0	40.3	53.2
Rubus fragellaris	northern dewberry	0.05	11.1	2500	17.5	65.0	16.9	45.5
Spiraea latifolia	meadowsweet	0.05	11.1	750	5.3	5.0	1.3	17.7
Cornus alternifolia	alternate-leaved dogwood	0.05	11.1	250	1.8	7.5	1.9	14.8
Rubus allegheniensis	blackberry	0.03	5.6	750	5.3	15.0	3.9	14.8
Vitis riparia	riverbank grape	0.03	5.6	500	3.5	5.0	1.3	10.4
Viburnum acerifolium	maple-leaved viburnum	0.03	5.6	250	1.8	5.0	1.3	8.7

Table 34. Herbaceous plant analysis for Stand L3, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Veronica officinalis	common speedwell	0.35	20.0	142.5	26.8	46.8
Maianthemum canadense	wild lily-of-the-valley	0.30	17.1	80.0	15.0	32.1
Solidago caesia	blue-stemmed goldenrod	0.13	7.1	45.0	8.5	15.6
Polygala paucifolia	fringed polygala	0.10	5.7	47.5	8.9	14.6
Galium triflorum	bedstraw	0.10	5.7	42.5	8.0	13.7
Potentilla simplex	common cinquefoil	0.05	2.9	55.0	10.3	13.2
Pyrola elliptica	shinleaf	0.10	5.7	20.0	3.8	9.5
Poa compressa	Canada bluegrass	0.10	5.7	10.0	1.9	7.6
Aster divaricatus	white wood aster	0.05	2.9	20.0	3.8	6.7
Hypericum perforatum	St. John's wort	0.08	4.3	10.0	1.9	6.2
Danthonia spicata	poverty-grass	0.08	4.3	7.5	1.4	5.7
Aralia nudicaulis	wild sarsaparilla	0.05	2.9	10.0	1.9	4.8
Trientalis borealis	starflower	0.05	2.9	5.0	0.9	3.8
Eupatorium rugosum	white snakeroot	0.03	1.4	12.5	2.3	3.7
Solidago bicolor	silverrod	0.03	1.4	7.5	1.4	2.8
Smilacina racemosa	false Solomon's seal	0.03	1.4	2.5	0.5	1.9
Corallorhiza maculata	spotted coral-root	0.03	1.4	2.5	0.5	1.9
Circaea canadensis	enchanter's nightshade	0.03	1.4	2.5	0.5	1.9
Carex deweyana	sedge	0.03	1.4	2.5	0.5	1.9
Carex gracillima	drooping sedge	0.03	1.4	2.5	0.5	1.9
Carex sp.	sedge	0.03	1.4	2.5	0.5	1.9
Hieracium sp.	hawkweed	0.03	1.4	2.5	0.5	1.9

Table 35. Age and diameter at breast height (dbh) of trees in Stand L3, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Pinus strobus	white pine	64+	385
		59+	444
		59+	353
		59+	217
		58+	356
		56+	303
		52+	311
		46	371
		43+	369
		42+	343
		39	261
		35+	135
		32+	263
		31+	121
Acer rubrum	red maple	43	150
		42+	306
		42	108
		31+	125
Fraxinus americana	white ash	39+	324
		39	212
		33+	103
		30+	137
Prunus serotina	black cherry	41	183
		36+	134
		32+	141
		28+	247
Quercus borealis	red oak	39+	211
		36	224
		29	128
		27	121
Robinia pseudoacacia	black locust	31+	180
		31+	155
		31	168
		29+	147
Betula papyrifera	paper birch	49+	239
		40+	246
		35+	133
Populus grandidentata	large-toothed aspen	37+	179
		31	183
		29+	179
Acer saccharum	sugar maple	38	107
Ulmus americana	American elm	46+	126

* + indicates center of tree not reached; less than 5 years additional.

Table 36. Tree and sapling analysis for Stand L4, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Pinus sylvestris	Scotch pine	1.00	67.8	833	85.0	360522	76.4	229.2
Pinus strobus	white pine	0.28	18.6	98	10.0	93688	19.9	48.5
Fraxinus americana	white ash	0.08	5.1	18	1.9	1818	0.4	7.4
Prunus serotina	black cherry	0.05	3.4	12	1.3	11083	2.4	7.1
Robinia pseudoacacia	black locust	0.03	1.7	6	0.6	2852	0.6	2.9
Ulmus americana	American elm	0.03	1.7	6	0.6	736	0.2	2.5
Amelanchier sp.	juneberry	0.03	1.7	6	0.6	581	0.1	2.4
SAPLINGS								
Acer rubrum	red maple	0.53	18.3	70	20.6	1155	20.1	59.0
Acer saccharum	sugar maple	0.43	14.8	58	16.9	1166	20.1	51.8
Acer pensylvanicum	striped maple	0.43	14.8	45	13.1	689	11.9	39.8
Fraxinus americana	white ash	0.38	13.0	43	12.5	396	6.8	32.3
Fagus grandifolia	American beech	0.33	11.3	34	10.0	561	9.8	31.1
Prunus serotina	black cherry	0.28	9.6	36	10.6	403	7.0	27.2
Ostrya virginiana	hop-hornbeam	0.13	7.4	17	5.0	428	7.4	16.7
Carpinus caroliniana	American hornbeam	0.10	3.4	13	3.8	198	3.4	10.7
Pinus strobus	white pine	0.10	4.2	9	2.5	255	4.2	10.2
Pinus sylvestris	Scotch pine	0.05	1.7	4	1.3	272	5.0	8.0
Quercus alba	white oak	0.08	2.6	6	1.9	95	1.8	6.3
Ulmus americana	American elm	0.03	0.9	2	0.6	101	1.9	3.4
Quercus borealis	red oak	0.03	0.9	2	0.6	33	0.6	2.1
Robinia pseudoacacia	black locust	0.03	0.9	2	0.6	12	0.6	1.7

Table 37. Tree seedling analysis for Stand L4, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Prunus serotina	black cherry	0.90	15.6	16000	14.8	1210.0	26.1	56.5
Fraxinus americana	white ash	0.85	14.7	21250	19.7	802.5	17.3	51.7
Acer rubrum	red maple	0.63	10.8	13500	12.5	757.5	16.3	39.6
Ulmus americana	American elm	0.68	11.7	21750	20.1	180.0	3.9	35.7
Pinus strobus	white pine	0.50	8.7	14250	13.2	252.5	5.4	27.3
Amelanchier sp.	juneberry	0.38	6.5	6500	6.0	240.0	5.2	17.7
Prunus virginiana	choke cherry	0.35	6.1	4500	4.2	180.0	3.9	14.2
Robinia pseudoacacia	black locust	0.33	5.6	4500	4.2	102.0	2.2	12.0
Fagus grandifolia	American beech	0.20	3.5	1000	0.9	275.0	5.9	10.3
Quercus borealis	red oak	0.28	4.8	1750	1.6	155.0	3.3	9.7
Acer pensylvanicum	striped maple	0.20	3.5	250	0.2	195.0	4.2	7.9
Ostrya virginiana	hop-hornbeam	0.10	1.7	250	0.2	92.5	2.0	3.9
Quercus alba	white oak	0.08	1.3	500	0.5	57.5	1.2	3.0
Carpinus caroliniana	American hornbeam	0.08	1.3	250	0.2	60.0	1.3	2.8
Acer saccharum	sugar maple	0.10	1.7	500	0.5	25.0	0.5	2.7
Tsuga canadensis	hemlock	0.05	0.9	500	0.5	12.5	0.3	1.7
Acer spicatum	mountain maple	0.03	0.4	250	0.2	20.0	0.4	1.0
Pyrus malus	apple	0.03	0.4	250	0.2	12.5	0.3	0.9
Juniperus virginiana	red cedar	0.03	0.4	250	0.2	2.5	0.1	0.7
Carya glabra	pignut hickory	0.03	0.4	0	0.0	2.5	0.1	0.5

Table 38. Shrub analysis for Stand L4, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Rubus strigosis	red raspberry	0.78	34.8	66500	69.5	1227.5	64.1	168.4
Vitis riparia	riverbank grape	0.55	24.7	11250	11.7	202.5	10.6	47.0
Rubus allegheniensis	blackberry	0.23	10.1	6000	6.3	142.5	7.4	23.8
Cornus alternifolia	alternate-leaved dogwood	0.15	6.7	2000	2.1	150.0	7.8	16.6
Parthenocissus quinquefolia	Virginia creeper	0.13	5.6	2750	2.9	40.0	2.1	10.6
Lonicera canadensis	fly honeysuckle	0.08	3.4	2250	2.3	35.0	1.8	7.5
Rubus flagellaris	northern dewberry	0.08	3.4	1250	1.3	52.5	2.7	7.4
Corylus cornuta	beaked hazel	0.08	3.4	1000	1.0	20.0	1.0	5.4
Berberis vulgaris	European barberry	0.08	3.4	750	0.8	17.5	0.9	5.1
Celastrus scandens	bittersweet	0.05	2.2	1000	1.0	12.5	0.7	3.9
Rhus radicans	poison ivy	0.03	1.1	1000	1.0	12.5	0.7	2.8
Vaccinium angustifolium	lowbush blueberry	0.03	1.1	0	0.0	2.5	0.1	1.2

Table 39. Herbaceous plant analysis for Stand L4, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Eupatorium rugosum	white snakeroot	0.55	10.2	450.0	23.3	33.5
Pyrola elliptica	shinleaf	0.30	5.6	312.5	16.2	21.8
Galium triflorum	bedstraw	0.73	13.5	155.0	8.0	21.5
Solidago caesia	blue-stemmed goldenrod	0.43	7.9	125.0	6.5	14.4
Veronica officinalis	common speedwell	0.40	7.4	115.0	6.0	13.4
Maianthemum canadense	wild lily-of-the-valley	0.28	5.1	67.5	3.5	8.6
Danthonia spicata	poverty-grass	0.25	4.7	27.5	1.4	6.1
Satureja vulgaris	wild basil	0.15	2.8	62.5	3.2	6.0
Potentilla simplex	common cinquefoil	0.15	2.8	60.0	3.1	5.9
Dennstaedtia punctilobula	hay-scented fern	0.03	0.5	87.5	4.5	5.0
Anthoxanthum odoratum	sweet vernal grass	0.13	2.3	42.5	2.2	4.5
Fragaria vesca	woodland strawberry	0.13	2.3	27.5	1.4	3.7
Oxalis sp.	wood-sorrel	0.15	2.8	17.5	0.9	3.7
Circaea quadrisulcata	enchanter's nightshade	0.05	0.9	55.0	2.8	3.7
Polygonum cilinode	bindweed	0.08	1.4	35.0	1.8	3.2
Viola sp.	violet	0.10	1.9	17.5	0.9	2.8
Trientalis borealis	starflower	0.10	1.9	15.0	0.8	2.7
Hieracium sp.	hawkweed	0.10	1.9	15.0	0.8	2.7
Aster divaricatus	white wood aster	0.08	1.4	20.0	1.0	2.4
Carex gracillima	drooping sedge	0.08	1.4	12.5	0.6	2.0
Carex spp.	sedge	0.08	1.4	12.5	0.6	2.0
Thymus serpyllum	wild thyme	0.05	0.9	17.5	0.9	1.8
Botrychium dissectum	grape fern	0.08	1.4	7.5	0.4	1.8
Agrostis perennans	autumn bent	0.08	1.4	7.5	0.4	1.8
Achillea millefolium	yarrow	0.05	0.9	12.5	0.6	1.5
Circaea canadensis	enchanter's nightshade	0.05	0.9	7.5	0.4	1.3
Dianthus armeria	deptford pink	0.05	0.9	5.0	0.3	1.2
Solanum dulcamara	nightshade	0.05	0.9	5.0	0.3	1.2
Taraxacum officinale	dandelion	0.05	0.9	5.0	0.3	1.2
Apocynum androsaemifolium	dogbane	0.03	0.5	12.5	0.6	1.1
Prunella vulgaris	selfheal	0.03	0.5	12.5	0.6	1.1
Antennaria neglecta	pussytoes	0.03	0.5	12.5	0.6	1.1
Aralia nudicaulis	wild sarsaparilla	0.03	0.5	10.0	0.5	1.0
Actaea alba	white baneberry	0.03	0.5	7.5	0.4	0.9
Mitchella repens	partridge-berry	0.03	0.5	7.5	0.4	0.9
Carex rosea	sedge	0.03	0.5	7.5	0.4	0.9
Epipactis helleborine	helleborine	0.03	0.5	5.0	0.3	0.8
Linaria vulgaris	butter-and-eggs	0.03	0.5	5.0	0.3	0.8
Solidago juncea	early goldenrod	0.03	0.5	5.0	0.3	0.8
Solidago rugosa	rough goldenrod	0.03	0.5	5.0	0.3	0.8
Elymus villosus	wild rye	0.03	0.5	5.0	0.3	0.8
Panicum lanuginosum	panic-grass	0.03	0.5	5.0	0.3	0.8
Spiranthes gracilis	slender ladies'-tresses	0.03	0.5	2.5	0.1	0.6
Anemone virginiana	thimbleweed	0.03	0.5	2.5	0.1	0.6
Geum canadense	avens	0.03	0.5	2.5	0.1	0.6
Alliaria officinalis	garlic-mustard	0.03	0.5	2.5	0.1	0.6
Ranunculus acris	buttercup	0.03	0.5	2.5	0.1	0.6
Polygonum virginianum	Virginia knotweed	0.03	0.5	2.5	0.1	0.6
Geranium robertianum	herb-robert	0.03	0.5	2.5	0.1	0.6
Solidago bicolor	silverrod	0.03	0.5	2.5	0.1	0.6
Senecio obovatus	roundleaf ragwort	0.03	0.5	2.5	0.1	0.6
Carex festucacea	sedge	0.03	0.5	2.5	0.1	0.6
Carex swannii	sedge	0.03	0.5	2.5	0.1	0.6
Carex complanats	sedge	0.03	0.5	2.5	0.1	0.6

Table 40. Age and diameter at breast height (dbh) of trees in Stand L4, Schoharie Reservoir Temporary Lay Down Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Pinus sylvestris	Scotch pine	47	305
		46+	312
		46+	207
		46	291
		45+	330
		45+	195
		45	213
		44+	360
		44+	297
		44+	211
		41+	198
		38+	133
		37+	208
		35+	165
Pinus strobus	white pine	49	268
		47+	360
		47+	339
		47+	255
		47+	208
		45+	399
		43+	306
Fraxinus americana	white ash	30	117
		27	116
		20+	107
Prunus serotina	black cherry	43+	473
		35	107
Amelanchier sp.	juneberry	34+	111
Robinia pseudoacacia	black locust	38+	246
Ulmus americana	American elm	37+	125

* + indicates center of tree not reached; less than 5 years additional.

Table 41. Tree and sapling analysis for Stand P1, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
TREES								
Acer saccharum	sugar maple	0.53	17.6	121	19.4	24902	11.0	48.0
Robinia pseudoacacia	black locust	0.38	12.6	113	18.1	38092	16.8	47.5
Fraxinus americana	white ash	0.40	13.4	78	12.5	45536	20.1	46.0
Pinus strobus	white pine	0.25	8.4	47	7.5	35212	15.5	31.4
Betula lenta	black birch	0.35	11.8	70	11.3	17927	7.9	31.0
Juglans cinerea	butternut	0.30	10.1	63	10.0	24425	10.7	30.8
Tsuga canadensis	hemlock	0.18	5.9	31	5.0	4923	2.2	13.1
Acer rubrum	red maple	0.13	4.2	23	3.8	9402	4.2	12.2
Betula papyrifera	paper birch	0.13	4.2	20	3.1	11196	4.8	12.1
Prunus serotina	black cherry	0.10	3.4	20	3.1	5410	2.3	8.8
Ulmus americana	American elm	0.10	3.4	16	2.5	1976	2.5	6.8
Tilia americana	basswood	0.05	1.7	8	1.3	4148	1.8	4.8
Pyrus malus	apple	0.05	1.7	8	1.3	774	0.3	3.3
Populus grandidentata	large-toothed aspen	0.03	0.8	4	0.6	1948	0.8	2.2
Quercus borealis	red oak	0.03	0.8	4	0.6	1534	0.7	2.1
SAPLINGS								
Acer saccharum	sugar maple	0.93	36.3	289	52.5	8150	53.6	142.4
Ulmus americana	American elm	0.43	16.7	72	13.1	1829	12.0	41.8
Fraxinus americana	white ash	0.30	11.8	48	8.8	1061	7.0	27.6
Tsuga canadensis	hemlock	0.23	8.8	35	6.3	630	4.1	19.2
Acer rubrum	red maple	0.18	6.9	24	4.4	888	5.9	17.2
Robinia pseudoacacia	black locust	0.08	2.9	21	3.8	890	5.7	12.4
Betula lenta	black birch	0.10	3.9	17	3.1	434	2.9	9.9
Pinus strobus	white pine	0.10	3.9	14	2.5	521	3.4	9.8
Prunus serotina	black cherry	0.10	3.9	14	2.5	409	2.6	9.0
Prunus virginiana	choke cherry	0.05	2.0	7	1.3	259	0.4	3.7
Quercus borealis	red oak	0.03	1.0	3	0.6	155	1.2	2.8
Ostrya virginiana	hop-hornbeam	0.03	1.0	3	0.6	106	0.8	2.4
Pyrus malus	apple	0.03	1.0	3	0.6	59	0.4	2.0

Table 42. Tree seedling analysis for Stand P1, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Fraxinus americana	white ash	1.00	54.8	566000	98.3	1885.0	82.6	235.7
Prunus virginiana	choke cherry	0.15	8.2	2000	0.3	80.0	3.5	12.0
Acer saccharum	sugar maple	0.08	4.1	0	0.0	175.0	7.7	11.8
Betula lenta	black birch	0.18	9.6	3250	0.6	27.5	1.2	11.4
Ulmus americana	American elm	0.08	4.1	750	0.1	55.0	2.4	6.6
Robinia pseudoacacia	black locust	0.10	5.5	1000	0.1	10.0	0.4	6.0
Carya glabra	pignut hickory	0.10	5.5	750	0.1	10.0	0.4	6.0
Tilia americana	basswood	0.03	1.4	750	0.1	10.0	0.4	1.9
Carpinus caroliniana	American hornbeam	0.03	1.4	0	0.0	12.5	0.5	1.9
Prunus serotina	black cherry	0.03	1.4	500	0.1	7.5	0.3	1.8
Acer rubrum	red maple	0.03	1.4	0	0.0	5.0	0.2	1.6
Quercus borealis	red oak	0.03	1.4	250	0.0	2.5	0.1	1.5
Tsuga canadensis	hemlock	0.03	1.4	250	0.0	2.5	0.1	1.5

Table 43. Shrub analysis for Stand P1, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Vitis riparia	riverbank grape	0.20	32.0	1250	16.1	130.0	41.2	89.3
Rubus strigosus	red raspberry	0.15	24.0	2750	35.5	62.5	19.8	79.3
Cornus rugosa	round-leaved dogwood	0.10	16.0	2250	29.0	90.0	28.6	73.6
Celastrus scandens	bittersweet	0.08	12.0	500	6.5	20.0	6.3	24.8
Ribes lacustre	swamp currant	0.03	4.0	250	3.2	5.0	1.6	8.8
Rubus odoratus	flowering raspberry	0.03	4.0	250	3.2	2.5	0.8	8.0
Rubus fragellaris	northern dewberry	0.03	4.0	250	3.2	2.5	0.8	8.0
Parthenocissus quinquefolia	Virginia creeper	0.03	4.0	250	3.2	2.5	0.8	8.0

Table 44. Herbaceous plant analysis for Stand P1, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Eupatorium rugosum	white snakeroot	0.18	6.0	240.0	27.3	33.3
Dryopteris marginalis	marginal wood fern	0.25	8.6	105.0	11.9	20.5
Veronica officinalis	common speedwell	0.33	11.2	45.0	5.1	16.3
Polystichum acrostichoides	Christmas fern	0.13	4.3	52.5	6.0	10.3
Mitchella repens	partridge-berry	0.15	5.2	37.5	4.3	9.5
Carex spp.	sedge	0.15	5.2	35.0	4.0	9.2
Circaea canadensis	enchanter's nightshade	0.05	1.7	50.0	5.7	7.4
Arisaema triphyllum	jack-in-the-pulpit	0.13	4.3	22.5	2.6	6.9
Oxalis sp.	wood-sorrel	0.13	4.3	15.0	1.7	6.0
Glyceria striata	mannagrass	0.10	3.4	17.5	2.0	5.4
Athyrium filix-femina	lady fern	0.08	2.6	22.5	2.6	5.2
Solidago caesia	blue-stemmed goldenrod	0.08	2.6	22.5	2.6	5.2
Polygonum cilinode	bindweed	0.03	0.9	30.0	3.4	4.3
Carex gracillima	drooping sedge	0.08	2.6	12.5	1.4	4.0
Epipactis helleborine	helleborine	0.08	2.6	10.0	1.1	3.7
Carex laxiflora	sedge	0.05	1.7	17.5	2.0	3.7
Hieracium sp.	hawkweed	0.08	2.6	10.0	1.1	3.7
Cardamine pensylvanica	bitter-cress	0.08	2.6	7.5	0.9	3.5
Hypericum perforatum	St. John's wort	0.08	2.6	7.5	0.9	3.5
Acalypha rhomboidea	three-seeded mercury	0.05	1.7	12.5	1.4	3.1
Anthoxanthum odoratum	sweet vernal grass	0.05	1.7	12.5	1.4	3.1
Fragaria vesca	woodland strawberry	0.05	1.7	12.5	1.4	3.1
Galium triflorum	bedstraw	0.05	1.7	12.5	1.4	3.1
Onoclea sensibilis	sensitive fern	0.03	0.9	12.5	1.4	2.3
Botrychium dissectum	grape fern	0.05	1.7	5.0	0.6	2.3
Dryopteris intermedia	fancy fern	0.05	1.7	5.0	0.6	2.3
Poa compressa	Canada bluegrass	0.05	1.7	5.0	0.6	2.3
Carex complanata	sedge	0.05	1.7	5.0	0.6	2.3
Veronica serpyllifolia	speedwell	0.05	1.7	5.0	0.6	2.3
Geum canadense	avens	0.03	0.9	10.0	1.1	2.0
Hedeoma pulegioides	pennyroyal	0.03	0.9	2.5	0.3	1.2
Juncus tenuis	path rush	0.03	0.9	2.5	0.3	1.2
Carex rosea	sedge	0.03	0.9	2.5	0.3	1.2
Carex abscondita	sedge	0.03	0.9	2.5	0.3	1.2
Polypodium virginianum	common polypody	0.03	0.9	2.5	0.3	1.2
Ranunculus abortivus	kidneyleaf buttercup	0.03	0.9	2.5	0.3	1.2
Ranunculus acris	buttercup	0.03	0.9	2.5	0.3	1.2
Solanum dulcamara	nightshade	0.03	0.9	2.5	0.3	1.2
Trifolium sp.	clover	0.03	0.9	2.5	0.3	1.2

Table 45. Age and diameter at breast height (dbh) of trees in Stand P1, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Robinia pseudoacacia	black locust	51+	253
		46	221
		41+	193
		41+	186
		40+	203
		40+	186
		39+	267
		33+	173
		33	147
		30+	203
Tsuga canadensis	hemlock	58+	110
		51+	228
		43+	135
		41+	127
		41+	107
		41	131
		38	151
Fraxinus americana	white ash	37+	282
		36	124
		34+	330
		33+	222
		29+	398
		21+	172
Acer saccharum	sugar maple	39	108
		37+	208
		36+	118
		35	105
		34	114
Juglans cinerea	butternut	45	284
		37+	238
		35+	199
		29+	206
		27+	192
Pinus strobus	white pine	51+	370
		43+	267
		33+	151
		31+	252
		30+	200
Prunus serotina	black cherry	41+	160
		39+	189
		36+	189
		31+	238
		23+	136
Ulmus americana	American elm	56	110
		48+	145
		45+	137
		42+	105
Acer rubrum	red maple	55	152
		42	222
		34	193
Betula lenta	black birch	53+	225
		45+	134
		43+	115
Tilia americana	basswood	46+	205
		39+	300
Betula papyrifera	paper birch	40+	277
Pyrus malus	apple	26	111
Quercus borealis	red oak	35+	221

* + indicates center of tree not reached; less than 5 years additional.

Table 46. Mean percent litter, moss, bare soil, and rock in two stands in the Powerhouse-Switchyard Area.

Stand	% Litter	% Moss	% Bare Soil	% Rock
P1 (second growth hardwood forest)	61.4	10.5	6.6	19.6
P2 (red pine-Scotch pine plantation)	83.3	4.4	0.3	11.4

Table 47. Tree analysis for Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
Pinus resinosa	red pine	0.73	29.3	251	33.1	163351	37.6	100.0
Pinus sylvestris	scotch pine	0.73	29.3	237	31.3	121723	28.0	88.6
Fraxinus americana	white ash	0.55	22.2	156	20.6	96424	22.2	65.0
Acer saccharum	sugar maple	0.13	5.1	38	5.0	14527	3.3	13.4
Prunus serotina	black cherry	0.10	4.0	19	2.5	11311	2.6	9.1
Pinus strobus	white pine	0.08	3.0	14	1.9	11598	2.7	7.6
Acer rubrum	red maple	0.05	2.0	9	1.3	5174	1.3	4.6
Betula papyrifera	paper birch	0.03	1.0	14	1.9	6822	1.6	4.5
Carya ovata	shagbark hickory	0.05	2.0	9	1.3	1677	0.4	3.7
Juniperus virginiana	red cedar	0.05	2.0	9	1.3	1315	0.3	3.6

Table 48. Sapling analysis for Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (cm^2/hectare)	Relative Dominance	Importance Value
Ostrya virginiana	hop-hornbeam	0.73	27.1	87	33.8	1670	21.5	82.4
Acer saccharum	sugar maple	0.40	15.0	47	18.1	517	23.1	56.2
Acer pensylvanicum	striped maple	0.43	15.9	29	11.3	458	11.0	38.2
Fraxinus americana	white ash	0.18	6.5	19	7.5	300	7.4	21.4
Pinus resinosa	red pine	0.13	4.7	11	4.4	461	11.4	20.5
Acer rubrum	red maple	0.18	6.5	15	5.6	200	4.6	16.7
Carpinus caroliniana	American hornbeam	0.15	5.6	15	5.6	146	3.4	14.6
Carya glabra	pignut	0.08	2.8	6	2.5	114	2.9	8.2
Fagus grandifolia	American beech	0.10	3.7	8	3.1	57	1.4	8.2
Juniperus virginiana	red cedar	0.05	1.9	3	1.3	166	4.3	7.5
Betula lenta	black birch	0.10	3.7	6	2.5	29	0.8	7.0
Picea abies	Norway spruce	0.05	1.9	3	1.3	109	2.8	6.0
Betula papyrifera	paper birch	0.03	0.9	2	0.6	160	3.1	4.6
Tsuga canadensis	hemlock	0.05	1.9	3	1.3	15	0.4	3.6
Ulmus americana	American elm	0.03	0.9	2	0.6	93	1.8	3.3
Prunus serotina	black cherry	0.03	0.9	2	0.6	10	0.2	1.7

Table 49. Tree seedling analysis for Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Fraxinus americana	white ash	1.00	30.1	1184500	97.8	1817.5	39.6	167.5
Ostrya virginiana	hop-hornbeam	0.53	15.8	8250	0.7	1450.0	31.6	48.1
Acer rubrum	red maple	0.40	12.0	5750	0.5	175.0	3.8	16.3
Carya glabra	pignut hickory	0.25	7.5	1250	0.1	380.0	8.3	15.9
Prunus virginiana	choke cherry	0.25	7.5	5000	0.4	102.5	2.2	10.1
Acer pensylvanicum	striped maple	0.13	3.8	500	0.0	192.5	4.2	8.0
Acer saccharum	sugar maple	0.15	4.5	500	0.0	65.0	1.4	5.9
Prunus serotina	black cherry	0.15	4.5	2500	0.2	42.5	0.9	5.6
Fagus grandifolia	American beech	0.13	3.8	500	0.0	35.0	0.8	4.6
Carpinus caroliniana	American hornbeam	0.03	0.8	0	0.0	150.0	3.3	4.1
Robinia pseudoacacia	black locust	0.10	3.0	1000	0.1	10.0	0.2	3.3
Quercus borealis	red oak	0.05	1.5	750	0.1	70.0	1.5	3.1
Ulmus americana	American elm	0.08	2.3	500	0.0	7.5	0.2	2.5
Tilia americana	basswood	0.03	0.8	250	0.0	75.0	1.6	2.4
Picea abies	Norway spruce	0.05	1.5	500	0.0	10.0	0.2	1.7
Betula lenta	black birch	0.03	0.8	0	0.0	2.5	0.1	0.9

Table 50. Shrub analysis for Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Density/ Hectare	Relative Density	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Viburnum acerifolium	maple-leaved viburnum	0.20	22.9	7750	27.9	365.0	37.3	88.1
Rubus allegheniensis	blackberry	0.13	14.3	7500	27.0	347.5	35.5	76.8
Rubus strigosus	red raspberry	0.13	14.3	2500	9.0	35.0	3.6	26.9
Vitis riparia	riverbank grape	0.13	14.3	1500	5.4	47.5	4.9	24.6
Celastrus scandens	bittersweet	0.08	8.6	3000	10.8	32.5	3.3	22.7
Parthenocissus quinquefolia	Virginia creeper	0.10	11.4	1750	6.3	37.5	3.8	21.5
Rubus fragellaris	northern dewberry	0.05	5.7	2500	9.0	57.5	5.9	20.6
Lonicera canadensis	fly honeysuckle	0.03	2.9	750	2.7	37.5	3.8	9.4
Cornus alternifolia	alternate-leaved dogwood	0.03	2.9	250	0.9	12.5	1.3	5.1
Berberis vulgaris	European barberry	0.03	2.9	250	0.9	5.0	0.5	4.3

Table 51. Herbaceous plant analysis for Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Frequency	Relative Frequency	Dominance (m^2/hectare)	Relative Dominance	Importance Value
Mitchella repens	partridge-berry	0.78	21.5	252.5	18.2	39.7
Dryopteris marginalis	marginal wood fern	0.38	10.4	382.5	27.6	38.0
Dennstaedtia punctilobula	hay-scented fern	0.08	2.1	240.0	17.3	19.4
Maianthemum canadense	wild lily-of-the-valley	0.28	7.6	37.5	2.7	10.3
Aster divaricatus	white wood aster	0.18	4.9	35.0	2.5	7.4
Ranunculus acris	buttercup	0.20	5.6	20.0	1.4	7.0
Carex deweyana	sedge	0.10	2.8	57.5	4.1	6.9
Geranium robertianum	herb-robert	0.15	4.2	30.0	2.2	6.4
Athyrium filix-femina	lady fern	0.05	1.4	57.5	4.1	5.5
Carex gracillima	drooping sedge	0.13	3.5	22.5	1.6	5.1
Fragaria vesca	woodland strawberry	0.08	2.1	40.0	2.9	5.0
Polystichum acrostichoides	Christmas fern	0.08	2.1	37.5	2.7	4.8
Senecio obovatus	roundleaf ragwort	0.08	2.1	32.5	2.3	4.4
Solidago caesia	blue-stemmed goldenrod	0.10	2.8	20.0	1.4	4.2
Danthonia spicata	poverty-grass	0.10	2.8	10.0	0.7	3.5
Oxalis sp.	wood-sorrel	0.10	2.8	10.0	0.7	3.5
Carex spp.	sedge	0.10	2.8	10.0	0.7	3.5
Potentilla simplex	common cinquefoil	0.08	2.1	12.5	0.9	3.0
Aquilegia canadensis	columbine	0.05	1.4	10.0	0.7	2.1
Veronica officinalis	common speedwell	0.05	1.4	10.0	0.7	2.1
Thalictrum polygamum	tall meadow rue	0.05	1.4	5.0	0.4	1.8
Arisaema triphyllum	jack-in-the-pulpit	0.05	1.4	5.0	0.4	1.8
Carex rosea	sedge	0.05	1.4	5.0	0.4	1.8
Agrimonia grypsosepala	agrimony	0.03	0.7	7.5	0.5	1.2
Dryopteris intermedia	fancy fern	0.03	0.7	5.0	0.4	1.1
Polygonum cilinode	bindweed	0.03	0.7	5.0	0.4	1.1
Asplenium platyneuron	ebony-spleenwort	0.03	0.7	2.5	0.2	0.9
Botrychium dissectum	grape fern	0.03	0.7	2.5	0.2	0.9
Dryopteris spinulosa	spinulose wood fern	0.03	0.7	2.5	0.2	0.9
Onoclea sensibilis	sensitive fern	0.03	0.7	2.5	0.2	0.9
Ranunculus abortivus	kidneyleaf buttercup	0.03	0.7	2.5	0.2	0.9
Galium triflorum	bedstraw	0.03	0.7	2.5	0.2	0.9
Carex swanii	sedge	0.03	0.7	2.5	0.2	0.9
Poa pratensis	Kentucky bluegrass	0.03	0.7	2.5	0.2	0.9
Viola sp.	violet	0.03	0.7	2.5	0.2	0.9
Taraxacum officinale	dandelion	0.03	0.7	2.5	0.2	0.9
Hieracium sp.	hawkweed	0.03	0.7	2.5	0.2	0.9

Table 52. Age and diameter at breast height (dbh) of trees in Stand P2, Powerhouse-Switchyard Area.

Scientific Name	Common Name	Age (years)*	dbh (mm)
Pinus sylvestris	Scotch pine	48+	322
		47+	222
		46+	310
		46+	300
		46+	191
		44+	222
		38+	144
Fraxinus americana	white ash	53+	361
		52	196
		45+	282
		45+	142
		40+	268
		40+	200
Pinus resinosa	red pine	43+	268
		42+	332
		42+	299
		42+	297
		41+	325
		41+	212
Prunus serotina	black cherry	48+	257
		43+	228
		39+	270
		38+	335
Acer rubrum	red maple	46+	231
		45+	305
Acer saccharum	sugar maple	50+	330
		47+	190
		42+	232
Betula papyrifera	paper birch	52+	337
		51+	203
		44+	177
Pinus strobus	white pine	53+	360
		50+	346
		48+	259
Juniperus virginiana	red cedar	50	126
		40+	146
Carya ovata	shagbark hickory	48	154

* + indicates center of tree not reached; less than 5 years additional.

Table 53. Plant taxa observed in the Gilboa Dam Temporary Lay Down Area in May and June 1977 at the Prattsville study site.

Scientific Name	Common Name
Trees	
Acer negundo	box elder
Acer saccharum	sugar maple
Betula papyrifera	paper birch
Carpinus caroliniana	American hornbeam
Carya ovata	shagbark hickory
Fraxinus americana	white ash
Juniperus virginiana	red cedar
Picea abies	Norway spruce
Picea glauca	white spruce
Pinus resinosa	red pine
Pinus strobus	white pine
Pinus sylvestris	Scotch pine
Platanus occidentalis	sycamore
Populus grandidentata	large-toothed aspen
Prunus serotina	black cherry
Pyrus malus	apple
Quercus borealis	red oak
Robinia pseudoacacia	black locust
Ulmus americana	American elm
Shrubs	
Berberis vulgaris	European barberry
Fragaria virginiana	wild strawberry
Parthenocissus quinquefolia	Virginia creeper
Rhus radicans	poison ivy
Rhus typhina	staghorn sumac
Herbs	
Alliaria officinalis	garlic mustard
Anthoxanthum odoratum	sweet vernal grass
Aquilegia canadensis	columbine
Arctium minus	burdock
Asparagus officinalis	asparagus
Barbarea vulgaris	winter cress
Chrysanthemum leucanthemum	ox-eye daisy
Dactylis glomerata	orchard grass
Erigeron philadelphicus	common fleabane
Galium aparina	bedstraw
Geranium robertianum	herb-robert
Glechoma hederacea	ground-ivy
Hesperis matronalis	dame's rocket
Hieracium aurantiacum	devil's paintbrush
Hieracium pratense	hawkweed
Laportea canadensis	wood nettle
Leonurus cardiaca	motherwort
Lepidium campestre	cow-cress
Linaria vulgaris	butter and eggs
Maianthemum canadense	wild lily-of-the-valley
Matteuccia struthiopteris	ostrich fern
Onoclea sensibilis	sensitive fern
Plantago lanceolata	English plantain
Taraxacum officinale	dandelion
Tragopogon pratense	goat's beard
Tussilago farfara	colts foot
Veronica serpyllifolia	speedwell
Zizia aurea	golden alexanders

Table 54. Mean ($\bar{x}$) and standard deviation (SD) for age and dbh of trees sampled in Stands D1, D2, and D3 at the Proposed Alternate Excavation Disposal Area.

Species	# Trees	Age		dbh	
		Mean	SD	Mean	SD
Stand D1					
Pinus resinosa	20	36.4	5.5	290.5	72.8
Fraxinus americana	1	20.0	-	103.0	-
Total	21	35.6	6.4	281.5	81.9
Stand D2					
Pinus strobus	9	32.2	4.9	297.8	70.1
Pinus sylvestris	8	39.5	4.4	245.6	48.7
Fraxinus americana	3	25.7	3.8	175.0	55.7
Prunus serotina	3	32.7	10.4	398.3	193.4
Acer rubrum	2	28.5	7.8	150.0	56.6
Ulmus americana	2	27.5	0.7	135.0	35.4
Total	27	33.1	6.9	256.9	105.7
Stand D3					
Picea abies	11	29.7	3.0	233.2	119.1
Pinus sylvestris	9	42.9	2.7	301.4	52.3
Fraxinus americana	2	23.5	3.5	130.5	2.1
Juniperus virginiana	1	42.0+*	-	144.0	-
Prunus serotina	1	29.0+	-	171.0	-
Ulmus americana	1	38.0+	-	339.0	-
Total	25	34.8	7.6	247.7	100.9

* + indicates trees are older; center rotten or hollow.

Table 55. Mean ($\bar{x}$) and standard deviation (SD) for age and dbh of trees sampled in Stands L1, L2, L3, and L4 at the Schoharie Reservoir Temporary Lay Down Area.

Species	# Trees	Age		dbh	
		Mean	SD	Mean	SD
Stand L1					
Robinia pseudoacacia	7	45.9	2.4	279.1	49.7
Acer saccharum	6	35.7	1.9	126.2	18.2
Fraxinus americana	5	32.8	2.3	128.8	25.2
Pinus strobus	4	44.8	4.9	274.5	68.6
Acer rubrum	3	36.0	1.0	169.0	49.3
Pinus sylvestris	3	37.7	1.2	173.7	14.6
Prunus serotina	3	31.7	1.5	174.0	43.3
Carya ovata	1	46.0	-	130.0	-
Quercus borealis	1	43.0+*	-	112.0	-
Total	33	38.9	6.0	189.2	75.4
Stand L2					
Acer rubrum	5	74.4	11.5	204.6	49.6
Fagus grandifolia	5	75.4	15.5	195.8	59.9
Quercus borealis	5	65.8	19.0	289.6	146.9
Betula papyrifera	4	70.8	11.6	214.0	43.7
Pinus strobus	4	72.5	21.6	253.0	248.7
Quercus prinus	4	56.8	13.0	153.8	59.2
Betula lenta	3	79.0	26.7	212.3	105.2
Fraxinus americana	2	55.0	1.4	223.5	0.7
Tsuga canadensis	2	82.5	13.4	301.0	99.0
Amelanchier sp.	1	53.0+	-	117.0	-
Populus grandidentata	1	49.0+	-	171.0	-
Prunus serotina	1	43.0+	-	104.0	-
Total	37	68.5	16.9	216.5	109.8
Stand L3					
Pinus strobus	14	48.2	11.3	302.3	93.9
Acer rubrum	4	39.5	5.7	172.3	90.8
Fraxinus americana	4	35.3	4.5	194.0	97.9
Prunus serotina	4	34.3	5.6	176.3	51.9
Quercus borealis	4	32.8	5.7	171.0	54.0
Robinia pseudoacacia	4	30.5	1.0	162.5	14.5
Betula papyrifera	3	41.3	7.1	206.0	63.3
Populus grandidentata	3	32.3	4.2	180.3	2.3
Acer saccharum	1	38.0	-	107.0	-
Ulmus americana	1	46.0+	-	126.0	-
Total	42	39.7	10.0	217.3	93.4
Stand L4					
Pinus sylvestris	14	43.1	3.8	244.6	69.1
Pinus strobus	7	46.4	1.9	305.0	66.2
Fraxinus americana	3	25.7	5.1	113.3	5.5
Prunus serotina	2	39.0	5.7	290.0	258.8
Amelanchier sp.	1	34.0+	-	111.0	-
Robinia pseudoacacia	1	38.0+	-	246.0	-
Ulmus americana	1	37.0+	-	125.0	-
Total	29	41.1	6.9	240.1	97.9

* + indicates trees are older; center rotten or hollow.

Table 56. Mean ($\bar{x}$) and standard deviation (SD) for age and dbh of trees sampled in Stands P1 and P2 at the Powerhouse-Switchyard Area.

Species	# Trees	Age		dbh	
		Mean	SD	Mean	SD
Stand P1					
Robinia pseudoacacia	10	39.4	6.3	203.2	36.0
Tsuga canadensis	7	44.7	7.1	141.3	41.1
Fraxinus americana	6	31.7	5.9	254.7	101.9
Acer saccharum	5	36.2	1.9	130.6	43.6
Juglans cinerea	5	34.6	7.1	223.8	38.0
Pinus strobus	5	37.6	9.1	248.0	82.1
Prunus serotina	5	34.0	7.2	182.4	38.2
Ulmus americana	4	47.8	6.0	124.3	19.7
Acer rubrum	3	43.7	10.6	189.0	35.2
Betula lenta	3	47.0	5.3	158.0	58.8
Tilia americana	2	42.5	5.0	252.5	67.2
Betula papyrifera	1	40.0+*	-	277.0	-
Pyrus malus	1	26.0	-	111.0	-
Quercus borealis	1	35.0+	-	221.0	-
Total	58	38.9	8.0	191.8	67.7
Stand P2					
Pinus sylvestris	7	45.0	3.3	244.4	67.5
Fraxinus americana	6	45.8	5.6	241.5	77.9
Pinus resinosa	5	41.8	0.8	286.8	48.9
Prunus serotina	4	42.0	4.6	272.5	45.2
Acer rubrum	3	44.3	2.1	278.3	41.1
Acer saccharum	3	46.3	4.0	250.7	71.8
Betula papyrifera	3	49.0	4.4	239.0	85.9
Pinus strobus	3	50.3	2.5	321.7	54.7
Juniperus virginiana	2	45.0	7.1	136.0	14.1
Carya ovata	1	48.0	-	154.0	-
Total	37	45.3	4.3	253.5	68.8

* + indicates trees are older; center rotten or hollow.

Table 57. Length of chufa growing season at three elevations at Zone 31 of Schoharie Reservoir in 1977.

Sampling Area	Date Dewatered	Date Inundated	Length of Growing Season (# of Days)
Highest Elevation (1125 feet)	8 Jun	27 Sep	112
Middle Elevation (1120 feet)	30 Jun	26 Sep	89
Lowest Elevation (1115 feet)	8 Jul	25 Sep	80

Table 58. Chufa above ground standing crop and productivity at three elevations at Zone 31 of Schoharie Reservoir in 1977.

Sampling Area	Date Sampled	Number of Samples	Height (m)	Standing Crop Mean (g/½m²)	Standing Crop Standard Deviation	Productivity (g/m²/yr)
Highest Elevation (1125 feet)	20 Jul	10	0.36	147.2	19.04	427.6
	8 Aug	10	0.61	213.8	23.11	
	30 Aug	10	0.61	198.6	30.36	
	19 Sep	10	0.61-0.84	181.2	46.10	
Middle Elevation (1120 feet)	27 Jul	10	-	156.5	25.79	568.2
	15 Aug	10	0.91	263.9	26.63	
	6 Sep	10	0.91	284.1	44.97	
Lowest Elevation (1115 feet)	27 Jul	10	-	28.6	14.75	485.9
	23 Aug	10	0.76	219.6	32.22	
	12 Sep	10	0.91	243.0	32.68	

Table 59. Chufa tuber standing crop and productivity at three elevations at Zone 31 of Schoharie Reservoir in 1977.

Sampling Area	Date Sampled	Number of Samples	Standing Crop Mean (g/45.6 cm²)	Standing Crop Standard Deviation	Productivity (g/m²/yr)
Highest Elevation (1125 feet)	21 Jul	9	0.6	0.34	353.1
	8 Aug	10	1.6	1.30	
	30 Aug	10	0.3	0.07	
	19 Sep	10	0.2	0.14	
Middle Elevation (1120 feet)	27 Jul	10	0.3	0.08	346.3
	15 Aug	10	1.5	0.39	
	6 Sep	10	0.2	0.11	
Lowest Elevation (1115 feet)	27 Jul	10	0.6	0.26	140.3
	23 Aug	10	0.6	0.41	
	12 Sep	10	0.2	0.18	

Table 60. Correlation coefficients of growth versus percent of growing season inundated for white ash and white pine at Lower B-G Reservoir and for red pine at Schoharie Reservoir.

Tree Species	Number of Trees	Sample Size	Correlation Coefficient
White ash	28	140	0.26**
White pine	60	300	0.30**
Red pine	51	51	0.22

** Significant to 0.01 probability level.

Table 61. Pre- and post-inundation mean ($\bar{x}$), standard deviation (SD), and statistical comparison (Student's "t" test) for white pine increments of growth for five elevation categories at Lower B-G Reservoir.

Elevation (ft)	Sample Size	Pre-inundation (1968-1972) $\bar{x}$	Pre-inundation (1968-1972) SD	Post-inundation (1973-1977) $\bar{x}$	Post-inundation (1973-1977) SD	Student's "t" test (1968-1972 vs 1973-1977)
890.1-895.0	160	17.96	7.82	20.84	11.64	-2.59*
895.1-900.0	120	18.85	6.50	18.73	7.50	0.14
900.1-905.0	130	15.08	9.08	13.22	8.57	1.70
905.1-910.0	130	13.72	5.90	14.27	5.46	-0.79
910.1-915.0	60	20.77	11.28	17.65	10.88	1.54

* Significant at the 0.05 probability level.

Table 62. Statistical comparison (Student's "t" test) for white pine mean annual growth for five elevation categories for pre- and post-inundation periods at Lower B-G Reservoir.

Elevation (ft)	Inundation Period	895.1-900.0 Pre- (1968-1972)	895.1-900.0 Post- (1973-1977)	900.1-905.0 Pre- (1968-1972)	900.1-905.0 Post- (1973-1977)	905.1-910.0 Pre- (1968-1972)	905.1-910.0 Post- (1973-1977)	910.1-915.0 Pre- (1968-1972)	910.1-915.0 Post- (1973-1977)
890.1-895.0	Pre- (1968-1972)	-1.01		2.91**		5.12**		-2.08*	
	Post- (1973-1977)		-1.74		6.22**		5.92**		1.84
895.1-900.0	Pre- (1968-1972)	-		3.75**		6.55**		-1.44	0.78
	Post- (1973-1977)		-		5.39**		5.40**		
900.1-905.0	Pre- (1968-1972)	-		-		1.43		-3.71**	
	Post- (1973-1977)		-		-		-1.18		-3.04**
905.1-910.0	Pre- (1968-1972)	-		-		-		-5.66**	
	Post- (1973-1977)		-		-		-		-2.86**

* Significant at the 0.05 probability level.

** Significant at the 0.01 probability level.

Table 63. Pre- and post-inundation mean ($\bar{x}$), standard deviation (SD), and statistical comparison (Student's "t" test) for white ash increments of growth for five elevation categories at Lower B-G Reservoir.

Elevation (ft)	Sample Size	Pre-inundation (1968-1972) $\bar{x}$	Pre-inundation (1968-1972) SD	Post-inundation (1973-1977) $\bar{x}$	Post-inundation (1973-1977) SD	Student's "t" test (1968-1972 vs 1973-1977)
890.1-895.0	20	22.75	17.24	30.75	10.59	-1.77
895.1-900.0	90	17.18	10.63	18.03	10.08	-0.55
900.1-905.0	30	18.80	6.96	20.93	8.07	-1.10
905.1-910.0	90	18.46	9.76	19.76	11.59	-0.81
910.1-915.0	50	19.86	16.37	21.06	17.16	-0.36

Table 64. Statistical comparison (Student's "t" test) for white ash mean annunal growth within elevation categories for pre- and post-inundation periods at Lower B-G Reservoir.

Elevation (ft)	Inundation Period	895.1-900.0 Pre- (1968-1972)	895.1-900.0 Post- (1973-1977)	900.1-905.0 Pre- (1968-1972)	900.1-905.0 Post- (1973-1977)	905.1-910.0 Pre- (1968-1972)	905.1-910.0 Post- (1973-1977)	910.1-915.0 Pre- (1968-1972)	910.1-915.0 Post- (1973-1977)
890.1-895.0	Pre- (1968-1972)	1.87		1.13		1.52		0.66	
	Post- (1973-1977)		5.06**		3.72**		3.89**		2.35*
895.1-900.0	Pre- (1968-1972)	-		-0.78		-0.84		-1.17	
	Post- (1973-1977)		-		-1.43		-1.06		-1.32
900.1-905.0	Pre- (1968-1972)	-		-		0.18		-0.34	
	Post- (1973-1977)		-		-		0.52		-0.04
905.1-910.0	Pre- (1968-1972)	-		-		-		-0.64	
	Post- (1973-1977)		-		-		-		-0.53

* Significant at the 0.05 probability level.

** Significant at the 0.01 probability level.

Table 65. Statistical comparison (Student's "t" test) of mean diameter at breast height (dbh) for red pine at Schoharie Reservoir.

Elevation (ft)	1132.6-1135.0	1135.1-1140.0	1140.0-1145.0	1145.1-1150.0
1130.1-1132.5	0.48	3.68**	3.20**	0.71
1132.6-1135.0	-	1.95	1.48	0.16
1135.1-1140.0	-	-	-0.75	-1.70
1140.1-1145.0	-	-	-	-1.27

** Significant at the 0.01 probability level.

Table 66. Mean percent growing season inundated ($\bar{x}$) and standard deviation (SD) for white ash and white pine for five elevation categories at Lower B-G Reservoir.

Elevation (ft)	Sample Size	White Ash $\bar{x}$	White Ash SD	Sample Size	White Pine $\bar{x}$	White Pine SD
890.1-895.0	10	4.81	5.72	80	5.50	6.32
895.1-900.0	45	0.90	2.03	60	0.77	1.80
900.1-905.0	15	0.00	-	65	0.00	-
905.1-910.0	45	0.00	-	65	0.00	-
910-1-915.0	25	0.00	-	30	0.00	-

Table 67. Mean ($\bar{x}$) and standard deviation (SD) for percent growing season inundated and diameter at breast height (dbh) for red pine for five elevation categories at Schoharie Reservoir.

Elevation (ft)	Sample Size	Percent Growing Season Inundated $\bar{x}$	Percent Growing Season Inundated SD	dbh $\bar{x}$	dbh SD
1130.1-1132.5	10	0.08	0.08	312.70	34.71
1132.6-1135.0	11	0.00	-	301.00	68.88
1135.1-1140.0	12	0.00	-	256.92	35.87
1140.1-1145.0	11	0.00	-	267.36	30.25
1145.1-1150.0	7	0.00	-	295.71	64.54

Table 68. Birds observed for the first time by IA personnel at the B-G and Prattsville study sites in 1977.

Common Name	Scientific Name	Study Site					
		B-G			Prattsville		
		Summer	Migrant	Winter	Summer	Migrant	Winter
Eared grebe	*Podiceps nigricollis*		x				
Double-crested cormorant	*Phalacrocorax auritus*		x			x	
Brant	*Branta bernicla*		x			x	
Redhead	*Aythya americana*		x				
Virginia rail	*Rallus limicola*					x	
Lesser golden plover	*Pluvialis dominica*		x			x	
Buff-breasted sandpiper	*Tryngites subruficollis*		x				
Northern phalarope	*Phalaropus lobatus*					x	
Tern	*Sterna* sp.		x				
Long-eared owl	*Asio otus*				x*		
Olive-sided flycatcher	*Contopus borealis*	x				x	
Horned lark	*Eremophila alpestris*	x*				x	
Northern shrike	*Lanius excubitor*		x			x	
Golden-winged warbler	*Vermivora chrysoptera*				x*		
Tennessee warbler	*Vermivora peregrina*		x			x	
Parula warbler	*Parula americana*					x	
Pine warbler	*Dendroica pinus*				x*		
Wilson's warbler	*Wilsonia pusilla*					x	
Common redpoll	*Acanthis flammea*			x			x
Pine siskin	*Spinus pinus*						x
Fox sparrow	*Passerella iliaca*		x			x	

* Nesting species.

Table 69. Number of pairs of breeding birds in a second growth hardwood forest (40 acres) on Dog Hill in 1976 and 1977.

Species	Estimated # Pairs		Estimated # Pairs/ 100 Acres	
	1976	1977	1976	1977
Ovenbird	10	13	25	33
Red-eyed vireo	10	9	25	23
American redstart	9	10	23	25
Least flycatcher	5	8	13	20
Black-capped chickadee	4	4	10	10
Veery	3	4	8	10
Eastern wood pewee	3	3	8	8
Wood thrush	2	1	5	3
Hairy and/or downy woodpecker	2	3	5	8
Hermit thrush	2	3	5	8
Rose-breasted grosbeak	2	3	5	8
Brown creeper	2	3	5	8
Solitary vireo	2	4	5	10
White-breasted nuthatch	1	1	3	3
Northern waterthrush	1	0	3	0
Great crested flycatcher	1	1	3	3
Chestnut-sided warbler	1	1	3	3
American robin	1	2	3	5
Yellow-bellied sapsucker	1	0	3	0
Scarlet tanager	1	2	3	5
Common yellowthroat	1	0	3	0
Canada warbler	1	0	3	0
Blackburnian warbler	1	0	3	0
Northern goshawk*				
Blue jay*				
Brown-headed cowbird*				
Ruffed grouse*				
Total	66	75	172	193

* Species observed in area while conducting bird census.

Table 70. Observations of a northern goshawk nest on Dog Hill from 18 May through 14 July 1977.

Date	Estimated Age of Young* (Days)	Description of Young	Nestling Behavior	Adult Behavior Toward Observer	Prey Remains	Comments
18 May	-	-	-	Mildly aggressive. Both male and female uttering aggression call and flying from perch to perch in vicinity of nest.	None observed	First observation of neat. Nest tree not climbed.
24	egg	-	-	Mildly aggressive. Female (?) uttering aggression calls and periodically leaving nesting area.	None observed	Three dirty-white eggs observed in nest. Adult observed flying out of nest. Apparently incubating. Eggs 57 x 46 mm.
27	Estimated hatching date	-	-	Extremely aggressive. Both adults diving at observer and uttering aggression calls.	-	Nest tree not climbed.
31	4	-	-	Extremely aggressive. Both adults diving within 1 foot of observer's head while uttering aggression calls.	-	Attempts to climb tree adjacent to nest tree curtailed because of highly aggressive behavior of adults.
1 Jun	5	Covered with downy white plumage. Cere totally black. Nestlings approx. 5" long.	Two young sitting in nest, moving toward observer. Uttering peeping calls.	Mildly aggressive. Female perching in trees near nesting area. Male not observed.	None observed	Tree adjacent to nest tree climbed. One egg did not hatch.
8	12	Covered with grayish-white plumage. One slightly lighter than the other.	Two young lying ventral side down in nest parallel to each other. Both motionless except for breath and eye movements.	Moderately aggressive. Female uttering aggression call and diving within 8 feet of observer or flying from perch to perch. Male not observed.	None observed	Tree adjacent to nest tree climbed.

* Eggs assumed to hatch about 27 May because that is when adults became extremely aggressive.

Table 70 - (Continued).

Date	Estimated Age of Young (Days)	Description of Young	Nestling Behavior	Adult Behavior Toward Observer	Prey Remains	Comments
9 Jun	13	-	-	Extremely aggressive. Male and female pursuing and diving at observer at distances of 750 feet from nest. Both uttering aggression call.	-	Nest tree not climbed. Female uttered a second type of call, described by Schnell (1958) as that given when male is in nesting territory. Described hereafter as territorial call.
14	18	Both had all gray plumage.	One standing; the other lying ventral side down. Standing bird was uttering aggression call similar to that of adult.	Extremely aggressive. Male and female diving very close to observer. Male more aggressive than female. Both uttering aggression call.	None observed	Tree adjacent to nest tree climbed.
16	20	-	-	Moderately aggressive. Female (?) diving at observer while uttering aggression call.	-	Nesting tree not approached by observer.
17	21	-	-	Moderately aggressive. Female diving at observer and uttering aggression call.	-	Nesting tree not approached by observer.
22	26	Both beginning to molt into juvenile plumage. Mottled appearance with loose down feathers sticking out along body. Gere and talons yellow with tip of cere black. Both birds slightly smaller than adult male.	Both lying ventral side down. One stood up and called aggressively at observer while raising wings. Other remained motionless and quiet.	Extremely aggressive. Male pursuing and diving at observer. Female not very aggressive. Both uttering aggression call.	Remains of blue jay below nest.	Tree adjacent to nest tree climbed. Female uttered territorial call and attempted to drive male out of nesting territory by diving at him.

Table 70 - (Continued).

Date	Estimated Age of Young (Days)	Description of Young	Nestling Behavior	Adult Behavior Toward Observer	Prey Remains	Comments
30 Jun	34	Both in juvenile plumage with brown backs and streaked breasts. One slightly larger than the other. Both approximately adult size.	Both uttering aggression call and standing in nest while gazing at observer.	Moderately aggressive. Female diving at observer and uttering aggression call. Male not observed.	Remains of blue jay in nest and below nest.	Tree adjacent to nest tree climbed.
4 Jul	38	Plumage characteristics similar to those observed 30 June.	One perched on limb about 5 feet above nest. Other perched near edge of nest. Observed in these positions for about 1½ hours.	Female dove but came only within 30 feet of observer. Male not observed	-	Observer was in area about 1½ hours. Nest tree not climbed.
7 Jul	43	Plumage same as that observed on 30 June.	As observer climbed tree next to nest tree, one of the immature goshawks took flight. Other young had left nest and was not observed.	Male dove within 2 feet of observer. Female remained at a distance, calling.	Vertebral column of racoon-sized mammal, blue jay feathers and bones, squirrel foot, chipmunk head, whole chipmunk.	Tree next to nest tree climbed; nest tree also was climbed. Prey items taken from nest. Third egg still in nest and unbroken.
14 Jul		Not observed	-	Female in area of nest; gave a few calls and left when observer arrived in area.	None observed	

Table 71. Number of breeding birds in a hemlock forest (22.5 acres) on Dog Hill in 1976 and 1977.

Species	Estimated # Pairs		Estimated # Pairs/ 100 Acres	
	1976	1977	1976	1977
Black-throated green warbler	6	8	27	36
Red-eyed vireo	3	4	13	18
Ovenbird	3	5	13	22
Black-capped chickadee	3	3	13	13
Wood thrush	2	1	9	4
Rose-breasted grosbeak	2	2	9	9
Solitary vireo	2	2	9	9
Veery	2	1	9	4
Scarlet tanager	1	1	4	4
Winter wren	1	0	4	0
Great crested flycatcher	1	0	4	0
Hairy and/or Downy woodpecker	1	2	4	9
American redstart	1	0	4	0
Northern waterthrush	1	1	4	4
White-throated sparrow	1	0	4	0
Brown creeper	1	0	4	0
Canada warbler	1	1	4	4
Nashville warbler	1	0	4	0
Blackburnian warbler	1	4	4	18
Magnolia warbler	1	0	4	0
Hermit thrush	1	2	4	
White-breasted nuthatch	0	1		4
Black-and-white warbler	0	1		4
Blue jay*				
Brown-headed cowbird*				
Ruffed grouse*				
Total	36	39	154	162

* Species observed in area while conducting bird census.

Table 72. Number of pairs of breeding birds in open meadows and fields on Dog Hill (22.2 acres) in 1976 and 1977.

Species	Estimated # Pairs/100 Acres	
	1976	1977
Common yellowthroat	53	41
Field sparrow	33	18
Prairie warbler	30	23
White-throated sparrow	27	23
Rufous-sided towhee	24	23
Song sparrow	21	14
Chipping sparrow	20	9
American robin	14	14
Chestnut-sided warbler	14	41
Nashville warbler	13	0
Cedar waxwing	11	5
Brown thrasher	9	0
American goldfinch	9	9
Red-winged blackbird	7	0
Purple finch	5	0
Black-capped chickadee	5	18
Downy woodpecker	5	5
Magnolia warbler	5	0
Brown-headed cowbird*	-*	-*
Total	305	243

* Species observed in area while conducting bird census.

Table 73. Ruffed grouse observations on Dog Hill prior to the brood rearing season in 1977.

Date	Number Observed	Location and Activity
12 Apr	1	Flushed from margin of Oakley Road near intersection of Stanley Slater Road.
14	1	Flushed from margin of Oakley Road near intersection of Stanley Slater Road.
26	4	Three heard drumming: one near beaver pond #3, one near the west border, and the other at the north border of the upper reservoir site. A fourth flushed from north end of upper reservoir site.
30	1	One heard drumming near beaver pond #3.
5 May	3	One heard drumming near beaver pond #3. One flushed near west border and one flushed near north end of upper reservoir site.

Table 74. Number of woodcock engaged in courtship activity at six census areas on Dog Hill in April 1977.

Area Number	Habitat Type and Size	Date Censused	# Observed	Courtship Activity Observed	Estimated # of Courting Woodcock per Area
1	old field 60.9 acres	11 Apr	1	courtship flight observed and "peenting" heard	1
		21	1	courtship flight observed and "peenting" heard	
2	old field/ alder swamp 29.7 acres	12 Apr	2	courtship flight observed and "peenting" heard	2
		14	1*	courtship flight observed	
		19	1	courtship flight observed and "peenting" heard	
3	pasture 14.3 acres	14 Apr	0	none	0
		19	0	none	
4	old field/ alder swamp 16.9 acres	12 Apr	2	"peenting" heard	2
		14	0	none	
		21	2	courtship flight observed for one bird; "peenting" heard for the other	
		27	0	none	
5	old field 41.3 acres	14 Apr	0	none	2
		21	2	courtship flight observed and "peenting" heard	
		27	2	courtship flight observed and "peenting" heard	
6	old field 19.7 acres	14 Apr	0	none	2
		21	2	courtship flight observed and "peenting" heard	
		27	2	"peenting" heard	Total 9

* In addition to woodcock observed in courtship flight, one pair was flushed.

Table 75. Waterfowl and other birds associated with the beaver ponds on Dog Hill during the spring 1977 migration.

Month	Mar		Apr		May		Total	
# Observations	1		8		1		10	
Birds Observed	#	%	#	%	#	%	#	%
Green heron	0	0.0	0	0.0	1	100.0	1	2.1
Mallard	0	0.0	4	8.7	0	0.0	4	8.5
American black duck	0	0.0	19	41.3	0	0.0	19	40.4
Wood duck	0	0.0	16	34.8	0	0.0	16	34.0
Red-shouldered hawk	0	0.0	3	6.5	0	0.0	3	6.4
Unidentified duck	0	0.0	4	8.7	0	0.0	4	8.5
Total waterfowl	0	0.0	43	93.5	0	0.0	43	91.5
Total birds	0	0.0	46	100.0	1	100.0	47	100.0

Table 76. Number of pairs of breeding birds in a bottomland hardwood-conifer forest (38.5 acres) at the Alternate Excavation Disposal Area at the south end of Schoharie Reservoir in 1977. Census conducted on 8 and 22 June 1977.

Species	Estimated # Pairs	Estimated # Pairs/ 100 Acres
Common yellowthroat	9	23
Veery	7	18
Red-eyed vireo	6	16
White-throated sparrow	5	13
Red-winged blackbird	5	13
Song sparrow	5	13
Black-capped chickadee	5	13
Magnolia warbler	5	13
Ovenbird	4	10
Hairy and/or Downy woodpecker	4	10
Blue jay	3	8
Red-breasted nuthatch	3	8
Brown creeper	3	8
Indigo bunting	3	8
Rose-breasted grosbeak	3	8
Scarlet tanager	2	5
Common cardinal	2	5
Eastern wood pewee	2	5
Wood thrush	2	5
Yellow warbler	2	5
Blue-gray gnatcatcher	2	5
American robin	1	3
Warbling vireo	1	3
American redstart	1	3
Least flycatcher	1	3
American goldfinch	1	3
Gray catbird	1	3
Yellow-throated vireo	1	3
House wren	1	3
Solitary vireo	1	3
American woodcock*		
Ruffed grouse*		
Brown-headed cowbird*		
Broad-winged hawk*		
Pileated woodpecker*	—	—
Total	91	239

* Species observed in area while conducting bird census.

Table 77. Number of pairs of breeding birds in a hardwood-conifer forest (36 acres) at the Temporary Lay Down Area along the east shore of Schoharie Reservoir in 1977. Census conducted on 23 May, 21 June, and 5 July 1977.

Species	Estimated # Pairs	Estimated # Pairs/ 100 Acres
Red-eyed vireo	14	39
American redstart	11	31
Ovenbird	8	22
Black-capped chickadee	5	14
Blackburnian warbler	5	14
Brown creeper	5	14
Eastern wood pewee	3	8
Veery	3	8
Scarlet tanager	3	8
Blue jay	2	6
Hairy woodpecker	2	6
Yellow-rumped warbler	2	6
White-breasted nuthatch	2	6
Least flycatcher	2	6
Wood thrush	2	6
Rose-breasted grosbeak	1	3
Solitary vireo	1	3
Yellow-throated vireo	1	3
Great-crested flycatcher	1	3
Pileated woodpecker	1	3
Black-and-white warbler	1	3
Red-breasted nuthatch	1	3
American goldfinch	1	3
Black-throated blue warbler	1	3
Brown-headed cowbird*		
American crow*		
Mallard*		
Barred owl*		
Total	78	221

* Species observed in the area while conducting bird census.

Table 78. Number of pairs of breeding birds in a wetland riparian woods (45 acres) at the backwater of Schoharie Reservoir in 1977. Census conducted on 27 May and 28 June 1977.

Species	Estimated # Pairs	Estimated # Pairs/ 100 Acres
Red-winged blackbird	23	55
Song sparrow	11	26
Common yellowthroat	9	21
Yellow warbler	7	17
Common grackle	4	10
Yellow-throated vireo	4	10
Northern oriole	3	7
Brown creeper	3	7
Swamp sparrow	3	7
Indigo bunting	3	7
Cedar waxwing	2	5
Eastern kingbird	2	5
American redstart	2	5
Willow flycatcher	2	5
Black-capped chickadee	2	5
Tree swallow	2	5
Least flycatcher	1	2
Blue-gray gnatcatcher	1	2
Great-crested flycatcher	1	2
Veery	1	2
Scarlet tanager	1	2
Red-eyed vireo	1	2
White-throated sparrow	1	2
Rose-breasted grosbeak	1	2
White-breasted nuthatch	1	2
Purple finch	1	2
Hairy woodpecker	1	2
Belted kingfisher*		
Spotted sandpiper*		
Green heron*		
Great blue heron*		
Broad-winged hawk*		
Red-tailed hawk*		
American crow*		
Mallard*		
Wood duck*		
Brown-headed cowbird*		
Bank swallow*		
Rough-winged swallow*		
Barn swallow*		
Total	93	219

* Species observed in area while conducting bird census.

Table 79. Chronology of the wood duck reproductive season at Schoharie Reservoir in 1977.

Period	Dates
Prenesting	14 Mar - 18 Apr (36 days)
Nesting	
Nest initiation	18 Apr - 13 May (26 days)
Egg laying	18 Apr - 24 May (37 days)
Incubation	30 Apr - 23 Jun (55 days)
Hatching	29 May - 23 Jun (26 days)
Brood rearing	
Hen-brood bonds intact	29 May - 7 Jul (40 days)
After hen-brood bonds broke until first observed flight	7 Jul - 31 Aug (56 days)

Table 80. Chronology of the mallard reproductive season at Schoharie Reservoir in 1977.

Period	Dates
Prenesting	9 Mar - 10 Apr (33 days)
Nesting	
Nest initiation	10 Apr - 31 May (52 days)
Egg laying	10 Apr - 8 Jun (60 days)
Incubation	19 Apr - 6 Jul (79 days)
Hatching	16 May - 6 Jul (52 days)
Brood rearing	16 May - 5 Aug (82 days)

Table 81. Chronology of the common merganser reproductive season at Schoharie Reservoir in 1977.

Period	Dates
Prenesting	11 Mar - 20 Apr (41 days)
Nesting	
Nest initiation	20 Apr - 28 Apr (9 days)
Egg laying	20 Apr* - 6 May (17 days)
Incubation	4 May - 8 Jun (36 days)
Hatching	5 Jun - 8 Jun (4 days)
Brood rearing	5 Jun - 16 Aug (73 days)

* Assumes that the brood of 17 was from a single clutch.

Table 82. Adult wood ducks observed during the reproductive season at Schoharie Reservoir in 1977.

Date	Number Observed Per Zone																					Minimum Number at Study Site*	Sex			
	29	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55		Male	Female	Pair	Undetermined
Prenesting Period																										
14 Mar																			2	2		4	3	1		
28																					8	8				8
30	8																					8			4	
31				2																		2			1	
1 Apr				8													5		2			15			5	5
5				10														2				12	6	2	1	2
7	2	2		2				4		6		6								4		16			8	
8			5	9																		14				14
11				8													2					10			5	
12				11				2										2				15	1		7	
18				18																		18	8		5	
19				6																		6	2		2	
20																		1				1				1
Subtotal	10	2	5	74	0	0	0	6	0	6	0	6	0	0	0	0	7	5	4	6	8					
Nesting Period																										
21 Apr				6										2			1					10		1	4	1
22				10															3			13			5	3
25			1	9					10								2	2	1			10			5	
26																	3	2	2		2	9	1		4	
29				3					2								6		6			15			6	3
2 May				6															2			8			4	
4				1								2										3	1			2
5			5	5																		5				5
10				11														2	15			15				15
11																		2	8			10	3	1	3	
12																	3	6	11			13			2	9
16			4							2								2				3	2	1		
17																			2			2	2			
18													2						2			2			1	
19			1	6													3		5			8	2		1	4
20			5	6																		5	4	1		
23			14																			9	5	2	1	
24			1																			1				1
31				1																		1		1		
2 Jun																			2			2			1	
3																		2	1			3		1	1	
8				1					2								1					4		2	1	
15																			1			1		1		
16																			2			2	1	1		
17															1					4		5		1		4
20																	6					6	2	1		3
Subtotal	0	0	32	64	0	0	0	2	12	2	0	2	2	3	0	7	18	18	63	4	2					
Grand Total	10	2	37	138	0	0	0	8	12	8	0	8	2	3	0	7	25	23	67	10	10					

* The exact number of ducks on the study site during a field trip could not be determined because they moved around as individuals and in small groups. A minimum number occupying the site was determined for each field trip.

Table 83. Wood duck broods observed at Schoharie Reservoir in 1977.

Brood Number	Date Brood First Observed	Brood Size When First Observed	Age Class	Chronology*		
				Date Nest Started	Date Incubation Started	Date Eggs Hatched
1	2 Jun	3	Ia	21 Apr	3 May	1 Jun
2	3	10	Ia	23 Apr	5 May	3 Jun
3	8	10	Ia	25-28 Apr	7-10 May	5- 8 Jun
4	8	5	Ib	18-23 Apr	30 Apr- 5 May	29 May- 3 Jun
5	8	8	Ia	24-28 Apr	6-10 May	4- 8 Jun
6	21	3	Ia	7-11 May	19-23 May	17-21 Jun
7	23	5	Ia	9-13 May	21-25 May	19-23 Jun

* Calculated by aging broods and backdating, using 12 as average clutch size and 29 days (Haramis 1975) as length of incubation.

Table 84. Snapping turtles trapped in Loeffler Pool in July 1977.

Turtle Number*	Date Captured	Weight (lb)	Carapace Length (inches)	Carapace Width (inches)	Plastron Length (inches)	Number of Scute Notched	Zone
1	22 Jul	8.8	9.8	8.5	7.3	12 on right	42
2	22	15.1	12.0	10.8	9.0	11 on right	42
4	22	13.2	11.0	10.0	8.7	10 on left	42
6	26	27.5	14.8	12.8	10.4	11 both sides	42
7	26	10.4	10.8	8.7	8.0	12 both sides	42

* Numbers 3 and 5 were not used because they would be difficult to distinguish from number 2 on a dirty turtle's back in muddy water.

Table 85. Wood duck broods observed at the Schoharie Reservoir backwater in 1977.

Date	Number of Ducklings Observed	Female Present Yes	Female Present No	Observation Zone
2 Jun 77	3	x		42
3	10	x		53
3	10	x		53
8	3	x		42
8	9	x		43
8	10	x		42
8	5	x		43
8	5	x		42
8	10	x		42
8	10	x		43
8	5	x		43
8	?	x		43
8	5 or 6	x		42
8	8+	x		43
8	5	x		42
10	9	x		42
10	9	x		43
10	2+	x		43
10	5		x	43
10	4	x		43
14	8	x		42
14	4		x	43
14	4	x		43
14	8	x		43
14	3	x		43
14	8+	x		43
14	?	x		43
14	4+	x		42
14	5 or 6	x		42
14	4	x		42
14	4	x		43
14	1+	x		42
14	3	x		43
14	1+	x		43
14	5+	x		50
16	3	x		42
16	4		x	42
16	4	x		42
16	4+	x		42
21	3	x		43
21	?	x		43
21	6+	x		43
21	3	x		43
21	8	x		42
21	2	x		43
21	8	x		42
21	4		x	42
21	3	x		42
21	3	x		43
21	10	x		43
21	2	x		43
21	3	x		43
21	3	x		43
21	4		x	43
21	0	x		42
21	8	x		42
21	1		x	42
23	5	x		42
23	3	x		42
27	2		x	42
27	1		x	42
27	0	x		42 and 43
27	3	x		42
27	?	x		43
27	5+	x		42
27	3	x		42
27	8		x	42
27	5	x		42
27	3	x		42
27 Jun 77	8	x		42
27	0	x		42 and 43
27	6+	x		42
27	5	x		42
27	7		x	42
27	3	x		42
27	3	x		42
27	3	x		42
27	3	x		42
27	3	x		42
28	10	x		54
1 Jul	4	x		42
1	6	x		42
1	10	x		42
1	4	x		43
1	7	x		43
5	4	x		42
5	1		x	42
5	2		x	42
5	2	x		43
5	2		x	42
7	1		x	42
7	11		x	42
7	2		x	42
7	5		x	42
7	9	x		42
7	6		x	42
7	1		x	42
7	1		x	42
7	1		x	42
12	8		x	42
12	2		x	42
12	2		x	42
12	4		x	42
12	6		x	42
12	3		x	42
12	2		x	42
12	3		x	42
12	2		x	42
12	6		x	42
12	0	x		42
12	3		x	42
14	7		x	42
14	1		x	42
14	3		x	42
14	3		x	42
19	1		x	42
19	9		x	42
19	3		x	42
19	7		x	42
19	9		x	42
19	6		x	42
19	6		x	42
20	9		x	42
25	1		x	42
26	3		x	42
26	5		x	42
26	4		x	42
26	1		x	42
26	0	x		42
26	3		x	42
26	2		x	42
2 Aug	4		x	29
3	2		x	42
9	0	x		42
9	2		x	42
19	2		x	42
19	0	x		42
31	2		x	42

Table 86. Adult mallards observed during the reproductive season at Schoharie Reservoir in 1977.

Date	Number Observed Per Zone																													Minimum Number at Study Site*	Sex			
	3	4	5	15	16	17	19	27	28	30	31	34	36	37	38	39	40	42	43	46	47	48	49	50	51	52	53	54	55		Male	Female	Pair	Undetermined
Prenesting Period																																		
9 Mar														6																6				6
11																					2							4		6	4		1	
14															1															1		1		
15																													6	6			3	
21							2																							2			1	
28														17																17	3		7	
30										2				12							2	2				2		4		24			4	16
31																	4					16								20	2		9	
1 Apr															2						2	7				1				12	1		5	1
5															11											2			2	15	5		5	
7					2										10						2	3		2						19	1		9	
8			4																									12	2	18			3	12
Subtotal	0	0	4	0	2	0	2	0	0	2	0	0	0	35	24	0	4	0	0	0	8	28	0	2	0	5	0	20	10					
Nesting Period																																		
11 Apr	4													8	7										2	8		14		28			14	
12														10								6				6				22			11	
15																						4		2				2	10	18			2	14
18		2												7	2								1			4				16	3	3	5	
19															13															13	2	1	5	
20																											4	2		6	2		2	
21															4							2		3		2	5			27	1		5	16
22												1		6	10					2				1		2	11	2	2	23	1		9	4
25														7	17						2		3		2		4			37	1	1	16	3
26									1					2	4							4					2			14	4		5	
29														5	6				2			4					2			19			4	11
4 May														9	17															26		1	8	9
5															10						5									15	5		4	2
10														3								5					5	11		22	10		2	8
11																							5				1			5	1			4
12									1					3	2											6	14	2		16	2		1	12
13	1	1																												2	1	1		
Subtotal	5	3	0	0	0	0	0	0	2	0	0	1	0	60	92	0	0	0	2	2	7	25	9	6	4	28	48	33	12					
Brood Rearing Period																																		
16 May														6							1									7	1	1		5
17																											4			6	4	2		
18																											3			3	1		1	
19																											8			8	4		2	
20														13		2	2													11	9		1	

Table 86 - (Continued).

Date	Number Observed Per Zone																													Minimum Number at Study Site*	Sex			
	3	4	5	15	16	17	19	27	28	30	31	34	36	37	38	39	40	42	43	46	47	48	49	50	51	52	53	54	55		Male	Female	Pair	Undetermined
23 May														11	2	1											2	4		13	8	3	1	
24															3									3						6	5	1		
27																	2													2			1	
31															6													1		8	4	3		1
2 Jun														10									1			1	13			13	11	2		
3																									6		1			7	7			
6																					2	2						6		10	5	1	2	
7																1	1											9		11	7	2	1	
8													2		1	2	12				1									16	10	4	1	
10																			2				1							3		3		
14						1																							21	25	11	14		
15																												2		3		1	1	
17						3											1											9		11	5	6		
21																														1		1		
22																														1		1		
23																												1		1		1		
27																			1											1		1		
28																														2		2		
1 Jul																		1												2		2		
6		14																												14				14
7																														2		2		
8		16																												16	6			10
11			3	3							1																			7		7		
13								8																						10	3	5		2
15																								2						2		2		
18	2		7								3													4						16	2	14		
19																								1				2		7		7		
20	6															9								8				3		17		3		14
21		9																												9				9
22			6					4																						10				10
26											14																			14	2	3		9
27																								11				11		16				16
28													13																	13				13
Subtotal	8	39	16	3	0	4	0	12	0	0	18	0	15	40	12	15	18	1	3	0	4	2	2	29	6	1	31	48	21					
Grand Total	13	42	20	3	2	4	2	12	2	2	18	1	15	135	128	15	22	1	5	2	19	55	11	37	10	34	79	101	43					

* The exact number of ducks on the study site during a field trip could not be determined because they moved around as individuals and in small groups. A minimum number occupying the site was determined for each field trip.

Table 87. Status of mallard nests found in the backwater of Schoharie Reservoir in May 1977.

Nest #*	Date Found (May)	# of Eggs	Distance From Water (feet)	Habitat Type	Nest Concealment**	Date First Egg Laid	Date Eggs Would Hatch If Nest Successful	Predated
1	12	6	1.5	reed canary grass/ box elder	fair	3 May	6 Jun	yes (great horned owl)
2	17	10	60	reed canary grass/ box elder	very good	5 May	12 Jun	yes (mammal)
3	17	6	1.5	reed canary grass/ box elder	fair	3 May	6 Jun	yes (avian)
4	23	remains 4 eggs***	30	reed canary grass/ box elder	very good	12 Apr	19 May	yes (unknown)
5	23	11	20	box elder snag	very good	30 Apr	8 Jun	no
6	31	9	60	willow shrub/ reed canary grass	very good	23 May	29 Jun	no (deserted)

* Location of nests indicated in Map 6.

** Based on Keith's (1961) criteria for nest concealment.

*** Nest assumed to originally contain 9 eggs.

Table 88. Mallard broods observed at Schoharie Reservoir in 1977.

Brood Number	Date Brood First Observed	Brood Size When First Observed	Age Class	Chronology*		
				Date Nest Started	Date Incubation Started	Date Eggs Hatched
1	23 May	3	Ia	10-15 Apr	19-24 Apr	16-21 May
2	6 Jun	7	Ib	13-19 Apr	22-28 Apr	19-25 May
3	8	2	Ia	26 Apr	5 May	1 Jun
4	8	5	Ia	1 May	12 May	8 Jun
5	22	10	Ia	13-17 May	22-28 May	18-22 Jun
6	6 Jul	3	IIa	6 May	15 May	11 Jun
7	7	6	Ia	31 May	9 Jun	6 Jul

*Determined by aging broods (Southwick 1953) and candling eggs (Weller 1956), using 28 days as incubation period and 9 as full clutch size unless clutch size was determined to be different.

Table 89. Observations of American black ducks associated with Schoharie Reservoir during the reproductive season in 1977.

Date	Number Observed	Zone
4 Mar	3	49
10	15	54 - 55
11	35	Backwater
11	3	54
28	3	37
28	3	55
28	2	40 - 49
30	4	37
30	6	54
31	1	40
1 Apr	1	48
1	2	47
1	2	34
7	2	47
8	3	55
11	2	52
12	3	48
12	2	38
15	2	50 - 54
18	5	4
18	8	52
19	4	13
21	4	Backwater
21	2	42
26	2	53
29	2	37
2 May	2	37
4	2	48
5	2	37 - 38
10	2	53 - 54
12	1	53
13	2	3
17	1	53
19	1	53
20	1	38
23	1	37 - 55
24	1	50
2 Jun	4	37
3	2	53
8	1 adult, 3 young	43
14	1	37
29	1	8

Table 90. Blue-winged teals observed at Schoharie Reservoir during the reproductive season in 1977.

Date	Number Observed	Sex			Zone
		Male	Female	Undetermined	
31 Mar	2	2			40
12 Apr	4			4	52
19	2	1	1		37
25	3			3	51
26	3	2	1		51
4 May	1		1		37
5	1			1	53
11	2	1	1		53
12	2	1	1		52 (1), 53 (2)
16	3	2	1		37

Table 91. Common mergansers observed at Schoharie Reservoir during the reproductive season in 1977.

Date	Number Observed	Sex and Age*				Zone
		Male	Female	Young	Undetermined	
11 Mar	3	3				55
30	1		1			28
18 Apr	2	1	1			6
21	2		2			28
25	1		1			48
26	1	1				5
29	2				2	28
5 May	1		1			55
11	3		3			27 - 28
13	1		1			2
26	1	1				2
6 Jun	1		1			49
7	8		1	7		5 - 6
7	1		1			49 - 40
8	16		1	15		36
9	?		1	8+		35
13	18		1	17		36
14	1		1			42
14	18		1	17		49
14	18		1	17		54
14	18		1	17		30
14	3		1	2		7
17	18		1	17		55
22	?		1	?		49
22	4		4			40
6 Jul	17		1	16		17
6	1		1			14
6	3		1	2		5
11	17		1	16		26
11	3		1	2		23
11	1				1	16
13	3		1	2		27
18	1		1			1
18	17		1	16		3
18	17		1	16		35
18	3				3	23
18	4		4			28
18	1		1			29
20	3		1	2		34
21	2		2			27
22	3				3	7
26	4		4			15
26	3		1	2		31 - 32
26	17		1	16		32 - 33
28	21		5	16		27
2 Aug	3		1	2		6
3	16				16	5
3	1		1			7
5	3		1	2		6
8	17		1	16		15
8	17		1	16		33 - 28
10	5		5			3
10	2		2			6
12	4		4			54
15	4		4			9
15	3		1	2		29
15	2		2			1
16	14			14		40

* Adult females are indistinguishable from yearling males in the field.

Table 92. Pekin, Muscovy and Cayuga ducks and semidomestic mallards observed at Schoharie Reservoir in 1977

Date	Duck Species	Number Observed	Sex			Zone
			Male	Female	Undetermined	
21 Apr	Pekin	4			4	43
22	Pekin	4			4	46
25	Pekin	4			4	48
29	Pekin	4			4	48
2 May	Pekin	4			4	48
5	Pekin	4			4	47
10	Pekin	4			4	55, 48
16	Pekin	4			4	47
25	Pekin	1			1	Schoharie Creek
25	Semidomestic mallard	2		2		Schoharie Creek
25	Cayuga	1	1			Schoharie Creek
26	Pekin	1			1	Schoharie Creek
26	Semidomestic mallard	1		1		Schoharie Creek
27	Semidomestic mallard	1		1		Schoharie Creek
27	Pekin	1			1	Schoharie Creek
31	Semidomestic mallard	2	1	1		Schoharie Creek
31	Semidomestic mallard	1		1		Schoharie Creek
6 Jun	Pekin	4			4	47
8	Pekin	4			4	47
8	Cayuga	1	1			Schoharie Creek
10	Cayuga	1	1			Schoharie Creek
10	Semidomestic mallard	1		1		Schoharie Creek
14	Cayuga	1	1			55
14	Pekin	3			3	55
14	Semidomestic mallard	1		1		Schoharie Creek
14	Cayuga	1	1			Schoharie Creek
14	Pekin	4			4	47
20	Pekin	4			4	40
20	Semidomestic mallard	1		1		Schoharie Creek
20	Cayuga	1	1			Schoharie Creek
21	Pekin	4			4	50
23	Cayuga	1	1			Schoharie Creek
23	Pekin	4			4	40
7 Jul	Pekin	4			4	36
7	Cayuga	1	1			Schoharie Creek
7	Semidomestic mallard	6		1	5 ducklings	Schoharie Creek
12	Semidomestic mallard	5		1	4 ducklings	Schoharie Creek
12	Cayuga	1	1			Schoharie Creek
18	Pekin	4			4	55
18	Pekin	3	1	1	1	54
20	Cayuga	1		1		Schoharie Creek
20	Semidomestic mallard	5		1	4 ducklings	Schoharie Creek
27	Cayuga	1	1			Schoharie Creek
27	Semidomestic mallard	5		1	4 ducklings	Schoharie Creek
3 Aug	Muscovy	1			1	Schoharie Creek
4	Cayuga	1	1			40
4	Semidomestic mallard	5		1	4 ducklings	40
16	Cayuga	1	1			Schoharie Creek
16	Semidomestic mallard	4		1	3 ducklings	Schoharie Creek
16	Muscovy	1			1	Schoharie Creek
31	Cayuga	1	1			Schoharie Creek
31	Semidomestic mallard	4		1	3 ducklings	Schoharie Creek
31	Muscovy	1			1	Schoharie Creek

Table 93. Status of semidomestic mallard and pekin duck nests found in the backwater of Schoharie Reservoir in May 1977.

Nest #	Date Found (May)	Species	# of Eggs	Distance From Water (feet)	Habitat Type	Nest Concealment*	Date First Egg Laid	Date Eggs Would Hatch If Nest Successful	Predated
1	25	Semi-domestic mallard	21	120	dead goldenrod	good	2 May	14 Jun	yes (mammal)
2	25	Pekin	17	120	dead goldenrod	very good	unknown	unknown	yes (mammal)

* Based on Keith's (1961) criteria for nest concealment.

Table 93. Status of semidomestic mallard and pekin duck nests found in the backwater of Schoharie Reservoir in May 1977.

Nest #	Date Found (May)	Species	# of Eggs	Distance From Water (feet)	Habitat Type	Nest Concealment*	Date First Egg Laid	Date Eggs Would Hatch If Nest Successful	Predated
1	25	Semi-domestic mallard	21	120	dead goldenrod	good	2 May	14 Jun	yes (mammal)
2	25	Pekin	17	120	dead goldenrod	very good	unknown	unknown	yes (mammal)

* Based on Keith's (1961) criteria for nest concealment.

Table 94. Number of waterfowl broods and ducklings observed at Schoharie Reservoir from 1975 through 1977.

Species	Number of Broods			Number of Ducklings			Number Fledged		
	1975*	1976	1977	1975	1976	1977	1975	1976	1977
Wood duck	0	3- 4	7	0	18-23	44	0	-**	2
Mallard	3	4- 6	7	19-22	21-23	36	-	-	9-12
American black duck	0	0	1	0	0	3	0	0	0
Common merganser	1	1	2	11	14	24	11	13	16-18
Semidomestic mallard	0	0	1	0	0	5	0	0	3
Total	4	8-11	18	30-33	53-60	112	11**	13**	30-35

* Field work began late in the nesting season in 1975 (16 July) and no observations were conducted in the backwater.

**Total number fledglings not determined.

Table 95. Waterfowl, shore birds, and other birds associated with Lower B-G Reservoir during the spring 1977 migration (1 March through 16 May).

Month	Mar		Apr		May		Total	
# Observations	21		15		3		39	
Birds Observed	#	%	#	%	#	%	#	%
Horned grebe	0	0.0	11	13.8	0	0.0	11	2.9
Canada goose	70	24.1	0	0.0	0	0.0	70	18.6
Wood duck	12	4.1	0	0.0	0	0.0	12	3.2
Mallard	31	10.7	6	7.5	0	0.0	37	9.8
American black duck	57	19.6	0	0.0	0	0.0	57	15.2
Common pintail	1	0.3	0	0.0	0	0.0	1	0.3
Baldpate	8	2.7	0	0.0	0	0.0	8	2.1
Green-winged teal	2	0.7	0	0.0	0	0.0	2	0.5
Ring-necked duck	4	1.4	0	0.0	0	0.0	4	1.1
Scaup sp.	1	0.3	18	22.5	0	0.0	19	5.0
Hooded merganser	1	0.3	0	0.0	0	0.0	1	0.3
Common merganser	55	18.9	14	17.5	0	0.0	69	18.4
Red-breasted merganser	5	1.7	8	10.0	0	0.0	13	3.5
Turkey vulture	0	0.0	10	12.5	0	0.0	10	2.7
Red-tailed hawk	5	1.7	0	0.0	0	0.0	5	1.3
Killdeer	11	3.8	0	0.0	4	80.0	15	4.0
Herring gull	0	0.0	1	1.3	0	0.0	1	0.3
Ring-billed gull	25	8.6	12	15.0	1	20.0	38	10.1
Unidentified waterfowl	2	0.7	0	0.0	0	0.0	2	0.5
Unidentified shore bird	1	0.3	0	0.0	0	0.0	1	0.3
Total waterfowl	249	85.6	46	57.5	0	0.0	295	78.5
Total birds	291	100.0	80	100.0	5	100.0	376	100.0

Table 96. Waterfowl observed at Lower B-G Reservoir during the spring 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Mar			Apr			May			Total		
# Observations	21			15			3			39		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese												
Canada goose	70	28.1	3.3	0	0.0	0.0	0	0.0	0.0	70	23.7	1.8
Duck												
Surface-feeding												
Wood duck	12	4.8	0.6	0	0.0	0.0	0	0.0	0.0	12	4.1	0.3
Mallard	31	12.4	1.5	6	13.0	0.4	0	0.0	0.0	37	12.5	0.9
American black duck	57	22.9	2.7	0	0.0	0.0	0	0.0	0.0	57	19.3	1.5
Common pintail	1	0.4	0.0*	0	0.0	0.0	0	0.0	0.0	1	0.3	0.0*
Baldpate	8	3.2	0.4	0	0.0	0.0	0	0.0	0.0	8	2.7	0.2
Green-winged teal	2	0.8	0.1	0	0.0	0.0	0	0.0	0.0	2	0.7	0.1
Total	111	44.5	5.3	6	13.0	0.4	0	0.0	0.0	117	39.7	3.0
Diving												
Ring-necked duck	4	1.6	0.2	0	0.0	0.0	0	0.0	0.0	4	1.4	0.1
Scaup sp.	1	0.4	0.0*	18	39.1	1.2	0	0.0	0.0	19	6.4	0.5
Total	5	2.0	0.2	18	39.1	1.2	0	0.0	0.0	23	7.8	0.6
Total Duck	116	46.5	5.5	24	52.2	1.6	0	0.0	0.0	140	47.5	3.6
Merganser												
Hooded merganser	1	0.4	0.0*	0	0.0	0.0	0	0.0	0.0	1	0.3	0.0*
American merganser	55	22.1	2.6	14	30.4	0.9	0	0.0	0.0	69	23.4	1.8
Red-breasted merganser	5	2.0	0.2	8	17.4	0.5	0	0.0	0.0	13	4.4	0.3
Total	61	24.5	2.9	22	47.8	1.5	0	0.0	0.0	83	28.1	2.1
Unidentified Waterfowl	2	0.8	0.1	0	0.0	0.0	0	0.0	0.0	2	0.7	0.1
Total Waterfowl	249	100.0	11.9	46	100.0	3.1	0	0.0	0.0	295	100.0	7.6

* less than 0.05%

Table 97. Waterfowl use days (WUD) at Lower B-G Reservoir during the spring 1977 migration.

Period	Geese	Duck			Merganser	Unidentified	Total Waterfowl
		Dabbler	Diver	Total			
29 Feb - 6 Mar	54.2	7.0	0.0	7.0	10.5	0.0	71.8
7 - 13	35.0	30.8	0.0	30.8	44.8	0.0	110.6
14 - 20	0.0	3.5	0.0	3.5	8.8	0.0	12.3
21 - 27	1.8	3.5	0.0	3.5	10.5	0.0	15.8
28 - 3 Apr	12.6	113.4	7.0	120.4	14.0	2.8	149.8
4 - 10	0.0	0.0	42.0	42.0	18.7	0.0	60.7
11 - 17	0.0	5.6	0.0	5.6	19.6	0.0	25.2
18 - 24	0.0	3.5	0.0	3.5	0.0	0.0	3.5
25 - 1 May	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 - 8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9 - 15	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	103.6	167.3	49.0	216.3	126.9	2.8	449.7
%	23.0	37.2	10.9	48.1	28.2	0.6	100.0

Table 98. Waterfowl, shore birds, and other birds associated with Upper B-G Reservoir during the spring 1977 migration (1 March through 16 May).

Month	Mar		Apr		May		Total	
# Observations	20		15		3		38	
Birds Observed	#	%	#	%	#	%	#	%
Common loon	0	0.0	2	0.5	2	4.7	4	0.4
Red-necked grebe	8	1.4	0	0.0	0	0.0	8	0.8
Horned grebe	15	2.7	10	2.6	4	9.3	29	2.9
Pied-billed grebe	0	0.0	1	0.3	0	0.0	1	0.1
Canada goose	304	54.2	70	18.1	14	32.6	388	39.2
Mallard	16	2.9	36	9.3	0	0.0	52	5.3
American black duck	110	19.6	172	44.6	2	4.7	284	28.7
Mallard and/or American black duck	27	4.8	0	0.0	0	0.0	27	2.7
Common pintail	21	3.7	0	0.0	0	0.0	21	2.1
Baldpate	2	0.4	0	0.0	0	0.0	2	0.2
Canvasback	1	0.2	0	0.0	0	0.0	1	0.1
Redhead	1	0.2	0	0.0	0	0.0	1	0.1
Ring-necked duck	7	1.2	16	4.1	0	0.0	23	2.3
Scaup sp.	24	4.3	17	4.4	0	0.0	41	4.1
Oldsquaw	5	0.9	14	3.6	8	18.6	27	2.7
White-winged scoter	0	0.0	1	0.3	5	11.6	6	0.6
Bufflehead	3	0.5	23	6.0	0	0.0	26	2.6
Common goldeneye	4	0.7	5	1.3	0	0.0	9	0.9
American merganser	4	0.7	11	2.8	5	11.6	20	2.0
Red-breasted merganser	1	0.2	0	0.0	0	0.0	1	0.1
Turkey vulture	0	0.0	5	1.3	0	0.0	5	0.5
Osprey	0	0.0	0	0.0	1	2.3	1	0.1
Bald eagle	2	0.4	0	0.0	0	0.0	2	0.2
Red-tailed hawk	0	0.0	2	0.5	1	2.3	3	0.3
American kestrel	0	0.0	1	0.3	0	0.0	1	0.1
Killdeer	0	0.0	0	0.0	1	2.3	1	0.1
Ring-billed gull	6	1.1	0	0.0	0	0.0	6	0.6
Total waterfowl	530	94.5	365	94.6	34	79.1	929	93.8
Total birds	561	100.0	386	100.0	43	100.0	990	100.0

Table 99. Waterfowl observed at Upper B-G Reservoir during the spring 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Mar			Apr			May			Total		
# Observations	20			15			3			38		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese												
Canada goose	304	57.4	15.2	70	19.2	4.7	14	41.2	4.7	388	41.8	10.2
Duck												
Surface-feeding												
Mallard	16	3.0	0.8	36	9.9	2.4	0	0.0	0.0	52	5.6	1.4
American black duck	110	20.8	5.5	172	47.1	11.5	2	5.9	0.7	284	30.6	7.5
Mallard and/or American black duck	27	5.1	1.4	0	0.0	0.0	0	0.0	0.0	27	2.9	0.7
Common pintail	21	4.0	1.1	0	0.0	0.0	0	0.0	0.0	21	2.3	0.6
Baldpate	2	0.4	0.1	0	0.0	0.0	0	0.0	0.0	2	0.2	0.1
Total	176	33.2	8.8	208	57.0	13.9	2	5.9	0.7	386	41.6	10.2
Diving												
Canvasback	1	0.2	0.1	0	0.0	0.0	0	0.0	0.0	1	0.1	0.0*
Redhead	1	0.2	0.1	0	0.0	0.0	0	0.0	0.0	1	0.1	0.0*
Ring-necked duck	7	1.3	0.4	16	4.4	1.1	0	0.0	0.0	23	2.5	0.6
Scaup sp.	24	4.5	1.2	17	4.7	1.1	0	0.0	0.0	41	4.4	1.1
Oldsquaw	5	0.9	0.3	14	3.8	0.9	8	23.5	2.7	27	2.9	0.7
White-winged scoter	0	0.0	0.0	1	0.3	0.1	5	14.7	1.7	6	0.7	0.2
Bufflehead	3	0.6	0.2	23	6.3	1.5	0	0.0	0.0	26	2.8	0.7
Common goldeneye	4	0.8	0.2	5	1.4	0.3	0	0.0	0.0	9	1.0	0.2
Total	45	8.5	2.3	76	20.8	5.1	13	38.2	4.3	134	14.4	3.5
Total Duck	221	41.7	11.1	284	77.8	18.9	15	44.1	5.0	520	56.0	13.7
Merganser												
American merganser	4	0.8	0.2	11	3.0	0.7	5	14.7	1.7	20	2.2	0.5
Red-breasted merganser	1	0.2	0.1	0	0.0	0.0	0	0.0	0.0	1	0.1	0.0*
Total	5	0.9	0.3	11	3.0	0.7	5	14.7	1.7	21	2.3	0.5
Total Waterfowl	530	100.0	26.5	365	100.0	24.3	34	100.0	11.3	929	100.0	24.4

* less than 0.05%

Table 100. Waterfowl use days (WUD) at Upper B-G Reservoir during the spring 1977 migration.

Period	Geese	Duck			Merganser	Total Waterfowl
		Dabbler	Diver	Total		
29 Feb - 6 Mar	68.3	36.8	0.0	36.8	1.8	106.9
7 - 13	133.0	156.8	5.6	162.4	5.6	301.0
14 - 20	0.0	29.8	0.0	29.8	0.0	29.8
21 - 27	0.0	0.0	0.0	0.0	0.0	0.0
28 - 3 Apr	240.8	47.6	64.4	112.0	0.0	352.8
4 - 10	0.0	0.0	67.7	67.7	0.0	67.7
11 - 17	35.0	250.6	57.4	308.0	4.2	347.2
18 - 24	49.0	47.3	1.8	49.1	7.0	105.1
25 - 1 May	52.5	7.0	0.0	7.0	14.0	73.5
2 - 8	0.0	0.0	0.0	0.0	14.0	14.0
9 - 15	49.0	7.0	45.5	52.5	10.5	112.0
Total	627.6	582.9	242.4	825.3	57.1	1510.0
%	41.6	38.6	16.1	54.7	3.8	100.0

Table 101. Shore birds, waterfowl, and other birds associated with Lower B-G Reservoir during the fall 1977 migration.

Month	Aug		Sep		Oct		Nov		Dec		Total	
# Observations	6		13		11		10		6		46	
Birds Observed	#	%	#	%	#	%	#	%	#	%	#	%
Common loon	0	0.0	0	0.0	0	0.0	1	1.2	0	0.0	1	0.3
Horned grebe	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.3
Pied-billed grebe	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.3
Great blue heron	4	15.4	12	24.5	0	0.0	0	0.0	0	0.0	16	4.5
Canada goose	0	0.0	0	0.0	149	81.4	80	95.2	4	23.5	233	65.0
Mallard	2	7.7	4	8.2	3	1.6	0	0.0	0	0.0	9	2.5
American black duck	0	0.0	0	0.0	14	7.7	0	0.0	0	0.0	14	3.9
Scaup spp.	0	0.0	0	0.0	2	1.1	0	0.0	2	11.8	4	1.1
Black scoter	0	0.0	0	0.0	2	1.1	0	0.0	0	0.0	2	0.6
Bufflehead	0	0.0	0	0.0	3	1.6	0	0.0	0	0.0	3	0.8
Red-breasted merganser	0	0.0	0	0.0	2	1.1	0	0.0	0	0.0	2	0.6
Hooded merganser	0	0.0	0	0.0	0	0.0	0	0.0	9	53.0	9	2.5
Turkey vulture	6	23.1	2	4.1	1	0.5	0	0.0	0	0.0	9	2.5
Osprey	3	11.5	1	2.0	1	0.5	0	0.0	0	0.0	5	1.4
Red-tailed hawk	6	23.1	13	26.5	1	0.5	1	1.2	2	11.8	23	6.4
American kestrel	2	7.7	0	0.0	0	0.0	0	0.0	0	0.0	2	0.6
Semipalimated plover	0	0.0	2	4.1	0	0.0	0	0.0	0	0.0	2	0.6
Killdeer	2	7.7	10	20.4	0	0.0	0	0.0	0	0.0	12	3.3
Greater yellowlegs	0	0.0	2	4.1	0	0.0	0	0.0	0	0.0	2	0.6
Spotted sandpiper	1	3.9	1	2.0	0	0.0	0	0.0	0	0.0	2	0.6
Ring-billed gull	0	0.0	1	2.0	3	1.6	1	1.2	0	0.0	5	1.4
Unidentified waterfowl	0	0.0	0	0.0	0	0.0	1	1.2	0	0.0	1	0.3
Unidentified gull	0	0.0	1	2.0	0	0.0	0	0.0	0	0.0	1	0.3
Total waterfowl	2	7.7	4	8.2	175	95.6	81	96.4	15	88.2	277	77.2
Total birds	26	100.0	49	100.0	183	100.0	84	100.0	17	100.0	359	100.0

Table 102. Waterfowl observed at Lower B-G Reservoir during the fall 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Sep			Oct			Nov			Dec			Total		
# Observations	13			11			10			6			40		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese															
Canada geese	0	0.0	0.00	149	85.1	13.54	80	98.8	8.00	4	26.7	0.67	233	84.7	5.83
Duck															
Surface-Feeding															
Mallard	4	100.0	0.31	3	1.7	.27	0	0.0	0.00	0	0.0	0.00	7	2.5	0.18
American black duck	0	0.0	0.00	14	8.0	1.27	0	0.0	0.00	0	0.0	0.00	14	5.1	0.35
Total	4	100.0	0.31	17	9.7	1.54	0	0.0	0.00	0	0.0	0.00	21	7.6	0.53
Diving															
Scaup spp.	0	0.0	0.00	2	1.1	0.18	0	0.0	0.00	2	13.3	0.33	4	1.5	0.10
Black scoter	0	0.0	0.00	2	1.1	0.18	0	0.0	0.00	0	0.0	0.00	2	0.7	0.05
Bufflehead	0	0.0	0.00	3	1.7	0.27	0	0.0	0.00	0	0.0	0.00	3	1.1	0.08
Total	0	0.0	0.00	7	4.0	0.64	0	0.0	0.00	2	13.3	0.33	9	3.3	0.23
Total Duck	4	100.0	0.31	24	13.7	2.18	0	0.0	0.00	2	13.3	0.33	30	10.9	0.75
Merganser															
Red-breasted merganser	0	0.0	0.00	2	1.1	0.18	0	0.0	0.00	0	0.0	0.00	2	0.7	0.05
Hooded merganser	0	0.0	0.00	0	0.0	0.00	0	0.0	0.00	9	60.0	1.50	9	3.3	0.23
Total	0	0.0	0.00	2	1.1	0.18	0	0.0	0.00	9	60.0	1.50	11	4.0	0.28
Unidentified waterfowl	0	0.0	0.00	0	0.0	0.00	1	1.2	0.10	0	0.0	0.00	1	0.4	0.03
Total Waterfowl	4	100.0	0.31	175	100.0	15.91	81	100.0	8.10	15	100.0	2.50	275	100.0	6.88

Table 103. Waterfowl use days (WUD) at Lower B-G Reservoir during the fall 1977 migration.

Period	Geese	Duck			Merganser	Unidentified Waterfowl	Total
		Dabbler	Diver	Total			
29 Aug- 4 Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-11	0.0	3.5	0.0	3.5	0.0	0.0	3.5
12-18	0.0	2.3	0.0	2.3	0.0	0.0	2.3
19-25	0.0	3.5	0.0	3.5	0.0	0.0	3.5
26- 2 Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3- 9	31.5	3.5	3.5	7.0	0.0	0.0	38.5
10-16	378.0	14.0	7.0	21.0	0.0	0.0	399.0
17-23	0.0	38.5	10.5	49.0	0.0	0.0	49.0
24-30	80.5	0.0	0.0	0.0	7.0	0.0	87.5
31- 6 Nov	10.5	0.0	0.0	0.0	0.0	0.0	10.5
7-13	53.7	0.0	0.0	0.0	0.0	1.8	55.5
14-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-27	189.0	0.0	0.0	0.0	0.0	0.0	189.0
28- 4 Dec	9.3	0.0	0.0	0.0	0.0	0.0	9.3
5-11	0.0	0.0	14.0	14.0	63.0	0.0	77.0
12-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26- 1 Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	752.5	65.3	35.0	100.3	70.0	1.8	924.6

Table 104. Shore birds, waterfowl, and other birds associated with Upper B-G Reservoir during the fall 1977 migration.

Month	Aug		Sep		Oct		Nov		Dec		Total	
# Observations	6		15		12		14		9		56	
Birds Observed	#	%	#	%	#	%	#	%	#	%	#	%
Common loon	0	0.0	36	16.4	8	0.5	0	0.0	0	0.0	44	0.6
Horned grebe	0	0.0	0	0.0	1	0.1	2	0.0*	40	6.4	43	0.6
Eared grebe	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0*
Red-billed grebe	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	1	0.0*
Double-crested cormorant	0	0.0	5	2.3	1	0.1	0	0.0	0	0.0	6	0.1
Great blue heron	1	0.8	2	0.9	0	0.0	1	0.0*	0	0.0	4	0.1
Canada goose	0	0.0	0	0.0	1327	79.7	2780	67.2	500	79.7	4607	68.0
Snow goose	0	0.0	0	0.0	0	0.0	775	18.7	0	0.0	775	11.4
Mallard	0	0.0	0	0.0	14	0.8	116	2.8	6	1.0	136	2.0
American black duck	0	0.0	0	0.0	46	2.8	278	6.7	77	12.3	401	5.9
Mallard and/or American black duck	0	0.0	0	0.0	0	0.0	127	3.1	0	0.0	127	1.9
Common pintail	0	0.0	0	0.0	10	0.6	2	0.0*	0	0.0	12	0.2
Baldpate	0	0.0	0	0.0	6	0.4	0	0.0	0	0.0	6	0.1
Scaup spp.	0	0.0	2	0.9	18	1.1	5	0.1	0	0.0	25	0.4
Oldsquaw	0	0.0	0	0.0	2	0.1	1	0.0*	0	0.0	3	0.0*
White-winged scoter	0	0.0	0	0.0	2	0.1	0	0.0	0	0.0	2	0.0*
Surf scoter	0	0.0	0	0.0	5	0.3	0	0.0	0	0.0	5	0.1
Black scoter	0	0.0	0	0.0	152	9.1	0	0.0	0	0.0	152	2.2
Bufflehead	0	0.0	0	0.0	0	0.0	6	0.1	1	0.2	7	0.1
Common merganser	2	1.6	0	0.0	4	0.2	8	0.2	0	0.0	14	0.2
Merganser spp.	0	0.0	0	0.0	0	0.0	4	0.1	0	0.0	4	0.1
Turkey vulture	28	21.9	27	12.3	1	0.1	0	0.0	0	0.0	56	0.8
Osprey	1	0.8	3	1.4	1	0.1	0	0.0	0	0.0	5	0.1
Bald eagle	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0*
Northern harrier	0	0.0	4	1.8	2	0.1	0	0.0	0	0.0	6	0.1
Red-tailed hawk	15	11.7	11	5.0	14	0.8	1	0.0*	1	0.2	42	0.6
Rough-legged hawk	0	0.0	0	0.0	0	0.0	2	0.0*	2	0.3	4	0.1
American kestrel	53	41.4	54	24.7	7	0.4	0	0.0	0	0.0	114	1.7
Lesser golden plover	0	0.0	9	4.1	0	0.0	0	0.0	0	0.0	9	0.1
Black-bellied plover	0	0.0	0	0.0	7	0.4	0	0.0	0	0.0	7	0.1
Killdeer	1	0.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0*
Spotted sandpiper	13	10.2	12	5.5	0	0.0	0	0.0	0	0.0	25	0.4
Buff-breasted sandpiper	0	0.0	5	2.3	0	0.0	0	0.0	0	0.0	5	0.1
Pectoral sandpiper	0	0.0	8	3.7	0	0.0	0	0.0	0	0.0	8	0.1
Least sandpiper	0	0.0	1	0.5	0	0.0	0	0.0	0	0.0	1	0.0*
Herring gull	3	2.3	0	0.0	0	0.0	1	0.0*	0	0.0	4	0.1
Ring-billed gull	9	7.0	19	8.7	1	0.1	1	0.0*	0	0.0	30	0.4
Tern spp.	0	0.0	2	0.9	0	0.0	0	0.0	0	0.0	2	0.0*
Great horned owl	0	0.0	0	0.0	0	0.0	1	0.0*	0	0.0	1	0.0*
Barred owl	0	0.0	0	0.0	0	0.0	1	0.0*	0	0.0	1	0.0*
Water pipit	0	0.0	7	3.2	18	1.1	0	0.0	0	0.0	25	0.4
Unidentified waterfowl	0	0.0	0	0.0	4	0.2	19	0.5	0	0.0	23	0.3
Unidentified raptor	0	0.0	0	0.0	0	0.0	2	0.0*	0	0.0	2	0.0*
Unidentified shore bird	0	0.0	10	4.6	1	0.1	5	0.1	0	0.0	16	0.2
Unidentified gull	0	0.0	2	0.9	11	0.7	0	0.0	0	0.0	13	0.2
Total weterfowl	2	1.6	2	0.9	1590	95.6	4121	99.6	584	93.1	6299	93.0
Total shore bird	14	10.9	45	20.5	8	0.5	5	0.1	0	0.0	72	1.0
Total birds	128	100.0	219	100.0	1664	100.0	4138	100.0	627	100.0	6776	100.0

* less than 0.05%.

Table 105. Waterfowl observed at Upper B-G Reservoir during the fall 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Sep			Oct			Nov			Dec			Total		
# Observations	15			12			14			9			50		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese															
Canada geese	0	0.0	0.00	1327	83.5	110.58	2780	67.5	198.57	500	85.6	55.56	4607	73.2	92.14
Snow geese	0	0.0	0.00	0	0.0	0.00	775	18.8	55.36	0	0.0	0.00	775	12.3	15.50
Total	0	0.0	0.00	1327	83.5	110.58	3555	86.3	253.92	500	85.6	55.56	5382	85.5	107.64
Duck															
Surface-feeding															
Mallard	0	0.0	0.00	14	0.9	1.17	116	2.8	8.29	6	1.0	0.67	136	2.2	2.72
American black duck	0	0.0	0.00	46	2.9	3.83	278	6.7	19.86	77	13.2	8.56	401	6.4	8.02
Mallard and/or American black duck	0	0.0	0.00	0	0.0	0.00	127	3.1	9.07	0	0.0	0.00	127	2.0	2.54
Common pintail	0	0.0	0.00	10	0.6	0.83	2	0.0*	0.14	0	0.0	0.00	12	0.2	0.24
Baldpate	0	0.0	0.00	6	0.4	0.50	0	0.0	0.00	0	0.0	0.00	6	0.1	0.12
Total	0	0.0	0.00	76	4.8	6.33	523	12.7	37.36	83	14.2	9.22	682	10.8	13.64
Diving															
Scaup spp.	2	100.0	0.13	18	1.1	1.50	5	0.1	0.36	0	0.0	0.00	25	0.4	0.50
Oldsquaw	0	0.0	0.00	2	0.1	0.17	1	0.0*	0.07	0	0.0	0.00	3	0.0*	0.06
White-winged scoter	0	0.0	0.00	2	0.1	0.17	0	0.0	0.00	0	0.0	0.00	2	0.0*	0.04
Surf scoter	0	0.0	0.00	5	0.3	0.42	0	0.0	0.00	0	0.0	0.00	5	0.1	0.10
Black scoter	0	0.0	0.00	152	9.6	12.67	0	0.0	0.00	0	0.0	0.00	152	2.4	3.04
Bufflehead	0	0.0	0.00	0	0.0	0.00	6	0.1	0.43	1	0.2	0.11	7	0.1	0.14
Total	2	100.0	0.13	179	11.3	14.92	12	0.3	0.86	1	0.2	0.11	194	3.1	3.88
Total duck	2	100.0	0.13	255	16.0	21.25	535	13.0	38.21	84	14.4	9.33	876	13.9	17.52
Merganser															
Common merganser	0	0.0	0.00	4	0.2	0.33	8	0.2	0.57	0	0.0	0.00	12	0.2	0.24
Merganser spp.	0	0.0	0.00	0	0.0	0.00	4	0.1	0.29	0	0.0	0.00	4	0.1	0.08
Total	0	0.0	0.00	4	0.2	0.33	12	0.3	0.86	0	0.0	0.00	16	0.3	0.32
Unidentified waterfowl	0	0.0	0.00	4	0.2	0.33	19	0.5	1.36	0	0.0	0.00	23	0.4	0.46
Total waterfowl	2	100.0	0.13	1590	100.0	132.5	4121	100.0	294.36	584	100.0	64.89	6297	100.0	125.94

* less than 0.05%.

Table 106. Waterfowl use days (WUD) at Upper B-G Reservoir during the fall 1977 migration.

Period	Geese	Duck			Merganser	Unidentified Waterfowl	Total
		Dabbler	Diver	Total			
29 Aug- 4 Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26- 2 Oct	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3- 9	49.0	33.3	294.0	327.3	4.0	0.0	380.3
10-16	0.0	17.5	3.5	21.0	0.0	0.0	21.0
17-23	1620.5	59.5	35.0	94.5	0.0	3.5	1718.5
24-30	1397.7	67.7	0.0	67.7	0.0	7.0	1472.4
31- 6 Nov	1492.8	145.3	8.8	154.1	0.0	0.0	1646.9
7-13	3451.0	6.0	14.0	20.0	0.0	0.0	3471.0
14-20	1382.5	215.0	1.8	216.8	21.0	33.3	1653.6
21-27	35.0	672.0	0.0	672.0	0.0	0.0	707.0
28- 4 Dec	801.5	120.8	1.8	122.6	0.0	0.0	924.1
5-11	875.0	101.5	0.0	101.5	0.0	0.0	976.5
12-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26- 1 Jan	0.0	7.0	0.0	7.0	0.0	0.0	7.0
Total	11105.0	1445.6	358.9	1804.5	25.0	43.8	12978.3

Table 107. Waterfowl, shore birds, and other birds associated with Schoharie Reservoir during the spring 1977 migration (1 March through 16 May).

Month	Mar		Apr		May		Total	
# Observations	16		15		7		38	
Birds Observed	#	%	#	%	#	%	#	%
Common loon	0	0.0	9	1.0	0	0.0	9	0.6
Horned grebe	0	0.0	28	3.2	0	0.0	28	1.9
Pied-billed grebe	0	0.0	1	0.1	0	0.0	1	0.1
Double-crested cormorant	0	0.0	1	0.1	0	0.0	1	0.1
Great blue heron	1	0.3	10	1.1	1	0.3	12	0.8
Green heron	0	0.0	1	0.1	3	1.0	4	0.3
Canada goose	0	0.0	3	0.3	0	0.0	3	0.2
Wood duck	24	7.1	206	23.3	78	27.2	308	20.4
Mallard	101	30.1	302	34.2	119	41.5	522	34.6
American black duck	80	23.8	41	4.6	11	3.8	132	8.8
Mallard and/or American black duck	29	8.6	0	0.0	0	0.0	29	1.9
Gadwall	2	0.6	0	0.0	0	0.0	2	0.1
Common pintail	0	0.0	1	0.1	0	0.0	1	0.1
Baldpate	0	0.0	2	0.2	1	0.3	3	0.2
Green-winged teal	4	1.2	6	0.7	0	0.0	10	0.7
Blue-winged teal	2	0.6	12	1.4	6	2.1	20	1.3
Canvasback	0	0.0	6	0.7	0	0.0	6	0.4
Ring-necked duck	50	14.9	105	11.9	2	0.7	157	10.4
Scaup sp.	0	0.0	19	2.1	0	0.0	19	1.3
Oldsquaw	1	0.3	21	2.4	0	0.0	22	1.5
White-winged scoter	0	0.0	10	1.1	0	0.0	10	0.7
Bufflehead	0	0.0	6	0.7	2	0.7	8	0.5
Hooded merganser	14	4.2	6	0.7	0	0.0	20	1.3
Common merganser	6	1.8	14	1.6	5	1.7	25	1.7
Ruddy duck	0	0.0	1	0.1	0	0.0	1	0.1
Turkey vulture	12	3.6	4	0.5	17	5.9	33	2.2
Osprey	0	0.0	8	0.9	4	1.4	12	0.8
Bald eagle	2	0.6	0	0.0	0	0.0	2	0.1
Cooper's hawk	0	0.0	1	0.1	0	0.0	1	0.1
Red-tailed hawk	0	0.0	1	0.1	1	0.3	2	0.1
Broad-winged hawk	0	0.0	1	0.1	3	1.0	4	0.3
Solitary sandpiper	0	0.0	3	0.3	19	6.6	22	1.5
Spotted sandpiper	0	0.0	1	0.1	6	2.1	7	0.5
Ring-billed gull	0	0.0	28	3.2	0	0.0	28	1.9
Belted kingfisher	3	0.9	10	1.1	1	0.3	14	0.9
Unidentified waterfowl	5	1.5	15	1.7	8	2.8	28	1.9
Unidentified bird of prey	0	0.0	1	0.1	0	0.0	1	0.1
Total waterfowl	318	94.6	776	87.8	232	80.8	1326	88.0
Total birds	336	100.0	884	100.0	287	100.0	1507	100.0

Table 108. Waterfowl observed at Schoharie Reservoir during the spring 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Mar			Apr			May			Total		
# Observations	16			15			7			38		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese												
Canada goose	0	0.0	0.0	3	0.4	0.2	0	0.0	0.0	3	0.2	0.1
Duck												
Surface-feeding												
Wood duck	24	7.6	1.5	206	26.5	13.7	78	33.6	11.1	308	23.2	8.1
Mallard	101	31.8	6.3	302	38.9	20.1	119	51.3	17.0	522	39.4	13.7
American black duck	80	25.2	5.0	41	5.3	2.7	11	4.7	1.6	132	10.0	3.5
Mallard and/or American black duck	29	9.1	1.8	0	0.0	0.0	0	0.0	0.0	29	2.2	0.8
Gadwall	2	0.6	0.1	0	0.0	0.0	0	0.0	0.0	2	0.2	0.1
Common pintail	0	0.0	0.0	1	0.1	0.1	0	0.0	0.0	1	0.1	0.0*
Baldpate	0	0.0	0.0	2	0.3	0.1	1	0.4	0.1	3	0.2	0.1
Green-winged teal	4	1.3	0.3	6	0.8	0.4	0	0.0	0.0	10	0.8	0.3
Blue-winged teal	2	0.6	0.1	12	1.6	0.8	6	2.6	0.9	20	1.5	0.5
Total	242	76.1	15.1	570	73.5	38.0	215	92.7	30.7	1027	77.4	27.0
Diving												
Canvasback	0	0.0	0.0	6	0.8	0.4	0	0.0	0.0	6	0.5	0.2
Ring-necked duck	50	15.7	3.1	105	13.5	7.0	2	0.9	0.3	157	11.8	4.1
Scaup sp.	0	0.0	0.0	19	2.4	1.3	0	0.0	0.0	19	1.4	0.5
Oldsqaw	1	0.3	0.1	21	2.7	1.4	0	0.0	0.0	22	1.7	0.6
White-winged scoter	0	0.0	0.0	10	1.3	0.7	0	0.0	0.0	10	0.8	0.3
Bufflehead	0	0.0	0.0	6	0.8	0.4	2	0.9	0.3	8	0.6	0.2
Total	51	16.0	3.2	167	21.5	11.1	4	1.7	0.6	222	16.8	5.8
Ruddy duck	0	0.0	0.0	1	0.1	0.1	0	0.0	0.0	1	0.1	0.0*
Total Duck	293	92.1	18.3	738	95.1	49.2	219	94.4	31.3	1250	94.3	32.9
Merganser												
Hooded merganser	14	4.4	0.9	6	0.8	0.4	0	0.0	0.0	20	1.5	0.5
Common merganser	6	1.9	0.4	14	1.8	0.9	5	2.2	0.7	25	1.9	0.7
Total	20	6.3	1.3	20	2.6	1.3	5	2.2	0.7	45	3.4	1.2
Unidentified Waterfowl	5	1.6	0.3	15	1.9	1.0	8	3.5	1.1	28	2.1	0.7
Total Waterfowl	318	100.0	19.9	776	100.0	51.7	232	100.0	33.1	1323	100.0	34.9

* less than 0.05%

Table 109. Waterfowl use days (WUD) at Schoharie Reservoir during the spring 1977 migration.

Period	Geese	Duck				Merganser	Unidentified	Total Waterfowl
		Dabbler	Diver	Ruddy	Total			
29 Feb - 6 Mar	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0
7 - 13	0.0	120.8	8.8	0.0	129.6	5.3	0.0	134.9
14 - 20	0.0	39.7	0.0	0.0	39.7	0.0	7.0	46.7
21 - 27	0.0	7.0	42.0	0.0	49.0	0.0	0.0	49.0
28 - 3 Apr	0.0	259.0	75.6	0.0	334.6	26.6	2.8	364.0
4 - 10	7.0	268.3	224.0	2.3	494.6	16.3	11.7	529.6
11 - 17	0.0	275.3	114.3	0.0	389.6	4.7	4.7	399.0
18 - 24	0.0	239.4	2.8	0.0	242.2	7.0	4.2	253.4
21 - 1 May	0.0	308.0	0.0	0.0	308.0	9.3	11.7	329.0
2 - 8	0.0	242.7	0.0	0.0	242.7	2.3	7.0	252.0
9 - 15	0.0	192.5	7.0	0.0	199.5	7.0	8.8	215.3
Total	7.0	1959.7	474.5	2.3	2436.5	78.5	57.9	2579.9
%	0.3	76.0	18.4	0.1	94.4	3.0	2.2	100.0

Table 110. Shore bird, waterfowl, and other birds associated with Schoharie Reservoir during the fall 1977 migration.

Month	Jul		Aug		Sep		Oct		Nov		Dec		Total	
# Observations	11		13		13		12		13		6		68	
Birds Observed	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Common loon	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	1	0.0*
Horned grebe	0	0.0	0	0.0	0	0.0	0	0.0	6	0.4	0	0.0	6	0.1
Pied-billed grebe	0	0.0	0	0.0	2	0.1	1	0.0*	0	0.0	0	0.0	3	0.0*
Great blue heron	12	1.4	20	1.6	25	1.8	0	0.0	0	0.0	0	0.0	57	0.8
Green heron	10	1.2	7	0.6	0	0.0	0	0.0	0	0.0	0	0.0	17	0.2
Canada goose	4	0.5	0	0.0	0	0.0	340	14.0	534	33.0	2	18.2	880	11.7
Brant	0	0.0	0	0.0	0	0.0	0	0.0	75	4.6	0	0.0	75	1.0
Snow goose	0	0.0	0	0.0	0	0.0	1	0.0*	141	8.7	0	0.0	142	1.9
Muscovy duck	0	0.0	1	0.1	0	0.0	3	0.1	1	0.1	0	0.0	5	0.1
Wood duck	17	1.9	20	1.6	30	2.1	19	0.8	0	0.0	0	0.0	86	1.1
Mallard	161	19.4	41	3.3	194	13.7	297	12.3	91	5.6	0	0.0	784	10.4
American black duck	6	0.7	3	0.2	61	4.3	349	14.4	369	22.8	0	0.0	788	10.5
Mallard and/or American black duck	20	2.4	3	0.2	228	16.1	1228	50.7	229	14.1	0	0.0	1708	22.7
Gadwall	0	0.0	0	0.0	0	0.0	9	0.4	0	0.0	0	0.0	9	0.1
Common pintail	0	0.0	0	0.0	8	0.6	10	0.4	1	0.1	0	0.0	19	0.3
Baldpate	0	0.0	0	0.0	6	0.4	20	0.8	0	0.0	0	0.0	26	0.4
Green-winged teal	0	0.0	0	0.0	3	0.2	11	0.5	1	0.1	0	0.0	15	0.2
Blue-winged teal	0	0.0	2	0.2	2	0.1	0	0.0	2	0.1	0	0.0	6	0.1
Teal spp.	0	0.0	0	0.0	0	0.0	1	0.0*	0	0.0	0	0.0	1	0.0*
Ring-necked duck	0	0.0	0	0.0	0	0.0	14	0.6	35	2.2	3	27.3	52	0.7
Scaup spp.	0	0.0	0	0.0	0	0.0	21	0.9	10	0.6	0	0.0	31	0.4
Surf scoter	0	0.0	0	0.0	0	0.0	7	0.3	0	0.0	0	0.0	7	0.1
Black scoter	0	0.0	0	0.0	0	0.0	44	1.8	48	3.0	0	0.0	92	1.2
Scoter spp.	0	0.0	0	0.0	0	0.0	8	0.3	0	0.0	0	0.0	8	0.1
Bufflehead	0	0.0	0	0.0	0	0.0	3	0.1	26	1.6	0	0.0	29	0.4
Common merganser	137	16.5	110	8.9	55	3.9	2	0.1	0	0.0	4	36.4	308	4.1
Red-breasted merganser	0	0.0	0	0.0	0	0.0	2	0.1	0	0.0	0	0.0	2	0.0*
Ruddy duck	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1	0	0.0	2	0.0*
Turkey vulture	0	0.0	9	0.7	5	0.4	6	0.2	0	0.0	0	0.0	20	0.3
Osprey	0	0.0	1	0.1	9	0.6	1	0.0*	0	0.0	0	0.0	11	0.2
Bald eagle	1	0.1	4	0.3	1	0.1	0	0.0	0	0.0	0	0.0	6	0.1
Northern harrier	0	0.0	0	0.0	9	0.6	0	0.0	0	0.0	0	0.0	9	0.1
Red-tailed hawk	11	1.3	19	1.5	10	0.7	10	0.4	3	0.2	2	18.2	55	0.7
Broad-winged hawk	7	0.8	7	0.6	0	0.0	0	0.0	0	0.0	0	0.0	14	0.2
American kestrel	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0*
American coot	0	0.0	0	0.0	0	0.0	1	0.0*	0	0.0	0	0.0	1	0.0*
Lesser golden plover	0	0.0	0	0.0	3	0.2	0	0.0	0	0.0	0	0.0	3	0.0*
Semipalmated plover	0	0.0	9	0.7	51	3.6	0	0.0	0	0.0	0	0.0	60	0.8
Killdeer	197	23.8	496	40.1	336	23.8	0	0.0	0	0.0	0	0.0	1029	13.7
Greater yellowlegs	1	0.1	0	0.0	6	0.4	0	0.0	0	0.0	0	0.0	7	0.1
Lesser yellowlegs	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	1	0.0*
Solitary sandpiper	4	0.5	10	0.8	4	0.3	0	0.0	0	0.0	0	0.0	18	0.2
Spotted sandpiper	159	19.2	176	14.2	16	1.1	0	0.0	0	0.0	0	0.0	351	4.7
Sanderling	7	0.8	3	0.2	2	0.1	0	0.0	0	0.0	0	0.0	12	0.2
Pectoral sandpiper	0	0.0	0	0.0	9	0.6	0	0.0	0	0.0	0	0.0	9	0.1
Bairds sandpiper	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0*
Least sandpiper	11	1.3	174	14.1	195	13.8	0	0.0	0	0.0	0	0.0	380	5.0
Semipalmated sandpiper	5	0.6	17	1.4	35	2.5	0	0.0	0	0.0	0	0.0	57	0.8
Least and/or Semipalmated sandpiper	0	0.0	55	4.4	48	3.4	0	0.0	0	0.0	0	0.0	103	1.4
Northern phalarope	0	0.0	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0	2	0.0*
Herring gull	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0*
Ring-billed gull	2	0.2	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	3	0.0*
Great horned owl	6	0.7	4	0.3	1	0.1	0	0.0	0	0.0	0	0.0	11	0.2
Barred owl	0	0.0	0	0.0	1	0.1	0	0.0	2	0.1	0	0.0	3	0.0*
Belted kingfisher	45	5.4	32	2.6	31	2.2	3	0.1	2	0.1	0	0.0	113	1.5
Unidentified waterfowl	2	0.2	2	0.2	12	0.8	9	0.4	37	2.3	0	0.0	62	0.8
Unidentified raptor	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	1	0.0*
Unidentified shore bird	2	0.2	4	0.3	9	0.6	0	0.0	0	0.0	0	0.0	15	0.2
Unidentified gull	0	0.0	2	0.2	1	0.1	0	0.0	2	0.1	0	0.0	5	0.1
Total waterfowl	347	41.9	182	14.7	599	42.4	2398	99.1	1602	98.9	9	81.8	5137	68.3
Total shore bird	386	46.6	947	76.6	716	50.7	0	0.0	0	0.0	0	0.0	2049	27.2
Total birds	828	100.0	1236	100.0	1412	100.0	2420	100.0	1618	100.0	11	100.0	7525	100.0

* less then 0.05%

Table 111. Waterfowl observed at Schoharie Reservoir during the fall 1977 migration. $\bar{x}$ = mean number of birds per observation.

Month	Sep			Oct			Nov			Dec			Total		
# Observations	13			12			13			6			44		
Birds Observed	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$	#	%	$\bar{x}$
Geese															
Canada goose	0	0.0	0.00	340	14.2	28.33	534	33.4	41.08	2	22.2	0.33	876	19.3	19.91
Brant	0	0.0	0.00	0	0.0	0.00	75	4.7	5.77	0	0.0	0.00	75	1.6	1.70
Snow goose	0	0.0	0.00	1	0.4	0.08	141	8.8	10.86	0	0.0	0.00	142	3.1	3.23
Total	0	0.0	0.00	341	14.2	28.42	750	46.8	57.69	2	22.2	0.33	1093	23.8	24.84
Duck															
Surface-feeding															
Wood duck	30	5.0	2.31	19	0.8	1.58	0	0.0	0.00	0	0.0	0.00	49	1.1	1.11
Mallard	194	32.4	14.92	297	12.4	24.75	91	5.7	7.00	0	0.0	0.00	582	12.6	13.22
American black duck	61	10.2	4.69	349	14.6	29.08	369	23.0	28.38	0	0.0	0.00	779	16.9	17.70
Mallard and/or American black duck	228	38.1	17.54	1228	51.3	102.33	229	14.3	17.62	0	0.0	0.00	1685	36.6	38.30
Gadwall	0	0.0	0.00	9	0.4	0.75	0	0.0	0.00	0	0.0	0.00	9	0.2	0.20
Common pintail	8	1.3	0.61	10	0.4	0.83	1	0.1	0.08	0	0.0	0.00	19	0.4	0.43
Baldpate	6	1.0	0.46	20	0.8	1.67	0	0.0	0.00	0	0.0	0.00	26	0.6	0.14
Green-winged teal	3	0.5	0.23	11	0.5	0.92	1	0.1	0.08	0	0.0	0.00	15	0.3	0.34
Blue-winged teal	2	0.3	0.15	0	0.0	0.00	2	0.1	0.15	0	0.0	0.00	4	0.1	0.09
Teal spp.	0	0.0	0.00	1	0.4	0.08	0	0.0	0.00	0	0.0	0.00	1	0.0*	0.02
Total	532	88.8	40.92	1944	81.2	162.00	693	43.3	53.31	0	0.0	0.00	3169	68.8	72.02
Diving															
Ring-necked duck	0	0.0	0.00	14	0.6	1.17	35	2.2	2.69	3	33.3	0.50	52	1.1	1.18
Scaup spp.	0	0.0	0.00	21	0.9	1.75	10	0.6	0.77	0	0.0	0.00	31	0.7	0.70
Surf scoter	0	0.0	0.00	7	0.3	0.58	0	0.0	0.00	0	0.0	0.00	7	0.2	0.16
Black scoter	0	0.0	0.00	44	1.8	3.67	48	3.0	3.69	0	0.0	0.00	92	2.0	2.09
Scoter spp.	0	0.0	0.00	8	0.3	0.67	0	0.0	0.00	0	0.0	0.00	8	0.2	0.18
Bufflehead	0	0.0	0.00	3	0.1	0.25	26	1.6	2.00	0	0.0	0.00	29	0.6	0.66
Total	0	0.0	0.00	97	4.1	8.08	119	7.4	9.15	3	33.3	0.50	219	4.8	4.98
Total duck	532	88.8	40.92	2041	85.2	170.08	812	50.7	62.46	3	33.3	0.50	3388	73.6	77.00
Merganser															
Common merganser	55	9.2	4.23	2	0.1	0.17	0	0.0	0.00	4	44.4	0.67	61	1.3	1.39
Red-breasted merganser	0	0.0	0.00	2	0.1	0.17	0	0.0	0.00	0	0.0	0.00	2	0.0*	0.05
Total	55	9.2	4.23	4	0.2	0.33	0	0.0	0.00	4	44.4	0.67	63	1.4	1.43
Ruddy duck	0	0.0	0.00	0	0.0	0.00	2	0.1	0.15	0	0.0	0.00	2	0.0*	0.05
Unidentified duck	12	2.0	0.92	9	0.4	0.75	37	2.3	2.85	0	0.0	0.00	58	1.3	1.32
Total waterfowl	599	100.0	46.08	2395	100.0	199.58	1601	100.0	123.15	9	100.0	1.50	4604	100.0	104.62

* less than 0.05*

Table 112. Waterfowl use days (WUD) at Schoharie Reservoir during the fall 1977 migration.

Period	Geese	Duck			Merganser	Unidentified Waterfowl	Total
		Dabbler	Diver	Total			
29 Aug- 4 Sep	0.0	7.0	0.0	7.0	17.5	0.0	24.5
5-11	0.0	28.0	0.0	28.0	18.7	0.0	46.7
12-18	0.0	16.3	0.0	16.3	37.3	0.0	53.6
19-25	0.0	312.7	0.0	312.7	32.7	9.3	354.7
26- 2 Oct	0.0	714.0	0.0	714.0	7.0	0.0	721.0
3- 9	49.0	1071.0	21.0	1092.0	4.7	0.0	1145.7
10-16	292.3	1293.3	82.3	1375.6	0.0	0.0	1667.9
17-23	0.0	1158.5	133.0	1291.5	7.0	3.5	1302.0
24-30	357.0	975.3	0.0	975.3	0.0	18.7	1351.0
31- 6 Nov	494.7	408.3	2.3	410.6	0.0	2.3	907.6
7-13	942.7	415.3	184.3	599.6	0.0	63.0	1605.3
14-20	72.3	569.3	42.0	611.3	0.0	0.0	683.6
21-27	248.5	311.5	7.0	318.5	0.0	31.5	598.5
28- 4 Dec	2.3	18.7	51.3	70.0	0.0	2.3	74.6
5-11	14.0	0.0	0.0	0.0	36.0	0.0	50.0
12-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26- 1 Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2472.8	7299.2	523.2	7822.4	160.9	130.6	10586.7

Table 113. Waterfowl associated with the beaver ponds on Dog Hill during the fall 1977 migration.

Month	Sep		Oct		Nov		Total	
# Observations	2		5		4		11	
Birds Observed	#	%	#	%	#	%	#	%
Wood duck	1	14.3	0	0.0	0	0.0	1	0.8
Mallard	6	85.7	8	7.4	0	0.0	14	11.5
American black duck	0	0.0	65	60.2	7	100.0	72	59.0
Mallard and/or American black duck	0	0.0	35	32.4	0	0.0	35	28.7
Total waterfowl	7	100.0	108	100.0	7	100.0	122	100.0

Table 114. Observations of the bald eagle in the vicinity of Lower and Upper B-G Reservoirs from 9 July 1975 through 31 December 1977.

Date	Time	# Seen	Age	Location	Activity
9 Jul 75	10:00 am	1	Adult	E. shore, Upper B-G Reservoir	Flushed from tree along wooded e. shore of Upper B-G Reservoir. Flew south along e. shore and disappeared to the south toward Schoharie Reservoir.
11 Feb 76	2:30 pm	1	Adult	Lower B-G Reservoir	Observed by PASNY security personnel at n. gate of Lower B-G Reservoir. Flew in from area of Upper B-G Reservoir from east to west, then flew north over Lower B-G Reservoir. Observed circling over NW end of Brown Mt. north of the spillway. Described as flying too high to see white head with naked eye.
20	8:15 am	1	Adult	E. of s. end of Lower B-G Reservoir	Observed by PASNY personnel soaring over s. gate quite close to hillside and approx. half way up to ridge line. It was apparently looking for food, slowly working its way southward along the ridge. White tail and white head were observed clearly with binoculars.
22	9:30 am	1	Adult	E. shore, Lower B-G Reservoir	Observed by PASNY personnel just south of gate house, feeding on a dead fish on shore. In same vicinity were 4-5 crow, standing and taking short flights. When observer stopped vehicle, eagle flew off in a westerly direction and disappeared up Mine Kill Creek.
23	9:30 am	1	Adult	Schoharie Creek below Lower B-G Reservoir	Observed by PASNY personnel from area of north gate near USGS gauging station. Eagle was flying south along Schoharie Creek toward Lower B-G Reservoir.
24	8:45 am	1	Adult	E. shore, Lower B-G Reservoir	Observed by PASNY personnel soaring over e. shore in a southeasterly direction. Bird was close enough to see white head, white tail, and yellow bill without binoculars. Bird disappeared toward Brown Mt. in the direction of Upper B-G Reservoir.
8 Mar	11:00 am	1	Adult	Spillway, Lower B-G Reservoir	Observed by PASNY personnel. First flew over dam in a northerly direction, then circled over Schoharie Creek and flew back in a southerly direction over Lower B-G Reservoir.
8	2:30 pm	1	Adult	Switchyard near Lower B-G Reservoir	Flew east across Reservoir, circled around near switchyard, and flew away toward Upper B-G Reservoir to the east.
11	9:50 am	1	Adult	E. shore, Lower B-G Reservoir	Seen circling Mine Kill Cove and landed along e. shore. Flushed from a deer carcass on which it had been feeding. Flew about 200' and landed in a tree along e. shore.and remained there for 1½ hours.
11	2:00 pm	1	Adult	E. shore, Lower B-G Reservoir; Schoharie Creek	Eagle feeding on same deer carcass. Flushed from carcass and landed approx. 100 yards away on w. shore. Bird was dive-bombed by a red-tailed hawk while sitting in a tree. It flew south up the Creek at about 3:00 pm.

Table 114 - (Continued).

Date	Time	# Seen	Age	Location	Activity
12 Mar 76	9:55 am	1	Adult	E. shore, Lower B-G Reservoir; Schoharie Creek	Observed to land on deer carcass. PASNY photographer took pictures of bird in flight and while feeding. Bird fed for 25 minutes, then flew off and landed along w. shore at the south end of the reservoir. Flushed from a tree and flew 200 yards further down Creek, landing in white pine on e. bank of Creek.
13	11:20 am	1	Adult	E. shore, Lower B-G Reservoir	Flushed from same deer carcass.
16	9:58 am	1	Adult	W. shore, Lower B-G Reservoir	Observed feeding on something in 2-3" of water in dam cove; 2 crow were cawing and diving at the eagle. Fed for about 5 minutes, then flew south about 150 yards and landed in a hickory tree at n. end of boat ramp cove. Still in tree at 10:22 am.
21	8:00 am	1	Adult	E. side, Lower B-G Reservoir	Observed flying near cliffs on e. side of Schoharie Valley above south gate of Lower B-G Reservoir.
22	12:45 pm	1	Adult	N. end, Lower B-G Reservoir; Schoharie Creek	Flew north over Reservoir and disappeared down Schoharie Creek.
22	2:00 pm	1	Adult	Lower B-G Reservoir	Observed flying high over Reservoir. Flew off in northeast direction.
24	am	3	Adult	Spillway, Lower B-G Reservoir	Observed circling together for approx. 1½ minutes near spillway. Gained altitude and disappeared heading toward Upper B-G Reservoir.
25	2:00 pm	1	Adult	E. side, Lower B-G Reservoir	Observed circling near two turkey vulture near e. slope of Schoharie Valley above south gate. Then headed north; when bird was approximately over the power house, it disappeared over Brown Mt. in the vicinity of Upper B-G Reservoir.
1 Mar 77	8:30 am	3	2 Adult, 1 Immature	Lower B-G Reservoir	Seen flying and soaring over Reservoir by PASNY personnel at three locations around Reservoir. Flew off toward northeast.
4	9:00 am	1	Adult	S. end, Lower B-G Reservoir	Seen by PASNY personnel flying low over s. end of Reservoir. Landed in tree at s. end.
11	12:45 pm	2	Adult	E. shore, Upper B-G Reservoir	Sitting perched in pines along e. shore; both also seen soaring over Reservoir near e. shore.
14	9:35 am	2	Adult	Lower B-G Reservoir	Flying s. up Reservoir. Observed by PASNY personnel.
25 Aug	6:20 pm	1	Adult	Upper B-G Reservoir	Flying w. over north dike. Elevation approx. 300'. Flew west out of sight.

Table 115. Observations of the bald eagle in the vicinity of Schoharie Reservoir from 16 July 1975 through 31 December 1977.

Date	Time	# Seen	Age	Location	Activity
27 Jul 75	9:20 am	1	Adult	E. shore near Mt. Royal (zones 20-23)	Apparently sitting in a tree near shore.
27	1:00 pm	1	Adult	E. shore near Mt. Royal and w. shore near Pine Mt. (zones 20-23 and 6)	In flight.
29	8:00 am	1	Adult	W. shore approx. 1/4 mi. s. of gate house (zone 35)	First seen flying in SW direction across Reservoir, carrying a fish. Landed in white pine and observed feeding on fish until 8:45 am. Observer returned to point of observation at 9:20 am; bird was still sitting in white pine. At 9:22 it took off and flew NW over Pine Mt. and disappeared.
31	8:30 am	1	Adult	W. shore at s. end of Reservoir (zone 31)	Flew out of "dead water" area near Hardensburgh Falls. Flew north up Reservoir, remaining relatively low over water, and disappeared from view.
31	9:00 am	1	Adult	Gate house and Hawk's Cove (zones 27 and 6)	In flight for about 5 minutes. Seen to dive into Hawk's Cove; no fish caught. Flew over ridge near Mt. Royal.
31	11:20 am	1	Adult	Hawk's Cove (zone 6)	Sitting in an oak or hickory tree at edge of Cove.
31	12:00 pm	1	Adult	Mt. Royal (zone 20)	In flight over Reservoir. Described as larger than other eagle observed on same date. Primary feather on left wing was missing; eagle observed earlier in day had normal feather appearance.
4 Aug	9:20 am	1	Adult	Hawk's Cove (zone 6)	Scared up from tree near shore of Cove.
4	9:50 am	1	Adult	Mt. Royal (zones 20,21,22,23)	In flight along e. shore of Reservoir.
4	3:40 pm	1	Adult	Hawk's Cove (zones 4,5,6)	Sitting on dead white pine along s. shore of Cove.
5	8:10 am	1	Adult	W. shore approx. 1/4 mi. s. of gate house (zone 35)	Sitting in white pine overhanging Reservoir. Scared up, bird flew north approx. 60' and landed in another tree. Weather quite foggy.
5	8:35 am	1	Adult	W. shore between Hawk's Cove and dam (zone 7)	Scared up from tree along w. shore north of Hawk's Cove. Flew along shore to cove directly w. of dam.
8	10:30 am	1	Adult	Temporary island near e. shore approx. 1/8 mi. s. of gate house (zone 27)	Standing on mud flats of island. Flew north up Reservoir.
8	11:55 am	1	Adult	Hawk's Cove (zone 6)	In flight. Thought to land in a tree at n. end of Cove.
10	9:45 am	1	Adult	Mt. Royal (zones 20,21,22,23)	Apparently sitting in a tree along e. shore near Mt. Royal. Flew off and disappeared over Mt. Royal.
14	am	1	Adult	W. shore at s. end of Reservoir. (zone 35)	In flight in a southerly, then northerly direction along w. shore between gate house and "dead water" area. Landed in a white pine near the point where an eagle was observed sitting on 29 July.
15	12:18 pm	1	Adult	Along w. shore (zone 35)	Flying south near Hog's Back of Pine Mt.
26	12:30 pm	1	Adult	Upper part of Reservoir.	In flight; dropped something into water. As observer approached by motorboat, bird disappeared over Pine Mt.

Table 115 - (Continued).

Date	Time	# Seen	Age	Location	Activity
30 Aug 75	am & pm	1	Adult	Upper part of Reservoir and Hawk's Cove. (zones 4,5,6)	Observed flying at various points in north half of Reservoir during morning. Seen to dive in Hawk's Cove; no fish caught. An osprey also seen off and on throughout day.
2 Sep	10:25 am	1	Adult	SW shoreline. (zone 35)	Flying north along w. shore approx. 40' above water. Began to circle and gain altitude at mud flats approx. 3/4 mi. s. of gate house. Flew south and disappeared over ledges area.
23	10:30 am	1	Immature	"dead water" and ledges areas. (zones 32,30,29)	Flew from "dead water" to ledges area. Mist and rain made visibility poor.
23	3:00 pm	1	Immature	Hawk's Cove (zone 3)	Seen to dive into Cove; no fish caught.
10 Dec	10:45 am	1	Adult	"dead water" (zone 32)	Flushed from a tree along w. shore. Flew out over Reservoir, circled to a high altitude, and flew off in a SE direction away from the Reservoir.
5 Jan 76	10:10 am	1	Adult	Backwater	Apparently perched on tree just s. of Falls. Flew from w. to e. shore, gained altitude, and flew over hill toward Hardensburgh Falls.
15	8:00 am	1	Adult	Schoharie Creek approx. 1 mi. n. of Reservoir.	Flying NW along Creek. Circled and disappeared as it flew toward Reservoir.
30	2:45 pm	2	Adult	Devasego Falls (zone 29) and backwater	S. of Falls. Observed 15-20 minutes, circling and soaring from tree level to higher altitudes and back down again.
2 Mar	11:55 am	1	Adult	W. shore near ledges area (zone 29)	Flying approx. 100' above water traveling north along west shore across from mouth of ledges area. Very close observation. Bird carried no prey.
9	11:50 am	1	Adult	W. shore at s. end of Reservoir (zone 33)	Observed perched in a large white pine. Observed through spotting scope from approx. 1 mile.
10	1:50 pm	1	Adult	E. shore near ledges area (zone 29)	Flushed from tree at mouth of ledges area. Flew out over Reservoir, circled a few times, and disappeared to the north.
12	10:00 am	1	Adult	W. shore at s. end of Reservoir (zone 33)	Flushed from tree near where observed on 9 March. Flew north and probably landed in a tree some 200 yards up the Reservoir.
18	1:00 pm	2	Adult	Hawk's Cove area (zones 4,5,6)	Observed from a helicopter. One was circling high over the Reservoir; the other apparently flew from a tree along the periphery of Cove.
19	12:30 pm	1	Adult	W. shore at s. end of Reservoir (zone 33)	Flew from tree near where observed on 9 and 12 March. Flew east into ledges area and disappeared.
26	4:00 pm	4	Adult	E. side of Reservoir parallel with gate house (zone 27)	Two pair observed circling over e. side of Reservoir approximately parallel with the gate house. No details given as to where birds flew. No apparent interaction between pairs. Birds assumed to be pairs because each contained a larger and a smaller bird.
28 May	11:30 am	1	Adult	Zone 29	Flushed from tree on e. side. Flew north up reservoir. Got only glimpse of bird.
9 Jun	10:30 am	1	Adult	Zone 6	Observed in flight. Dove into water; unable to tell if it caught anything. Landed in solitary white oak on Snyder Slide on bank.
10	8:45 am	1	Adult	Zone 6	Seen in half dead elm on Snyder Slide. Flushed from tree and disappeared north up reservoir.
14	9:45 am	1	Adult	Zone 29	Seen in flight with brown bullhead. Dropped fish, which was later recovered: 338 cm long, 554 g, talon wounds with fresh blood still flowing.

Table 115 - (Continued).

Date	Time	# Seen	Age	Location	Activity
14 Jun 76	4:20 pm	1	Adult	Zone 22, Zone 6	Flushed from tree in zone 22. Flew to Snyder Slide area of Zone 6 and disappeared.
15	8:45 am	1	Adult	Zone 6	Flushed from tree in Snyder Slide. Flew south down reservoir and disappeared.
17	8:20 am to 2:45 pm	1	Adult	Zone 6	Observed in white oak at Snyder Slide. Set up observation post. At 1:45 left tree and took short flight to another tree in Slide. Flushed and flew to another tree just north of Slide. Could not see so observation ended at 2:45.
17	5:10 pm	1	Adult	Zone 6	Flushed from Snyder Slide area. Swooped down and disappeared west of Slide, apparently landing in a tree. This indicates that eagle was probably in this one spot for at least 8½ hours.
21	12:50 pm	1	Adult	Zone 10	Seen in flight over cove just west of spillway. Disappeared to the northwest.
22	11:00 am	1	Adult	Zone 6	Flushed from white oak in Snyder Slide. Circled and flew north over ridge.
3 Jul	-	1	Adult	Zone 32	Seen to swoop down to take something from water. Too far away to see if successful. Disappeared north up reservoir.
4	-	1	Adult	Zone 34	Flushed from tree on west side of reservoir about 1½ miles south of gate house. Flew north up reservoir and disappeared.
6	7:05 am to 9:00 am	1	Adult	Zone 6	Seen to land in tall white pine about ¼ mile south of Snyder Slide. Watched until 9:00 am; bird still in tree. Came back about 9:50 am; bird gone. Apparently flushed by fisherman.
12	6:35 am to 8:07 am	1	Adult	Zone 6	Perched on white oak at Snyder Slide. At 7:34 left tree, circled, and dove (talons only in water). Apparently caught something but too far away to see what. Landed in white pine at n. end of Zone 24 at 7:39; not seen in tree. Left tree at 8:07 and disappeared north up reservoir.
13	7:10 am	1	Adult	Zone 6	Flushed from Snyder Slide area. Disappeared
13	9:00 am	1	Adult	Zone 6	Flushed from white oak in Snyder Slide area. Flew out over Hawk's Cove and circled and disappeared in northwest direction over low ridge. Flight was low.
16	7:50 am	1	Adult	Zone 23, Zone 6	Flushed from tree. Flew to Snyder Slide area.
26	11:20 am	1	Adult	Backwater	Seen in flight above backwater. Disappeared north up reservoir.
27	7:00 am	2	Adult	Zone 27, Zone 32	First bird flushed from tree at south end of zone 27. Flew north up reservoir and disappeared; approx. even with zone 4 when last seen. Second bird seen about 4 minutes later soaring over Hardenburgh Falls (zone 32). Flew overhead and disappeared north up reservoir in area where first bird was last seen. Two birds not seen together.
28	8:50 am to 9:05 am	1	Adult	Zone 29, Backwater	Flushed from tree in ledges area (zone 29). Flew south and landed in tree at south end of ledges. Flushed again and landed in large white pine on west side of backwater. Then flew s. on its own accord down backwater and disappeared.
30	7:30 am	1	Adult	Zone 6	Flushed from white oak in Snyder Slide.
1 Aug	-	1	Adult	Zone 35	Seen soaring over Pine Mt. Disappeared to the south.

Table 115- (Continued).

Date	Time	# Seen	Age	Location	Activity
2 Aug 76	10:00 am	1	Immature	Zone 32, Zone 30	First seen circling with two great blue heron low over mouth of Hardenburgh Falls Cove (Zone 32). No contact. Then landed in white pine in Zone 30. Flew again and disappeared into trees on Pine Mt. above Zone 34.
4	9:30 am	1	Adult	Backwater	Flying over backwater. Seen only briefly before it disappeared over ridge between backwater and Zone 32.
5	9:40 am to 10:00 am	1	Adult	Zone 21, Zone 6, Zone 4	Flushed from east shore at Zone 21. Flew toward Snyder Slide, circled, and dove (talons only in water). Couldn't see if successful. Landed in tree half way up Pine Mt. even with Zone 4. Observer left at 10:00.
6	9:30 am	1	Adult	Zone 7	Flushed from tree. Flew s. over ridge into Hawk's Cove area and disappeared.
6	10:30 am	1	Adult	Zone 23, Zone 6	Seen in flight near Zone 23. Probably flushed. Circled over reservoir, then flew north and landed in white oak at Snyder Slide. Made no observation after it landed.
7	4:00 pm	1	Adult	Zone 6	Seen in flight over Hawk's Cove. Flew s. and disappeared.
9	8:35 am	1	Adult	Zone 27	Flushed from dead elm at s. end of Zone 27. Flew into Zone 31. Flushed again from tree in Zone 31 at Hardenburgh Falls Cove.
16	12:00 pm	1	Adult	Backwater	Seen flying from trees on w. side of backwater. Soared for 1-2 minutes, then disappeared over ridge separating backwater and Zone 31.
2 Mar 77	-	2	Adult	Zone 49	Flying together and first seen flying about 50' above the backwater area in Zone 49. Gained altitude and flew over ridgeline at east side of backwater. Disappeared north along ridge. One had two primaries missing on left wing.
6 Jun	9:05 am	1	Immature	Zone 54	Flushed from mud flat. Flew to perch on west side.
8	9:45 am	1	Immature	Zone 54	Apparently feeding on something on mud flats. Flushed. Disappeared toward Zone 53.
8	11:33 am	1	Immature	Zone 54	Flushed from mud flat.
8	4:50 pm	1	Immature	Zone 54	Diving at mallard. Dove at least eight times during an 8-minute time period. Mallard remained on surface and squawked at eagle even when it came within a few feet of it.
8	5:13 pm	1	Immature	Zone 49	Flew over going south. About 50' up.
8	5:14 pm	1	Immature	Zone 54	Landed in Zone 54 mud flat. Ran around with wings raised, pecking at mud, and looking around. At 5:19 pm flew to trees on west side and landed.
14	9:45 am	1	Immature	Zone 54	As eagle flew over at height of about 50', 21 mallard, 3 pekin, and 1 Cayuga duck rushed off mud flat.
14	4:00 pm	1	Immature	Zone 5	Flew over.
15	11:00 am	1	Adult	Zone 6	Observed in flight.
3 Jul	7:30 am	1	Adult	Zone 35	Flushed from tree on west shore. Flew across toward Zone 27, then north up Reservoir. Observed twice more after 10:30 am high over east shore north of Zone 27. Observed by IA aquatic personnel.
5	8:30 am	1	Adult	Zone 6	Flushed from tree by IA aquatic personnel.
20	10:17 am	1	Adult	Zone 34	Flushed from trees. Flew south along edge of Reservoir, then west out of sight over woods.
15 Aug	8:30 am	1	Adult	Zone 6	Flushed from tree on Snyder Slide. Flew south and disappeared beyond Zone 2.

Table 115 - (Continued).

Date	Time	# Seen	Age	Location	Activity
18 Aug 77	11:30 am	1	Adult	Zone 27	Flew north at about 100', then gained altitude to about 1000', disappearing beyond Mt. Royal. One or more secondaries missing from left wing.
19	12:00 pm	1	Adult	Zone 32	Flushed from trees on east side. Flew north and east over Zone 34, then two thirds of the way up the hillside where it landed in a large white pine tree. One ore more secondaries missing from left wing.
23	9:15 am	1	Unknown	Zone 34	Flying south over center of Reservoir between Zones 6 and 21. Flew to Zone 24 and landed in tree at edge of woods. Light conditions prevented age class determination.
2 Sep	9:20 am	1	Adult	Zone 7	Observed for a brief period when it was flushed from a tree at Zone 7 and flew up over treeline and out of sight. Missing some secondaries on right wing.

Table 116. Observations of osprey at Lower and Upper B-G Reservoirs from 1 January 1974 through 31 December 1977.

Date	Time	# Seen	Location	Activity
2 May 74	10:30 am	1	Lower B-G Res.	Observed flying north up reservoir.
13 Jun	9:45 am	1	Upper B-G Res.	Observed circling over reservoir.
18 Jul	--	1	Lower B-G Res.	Observed flying over reservoir.
8 Aug	--	1	Lower B-G Res.	Observed circling at north end of reservoir.
14	11:00 am	1	Lower B-G Res.	Circling and hovering over water at cove just north of the boat ramp on the west side.
19	2:00 pm	1	Lower B-G Res.	Observed flying near Mine Kill Creek.
6 Sep	10:30 am	1	Lower B-G Res.	Observed to fly north over boat ramp then circle back south and disappear toward Mine Kill Creek cove.
13	9:30 am	1	Upper B-G Res.	Observed flying low along east shore of reservoir. Dove once but didn't catch anything.
17	10:45 am	1	Lower B-G Res.	Observed perched in a tree along west shore in cove just north of boat ramp. Observed with a fish when it flew.
25	10:20 am	1	Lower B-G Res.	Observed to dive in cove just north of boat ramp along west shore. A great blue heron was observed flying up towards the osprey. Osprey slowly circling away.
27	12:15 pm	1	Lower B-G Res.	Flew low over water headed south.
30	11:00 am	1	Lower B-G Res.	Flying high over water headed south along west shore. Giving call as it flew.
1 Oct	12:15 pm	1	Lower B-G Res.	Observed to dive twice in middle of reservoir near dam. Dives were about 20 seconds apart. Caught a fish on second dive then flew south toward Mine Kill Creek cove.
3	4:15 pm	1	Lower B-G Res.	Flying high over water in a northerly direction along the west shore; then turned south and disappeared near the Mine Kill Creek cove. Frequently heard uttering its call.
9 May 75	9:35 am	1	N. end of Lower B-G Res.	Seen flying low over water.
22 Aug	9:40 am	1	N. one-half of Lower B-G Res.	Circling over reservoir.
28	9:50 am	1	Just n. of boat ramp of Lower B-G Res. along west shore.	Observed perched in a tree and in flight.
31	2:00 pm	1	S. one-half of Lower B-G Res.	Observed in flight sout down reservoir.
1 Sep	9:05 am	1	Schoharie Creek just n. of Lower B-G Res.	Standing in creek preening and bathing.
2	10:45 am	1	Mid Lower B-G Res. between boat ramp on w. side and power house on e. side.	Seen to dive into the water and capture a large fish (possibly a sucker). Flight of osprey obviously labored while carrying fish. Carried fish to w. shore (about ½ mi. s. of boat ramp), landed in a tree and began feeding.
29	8:15 am	1	Along s. dike of Upper B-G Res.	Flying low over reservoir along s. dike.
31 Mar 76	9:00 am	2	N. one-half of Lower B-G Res.	Flying and circling over reservoir.
21 Apr	5:55 pm	1	Along e. shore of Upper B-G Res.	Flushed from a tree. Was carrying a fish.

Table 116 - (Continued).

Date	Time	# Seen	Location	Activity
20 Aug 76	12:30 pm	1	Along e. shore of Upper B-G Res.	Seen to dive twice; the first was unsuccessful, the second was successful. Couldn't fly after second dive. Started swimming. Swam for about 5 minutes until it reached e. shore. Was dragging a fish. Fish appeared to be a carp and was about the length of the bird's wing from the elbow to the tip. Observed feeding for about 45 minutes.
26	—	1	S. end of Lower B-G Res.	Seen in flight at extreme s. end of Lower B-G Res.
30	10:00 am	1	S. one-half of Lower B-G Res.	Circling and waiting over reservoir from 200 ft. down to 20 or 30 ft. above water. Dove once, unsuccessfully.
10 Sep	9:15 am	1	Mid res. between boat ramp and power house of Lower B-G Res.	Seen to circle in this area a few times, then fly away.
20	11:45 am	1	Lower B-G Res. near boat ramp.	Seen to fly from cove just n. of boat ramp and disappear s. down reservoir.
21	2:00 pm	1	N. dike of Upper B-G Res.	Seen flying along dike.
23	10:30 am	1	W. dike of Upper B-G Res.	Seen flying low over w. dike.
1 Oct	10:20 am	1	S. one-half of Lower B-G Res.	Flying fairly low s. down reservoir.
5	5:10 pm	1	SW corner of Upper B-G Res.	Circling over SW section of reservoir, then flew s. and disappeared.
10 May 77	1:30 pm	1	Just n. of Upper B-G Res.	Flying over fields just n. of reservoir.
9 Aug	10:00 am	1	S. end of Lower B-G Res.	Flying low over water.
16	10:00 am	1	Mine Kill Creek area of Lower B-G Res.	Flushed from tree along w. shore of reservoir near creek.
25	6:20 to 6:25 pm	1	N. dike of Upper B-G Res.	Flying low from e. to w. at an elevation of about 600 ft. Flew w. and disappeared over Schoharie Valley. Was following a bald eagle.
30	9:05 to 10:00 am	1	Lower B-G Res.	Flushed from tree along w. shore s. of boat ramp and flew to e. side landing in dead elm. Flushed from elm at 9:45 am and flaw n. up reservoir. At 10:00 am seen flying s. down center of reservoir in front of power house carrying a large fish.
6 Sep	5:20 pm	2	SE shore of Upper B-G Res.	Seen circling over cove along e. shore of reservoir.
20	11:50 am	1	Lower B-G Res.	Circling low over water at NE corner of reservoir.
23	11:15 am	1	Upper B-G Res.	Observed sitting on top of an electrical pole at SW corner of reservoir.
6 Oct	7:55 am	1	Near boat ramp of Lower B-G Res.	Observed to dive and capture a fish near boat ramp then flew to a tree on west shore south of boat ramp and comsumed fish.
12	9:00 am	1	Along east shore of Upper B-G Res.	Flushed from a tree near north gate and flew along east shore. Was carrying a fish.

Table 117. Observations of osprey at Schoharie Reservoir from 16 July 1975 through 31 December 1977.

Date	Time	# Seen	Location	Activity
29 Aug 75	10:30 am	1	Zone 35	Seen flying s. down reservoir. Initially observed at Zone 35. Flew s. and disappeared toward Zone 29.
30	am	1	N. one-half of res.	Seen flying and circling over n. one-half of reservoir throughout morning. Seen in area with bald eagle. Dove once but was unsuccessful.
10 Sep	3:00 pm	1	Zone 29	Circling over Zone 29, then flew up reservoir to Schoharie Creek.
14	12:00 pm 5:45 pm	1	Zones 4, 5, 6, & 29	Observed circling over water in Zones 4, 5 and 6 at 12:00 pm, and Zone 29 at 5:45 pm.
22	9:15 am	1	Zone 32	Perched in tree on w. side. Flushed and was seen carrying prey.
25	10:00 am	1	Zones 1 & 35	Observed circling over reservoir.
26	9:30 am	1	Zones 1 & 26	Soared across reservoir from w. to e. and disappeared.
29	10:55 am	1	Zone 1	Seen flying n. up reservoir from Zone 1.
1 Oct	6:30 pm	1	Zone 29	Seen flying n. up reservoir from Zone 29.
2	am	1		Seen flying n. along w. side of reservoir.
8	am and 6:45 pm	1	Zones 4, 5 & 6	One observed circling n. up reservoir in the morning and observed again circling over water up Zones 4, 5 and 6.
10	5:30 pm	1	Zone 10	Flying high over reservoir. Disappeared to the west.
19 Apr	4:30 pm	2	Backwater	Seen flying low and circling over backwater. One landed in a tree in Zone 35.
20 Apr 76	10:00 am 12:00 pm	3	Backwater & Zone 32	One observed flying over the backwater at 10:00 am and two circling over water of Zone 32 at 12:00 pm.
22	11:00 am	4	Backwater	One flushed from a tree in Zone 38. Left carrying prey. One flushed from a tree in Zone 40. Also left carrying prey. Three observed (assume one was seen earlier) in Zones 46, 47 and 48. Two flushed with prey and the third observed feeding as it perched near the top of a dead white pine.
23	10:30 am	1	Backwater	Flushed carrying prey from tree in Zone 38. Later seen flying in Zones 53 and 54.
30		2	Backwater	One flushed from tree in Zone 38. One flying low over water in Zones 53 and 54.
4 May	am	2	Backwater	One flushed from tree in Zone 38 at 9:25 am. Did not have prey. At 12:40 pm osprey in same tree feeding. Observed to fly low over extreme south end of reservoir and Schoharie Creek.
6	9:30 am	1	Backwater	Flushed from tree in Zone 53.
4 Jun	10:30 am	1	Zone 16	Flushed from tree on island. Flew n. up reservoir.
2 Sep	11:00 am	1	Zone 32	Circling over water.
3	am	1	Zone 32	Circling over water. Dove once, unsuccessfully.
9	10:00 am	1	Zone 32	Circled once over Zone 32, then flew se toward backwater.
14	9:30 am	1	Zones 31 & 32	Observed soaring over Zone 31 at 9:30 am. At 10:30 am seen flying n. up reservoir from Zone 32. At 11:08 am seen flying s. down reservoir near Zone 31. Was carrying prey.
15	10:15 am	1	Zones 1, 2 & 27	Observed flying n. up reservoir from Zone 1 to Zone 2 at 10:15 am. At 10:30 seen flying s. at Zone 27.
16	am	1	Zone 32	Flushed from tree. Flew to Zone 29.
20	1:30 pm	2	Zone 35	Soaring over reservoir between Zones 35 and 27. Moving s. down reservoir.
24	10:00 am 10:30 am	2	Zones 4, 5, 6, 11, & 12	One observed flying over waters of Zones 4, 5 and 6 at 10:00 am giving call. Cooper's hawk diving at osprey. One observed flying over Zones 11 and 12 at 10:30 am.
28	am	1	Zones 31 & 32	Circling high over the water.
1 Oct	10:00 am	1	Zones 32 & 34	Flying s. along w. shoreline.

Table 117 - (Continued).

Date	Time	# Seen	Location	Activity
4 Oct 76	10:15 am 10:45 am	2	Zones 8 & 34 & Backwater	One observed flying n. up reservoir from zone 8, then turned s. carrying prey; was later seen near Zone 34 carrying prey. One observed circling over backwater at 10:45 am.
21 Apr 77	10:00 am	1	Backwater	Circling over backwater.
22	1:30 pm	1	Backwater	Seen flying over Zones 52 and 53. Landed in tree in Zone 54.
25	11:20 am 1:50 pm	2	Zones 3, 4, 5, 22, 23, & Backwater	Observed at 11:20 am flying over Zones 3, 4, 5, 22, and 23 and calling. One observed at backwater perched in trees in Zones 38 and 52. Also circling over backwater.
26	10:00 am 3:00 pm	2	Backwater & Zone 28	One flushed from tree in Zone 52 of the backwater at 10:00 am. Also seen flying in Zone 46. Could have been two different birds but only one seen at a time. One heard giving call as it flew over Zone 28 at 3:00 pm.
29	11:00 am 12:30 pm	3	Zone 35 & Backwater	At 11:00 am, two seen flying over Zone 35. At 12:30 pm, one observed flying over most sections of backwater.
2 May	11:00 am	1	Backwater	Seen flying in most sections of backwater.
4	12:50 pm	1	Backwater	Flushed twice from same tree in Zone 38 and once in Zone 52. Could have been two different birds but only one seen at a time.
5	10:00 am	2	Backwater	One flushed from a tree in Zone 38 at 10:00 am. One observed flying over backwater carrying a fish at 10:50 am; thia bird also observed perched in a tree at Zone 53.
26 Aug	9:15 am	1	Between Zones 1 & 26	Flying n. up reservoir.
9 Sep	9:30 am	2	Zone 28	Seen flying low over Zone 28 mud flats. One seen later circling low over reservoir between Zones 28 and 34. Landed in a tree along w. shore of Zone 34.
12	9:55 am	1	Zones 1, 35, & 34	Flying s. along w. shore of reservoir.
20	8:30 am 2:00 pm	3	Zones 34 and 5.	One flushed from tree of Zone 34 and flew out of sight over Zone 32. Two observed flying high over reservoir in the vicinity of Zone 5.
20	4:00 pm	1	Backwater.	Observed to fly south then north across backwater.
21	3:40 pm	1	Backwater.	Observed to fly south over backwater.
23	7:55 am 9:25 am	1	Backwater.	Observed flying over Zone 49 at 7:55; landed in a tree on the east side of Zone 39 at 9:25. Heard calling the second time.
26	3:45 pm to 4:00 pm	1	Zones 26 and 27.	Observed to fly back and forth over these zones a number of times.
6 Oct	11:10 am	1	Zone 26.	Flushed from a tree along east shore. Flew south down the reservoir calling frequently.

Table 118. Number of tracks and trails of mammals observed along a 4.5-mile route on Dog Hill during the winter of 1977-78.

Species	Date													Total
	28 Nov	6 Dec	13 Dec	19 Dec	3 Jan	23 Jan	31 Jan	13 Feb	28 Feb	7 Mar	13 Mar	20 Mar	27 Mar	
Snowshoe hare	16	53	61	13	-	221	217	71	128	97	15	139	53	1084
White-tailed deer	74	89	59	14	38	77	36	10	1	4	6	0	5	413
Cottontail rabbit	0	5	29	10	-	21	132	13	40	10	2	41	4	307
Gray squirrel	2	0	19	16	0	0	0	0	4	0	14	17	0	72
Red squirrel	6	0	2	7	0	0	5	0	2	0	1	4	0	27
Unidentified squirrel	0	21	1	0	3	10	29	8	0	55	0	6	15	148
Unidentified small mammal	4	2	1	0	16	4	24	1	2	0	0	2	10	66
Dog	0	0	0	0	13	2*	9	0	0	2	3	1	21	51
Weasel spp.	5	0	0	0	1	0	5	1	0	1	0	2	0	15
Red fox	0	0	0	0	0	0	8	0	0	2	1	2	0	13
Skunk	0	0	0	0	0	0	0	0	0	0	0	5	6	11
Porcupine	2	1	0	0	0	0	0	0	1	1	0	0	0	5
Chipmunk	0	0	0	0	0	0	0	0	0	0	0	4	0	4
Bobcat	0	0	0	0	0	0	0	0	0	1	0	1	0	2
Racoon	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Gray fox	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Woodchuck	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	109	171	172	60	71	335	465	104	178	173	42	224	118	2222

* In addition, numerous uncounted tracks observed along Oakley Road and Stanley Slater Road.

Table 119. Number and percent of white-tailed deer tracks and trails observed in four plant communities along a 4-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community									
	Second Growth Hardwood Forest (37%)		Hemlock Forest (15%)		Hemlock-Red Maple Swamp Forest (9%)		Open Meadows and Fields (39%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%
8 Nov 76	26	37	4	6	15	21	25	26	70	100
11	25	25	10	10	23	23	41	41	99	100
30	26	33	12	15	33	41	9	11	80	100
23 Dec	7	16	4	9	11	26	21	49	43	100
5 Jan 77	9	13	9	13	14	20	39	55	71	100
20	41	27	24	16	40	26	48	31	153	100
2 Feb	20	29	10	14	27	39	12	17	69	100
9	37	20	44	24	51	28	51	28	183	100
16	35	26	30	22	36	26	36	26	137	100
22	20	50	4	10	8	20	8	20	40	100
21 Mar	5	23	5	23	7	32	5	23	22	100
Total	251	26	156	16	265	27	295	31	967	100

Table 120. Number and percent of white-tailed deer tracks and trails per mile of plant community type in four plant communities along a 4-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community									
	Second Growth Hardwood Forest		Hemlock Forest		Hemlock-Red Maple Swamp Forest		Open Meadows and Fields		Total	
	#	%	#	%	#	%	#	%	#	%
8 Nov 76	18	22	7	8	42	51	16	19	83	100
11	17	14	16	13	64	52	27	22	124	100
30	18	13	20	15	92	68	6	4	136	100
23 Dec	5	9	7	12	31	54	14	25	57	100
5 Jan 77	6	7	15	18	39	46	25	29	85	100
20	28	13	39	19	111	53	31	15	209	100
2 Feb	14	12	16	14	75	66	8	7	113	100
9	25	9	72	26	142	52	33	12	272	100
16	24	12	49	25	100	51	23	12	196	100
22	14	29	7	15	22	46	5	10	48	100
21 Mar	3	9	8	24	19	58	3	9	33	100
Total	172	13	256	19	737	54	191	14	1356	100

Table 121. Number and percent of white-tailed deer tracks and trails observed in five plant communities along a 4.5-mile route on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest (36%)		Hemlock Forest (15%)		White Pine Forest (7%)		Hemlock-Red Maple Swamp Forest (8%)		Open Meadows and Fields (34%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	33	45	18	24	5	7	3	4	15	20	74	100
6 Dec	3	3	7	8	5	6	24	27	50	56	89	100
13	9	15	21	36	6	10	5	9	18	31	59	100
19*	7	50	4	29	0	0	0	0	3	21	14	100
3 Jan 78**	6	16	11	29	0	0	4	11	17	45	38	100
23	13	17	25	33	5	7	16	21	18	23	77	100
31	4	6	7	19	2	11	11	31	12	33	36	100
13 Feb	0	0	0	0	0	0	0	0	10	100	10	100
28	0	0	0	0	0	0	0	0	1	100	1	100
7 Mar	0	0	1	25	1	25	1	25	1	25	4	100
13	2	33	0	0	0	0	2	33	2	33	6	100
20	0	0	0	0	0	0	0	0	0	0	0	100
27	0	0	2	40	0	0	0	0	3	60	5	100
Total	77	19	96	23	24	6	66	16	150	36	413	100

* Zone 13 not surveyed because of standing water.

** Zones 17A, 17B, and 17C not surveyed.

Table 122. Number and percent of white-tailed deer tracks and trails per mile of plant community type in five plant communities along a 4.5-mile route on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest		Hemlock Forest		White Pine Forest		Hemlock-Red Maple Swamp Forest		Open Meadows and Fields		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	20	25	26	33	16	20	8	10	10	13	80	100
6 Dec	2	2	10	8	16	13	67	52	33	26	128	100
13	6	7	31	38	19	23	14	17	12	15	82	100
19*	4	33	6	50	0	0	0	0	2	17	12	100
3 Jan 78**	4	10	16	38	0	0	11	26	11	26	42	100
23	8	7	37	32	16	14	44	38	12	10	117	100
31	2	4	10	18	6	11	31	54	8	14	57	100
13 Feb	0	0	0	0	0	0	0	0	7	100	7	100
28	0	0	0	0	0	0	0	0	1	100	1	100
7 Mar	0	0	1	13	3	38	3	38	1	13	8	100
13	1	13	0	0	0	0	6	75	1	13	8	100
20	0	0	0	0	0	0	0	0	0	0	0	100
27	0	0	3	60	0	0	0	0	2	40	5	100
Total	47	9	140	26	76	14	184	34	100	18	547	100

* Zone 13 not surveyed because of standing water.

** Zones 17A, 17B, and 17C not surveyed.

Table 123. List of plant species browsed by white-tailed deer at the Prattsville study site during the winter of 1977-78. Preference designation based on DEC criterion (unpublished DEC document).

Common Name	Scientific Name
Preferred or Best Liked	
apple	*Pyrus malus*
striped maple	*Acer pennsylvanicum*
staghorn sumac	*Rhus typhina*
red maple	*Acer rubrum*
basswood	*Tilia americana*
Second Choice	
hemlock	*Tsuga canadensis*
red osier dogwood	*Cornus stolonifera*
black willow	*Salix nigra*
Readily Eaten	
white ash	*Fraxinus americana*
sugar maple	*Acer saccharum*
red oak	*Quercus borealis*
hickory	*Carya* spp.
wild black cherry	*Prunus serotina*
witch-hazel	*Hamamelis virginiana*
juneberry	*Amelanchier* spp.
Starvation or Poor Food	
Scotch pine	*Pinus sylvestris*
beech	*Fagus grandifolia*
quaking aspen	*Populus tremuloides*
cottonwood	*Populus deltoides*
blackberry	*Rubus allegheniensis*
white pine	*Pinus strobus*
red pine	*Pinus resinosa*
paper birch	*Betula papyrifera*
hop hornbeam	*Ostrya virginiana*
blue beech	*Carpinus caroliniana*
red cedar	*Juniperus virginiana*
black locust	*Robinia pseudo-acacia*
speckled alder	*Alnus rugosa*
Norway spruce	*Picea abies*
Species Not Listed by DEC	
sycamore	*Platanus occidentalis*
box elder	*Acer nugundo*

Table 124. Dead deer examined near Schoharie Reservoir and on Dog Hill at the Prattsville study site during spring 1978.

Deer #	Age	Sex	% Fat in Bone Marrow	Cause of Death	Time of Death	Condition	Location
1	Fawn	Female	50-75	Unknown	Probably early winter	More than 50% eaten and decomposed	In woods east of Zone 38.
2	Fawn	Female	10-50	Unknown	Mid-March	Shot in head, fed upon by dogs	Along road on east side of reservoir adjacent to Zone 29
3	4 years	Female	70	Fell off cliff	Late fall or early winter	Most of flesh off bones	In woods east of Zone 28 near road along east side of reservoir.
4	Fawn	Male	10-50	Unknown	February	100% intact	Near road along east side of reservoir adjacent to Zone 27.
5	Fawn	Female	15-20	Fell off Gilboa Dam	16 March	100% intact	Below Gilboa Dam.
6	Fawn	Female	1.5	Fell off Gilboa Dam	Between 3 and 17 March	100% intact	Below Gilboa Dam.
7	4 years	Female	90	Fell off Gilboa Dam	Between 12 February and 2 March	100% intact	Below Gilboa Dam.
8	Fawn	Male	70	Fell off Gilboa Dam	Between 12 February and 2 March	100% intact, legs broken	Below Gilboa Dam.
9	Fawn	Male	1.5	Fell off Gilboa Dam	Between 2 and 20 March	100% intact, legs broken	Below Gilboa Dam.
10	Fawn	Female	1.5	Fell off Gilboa Dam	Between 12 February and 2 March	100% intact	Below Gilboa Dam.
11	Fawn	Female	1.5	Unknown (probably harrassed by dogs)	Early March	Carcass almost completely eaten	On ice of reservoir about 80 yards from shore in Zone 7.
12	Fawn	Male	1.5	Unknown (probably harrassed by dogs)	Early March	Carcass almost completely eaten	On ice of reservoir about 30 yards from shore in Zone 9.
13	Fawn	Female	1.5	Unknown	Mid-winter	Partially eaten and decomposed	In Johnson Hollow Brook near Loeffler Pool.
14	Fawn	Male	1.5	Unknown (probably harrassed by dogs)	First week in April	100% intact	About 25 yards from shore in Zone 15.
15	Fawn	Female	70	Unknown	Mid-winter	Partially eaten	In woods east of Zone 15.
16	6 years	Female	70	Unknown (probably harrassed by dogs)	Late winter	Partially eaten	In woods east of Zone 17.
17	Fawn	Female	1.5	Starvation	Late winter	100% intact	In woods east of Zone 17.
18	Fawn	Female	1.5	Drowned	Late winter	Partially eaten	In reservoir at edge of Zone 18.
19	-	-	-	Unknown (probably harrassed and chased onto ice by dogs)	March	Partially eaten	About 80 yards from shore in Zone 21.
	(could not make a close inspection)						
20	Fawn	Female	1.5	Unknown (probably harrassed by dogs)	Near end of March	Rump, stomach, front legs eaten	In woods east of Zone 22.
21	8 years	Female	50	Unknown	Mid-winter	Partially eaten, quite rotten	Floating at edge of Zone 25.
22	1½-2 years	Male	100	Unknown (probably harrassed by dogs)	Mid-winter	Right front leg missing, rump partially eaten, ears chewed on	Floating at edge of Zone 28.

Table 124 - (Continued).

Deer #	Age	Sex	% Fat in Bone Marrow	Cause of Death	Time of Death	Condition	Location
23	Fawn	Female	50	Unknown	Mid-winter	Carcass almost completely eaten	In woods east of Zone 27.
24	Fawn	Male	50	Unknown	Mid-winter	Carcass almost completely eaten	East of Zone 39.
25	Fawn	Female	1.5	Probably hit by car	First half of April	Hind quarters partially eaten	About 20 feet from road east of Zone 39.
26	Fawn	Male	1.5	Starvation	Second week in April	100% intact	In woods east of Zone 39.
27	Fawn	Male	55	Unknown	Unknown	Carcass almost completely eaten	West of Zone 8.
28	2 years	Female	1.5	Caught in fence	Mid-April	Hind quarters partially eaten	West of Zone 9.
29	6 years	Female	10	Unknown	Mid-winter	About 50% eaten	On bank of Schoharie Creek north of Gilboa Dam.
30	6 years	Female	55	Unknown	Late winter	100% intact	North side of old road west of Gilboa Dam.
31	Fawn	Male	10	Unknown	Mid-winter	Carcass almost completely eaten	West of Zone 10.
32	Fawn	Male	10	Unknown	Unknown	Carcass almost completely eaten	Near top of bank west of Schoharie Creek north of Gilboa Dam.
33	3 years	Female	55	Starvation	March	Hind quarters partially eaten	North side of road west of Gilboa Dam.
34	Fawn	Female	10	Starvation	Late winter	100% intact	Near top of bank west of Schoharie Creek north of Gilboa Dam.
35	Fawn	Female	10	Starvation	Late winter	Side partially eaten	Near top of bank west of Schoharie Creek north of Gilboa Dam.
36	Fawn	Female	10	Starvation	Late winter	100% intact	Near top of bank west of Schoharie Creek north of Gilboa Dam.
37	Fawn	Female	Unknown	Caught in fence	Mid-April	100% intact	Near top of bank west of Schoharie Creek north of Gilboa Dam.
38	Fawn	Male	1.5	Unknown	Mid-winter	Carcass almost completely eaten	Dog Hill, about 100 yards southeast of section 9-2 of deer track survey route.
39	Fawn	Female	1.5	Unknown	Mid-winter	Hind quarter partially eaten	Dog Hill, lower west slope along proposed Haul Road.
40	2 years	Female	85	Shot in side	First week in April	100% intact except for bullet hole	In water in Zone 6.
41	Fawn	Male	1.5	Unknown	Unknown	All flesh gone	In water in Zone 7.
42	2 years	Male	85	Probably hit by car	Unknown	Intact; 1 antler missing, 1 broken	In water in Zone 14.
43	Fawn	Female	1.5	Starvation	Unknown	Partially eaten	In water in Zone 23.
44	Fawn	Female	1.5	Starvation	Late winter	Partially eaten	Between Zones 37 and 55.
45	Fawn	Male	90	Unknown	Unknown	90% of flesh gone from carcass	In water at edge of Zone 35.
46	Fawn	Female	1.5	Unknown	Unknown	100% intact	In water at edge of Zone 35.
47	Fawn	Male	1.5	Unknown	Unknown	50% of flesh eaten	In water at edge of Zone 35.
48	1½ years	Female	Unknown	Hunter kill	Unknown	Pelt and head only remaining	In water at edge of Zone 35.
49	Fawn	Unknown	Unknown	Hunter kill	Unknown	Pelt and legs only remaining	Between Zones 37 and 55.

Table 125. Winter severity points by month for the winters of 1956-57 through 1977-78. Weather data recorded by the National Weather Service at Cobleskill, New York.

Year	Month							Severity Ranking
	Nov	Dec	Jan	Feb	Mar	Apr	Total	
1956-57	57	239	3220	153	-39	-38	3592	19
1957-58	-31	41	3415	10408	605	-144	14294	4
1958-59	-30	1051	1308	350	911	-176	3414	21
1959-60	6	468	2800	2089	4436	-161	9638	11
1960-61	-131	905	5260	4308	862	-55	11149	8
1961-62	-4	875	1138	1860	1240	-78	5031	17
1962-63	29	1128	3818	5773	1544	-154	12138	7
1963-64	-137	2577	4228	5832	346	-109	12737	6
1964-65	-14	721	2422	1541	284	-91	4863	18
1965-66	-21	84	3412	3694	310	-86	7393	14
1966-67	-66	1345	1518	1853	1446	-133	5963	15
1967-68	107	544	6455	2577	379	-211	9851	10
1968-69	1	2413	3716	4752	2418	-181	13119	5
1969-70	29	4693	19258	5093	1785	-28	30830	1
1970-71	-52	3186	7468	4584	3391	33	18610	3
1971-72	161	688	1262	3821	1941	197	8070	12
1972-73	786	1324	614	1024	-169	-50	3529	20
1973-74	-95	1818	2304	1150	99	-62	5214	16
1974-75	30	906	1082	1179	132	-15	3314	22
1975-76	-79	978	5125	1651	156	-87	7744	13
1976-77	8	768	5519	3143	819	-102	10155	9
1977-78	165	2479	6201	8772	3949	-52	21514	2

Table 126. Number of winter points and snow depth for the winters of 1956-57 through 1977-78. Weather data recorded by the National Weather Service at Cobleskill, New York.

Year	Number of Winter Points	Number of days with 15 or more inches of snow on ground	Number of consecutive days with 15 or more inches of snow on ground	Number of days with 10 or more inches of snow on ground	Number of consecutive days with 10 or more inches of snow on ground
1956-57	3592	0	0	1	1
1957-58	14294	57	43	71	71
1958-59	3414	3	3	7	5
1959-60	9638	27	24	65	40
1960-61	11149	15	15	41	31
1961-62	5031	0	0	12	6
1962-63	12138	41	26	60	59
1963-64	12737	25	18	53	28
1964-65	4863	0	0	9	4
1965-66	7393	17	12	26	18
1966-67	5963	3	2	21	14
1967-68	9851	0	0	23	23
1968-69	13119	37	36	70	44
1969-70	30830	62	51	93	93
1970-71	18610	58	29	103	100
1971-72	8070	13	10	24	12
1972-73	3529	0	0	8	2
1973-74	5214	0	0	13	6
1974-75	3314	0	0	0	0
1975-76	7744	0	0	24	15
1976-77	10155	8	4	40	18
1977-78	21514	55	55	82	66

Table 127. Number and percent of snowshoe hare tracks and trails in four plant communities along a 4.0-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community									
	Second Growth Hardwood Forest (37%)		Conifer Forest (15%)		Hemlock-Red Maple Swamp Forest (9%)		Open Meadows and Fields (39%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%
5 Jan 1977	21	56.8	2	5.4	8	21.6	6	16.2	37	100.0
20	17	37.8	19	42.2	8	17.8	1	2.2	45	100.0
9 Feb	8	36.4	7	31.8	5	22.7	2	9.1	22	100.0
16	8	36.4	7	31.8	3	13.6	4	18.2	22	100.0
Total	54	42.9	35	27.8	24	19.1	13	10.3	126	100.0

Table 128. Estimated number and percent of snowshoe hare tracks and trails per mile of plant community type in four plant communities along a 4.0-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community									
	Second Growth Hardwood Forest (37%)		Conifer Forest (15%)		Hemlock-Red Maple Swamp Forest (9%)		Open Meadows and Fields (39%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%
5 Jan 1977	14	32.6	3	7.0	22	51.1	4	9.3	43	100.0
20	11	16.7	32	48.5	22	33.3	1	1.5	66	100.0
9 Feb	5	15.6	12	37.5	14	43.8	1	3.1	32	100.0
16	5	17.9	12	42.9	8	28.6	3	10.7	28	100.0
Total	36	21.3	58	34.3	67	39.6	8	4.7	169	100.0

Table 129. Number and percent of snowshoe hare tracks and trails in five plant communities along a 4.5-mile route on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest (36%)		Conifer Forest (15%)		White Pine Forest (7%)		Hemlock-Red Maple Swamp Forest (8%)		Open Meadows and Fields (34%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	0	0	2	13	14	88	0	0	0	0	16	100
6 Dec	7	13	3	4	36	68	4	8	4	8	53	100
13	13	21	2	3	29	48	13	21	4	7	61	100
19*	5	39	2	15	6	46	0	0	0	0	13	100
23 Jan 78	38	17	16	7	86	39	50	23	31	14	221	100
31	51	24	39	18	91	42	14	7	22	10	217	100
13 Feb	15	21	9	13	20	28	23	32	4	6	71	100
28	23	18	16	13	51	40	19	15	19	15	128	100
7 Mar	18	19	19	20	43	44	8	8	9	9	97	100
13	2	13	6	40	7	47	0	0	0	0	15	100
20	15	11	47	34	58	42	11	8	8	6	139	100
27	18	34	16	30	11	21	4	8	4	8	53	100
Total	205	19	176	16	452	42	146	13	105	10	1084	100

* Zone 13 note surveyed because of standing water.

Table 130. Estimated number and percent of snowshoe hare tracks and trails per mile of plant community type in five plant communities on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest (36%)		Conifer Forest (15%)		White Pine Forest (7%)		Hemlock-Red Maple Swamp Forest (8%)		Open Meadows and Fields (34%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	0	0	3	6	44	94	0	0	0	0	47	100
6 Dec	4	3	4	3	113	84	11	8	3	2	135	100
13	8	6	3	2	91	65	36	26	3	2	141	100
19*	3	12	3	12	19	76	0	0	0	0	25	100
23 Jan 78	23	5	24	5	269	57	139	29	20	4	475	100
31	31	7	57	13	284	67	39	9	14	3	425	100
13 Feb	9	6	13	9	63	41	64	42	3	2	152	100
28	14	5	24	9	159	61	53	20	12	5	262	100
7 Mar	11	5	28	14	134	67	22	11	6	3	201	100
13	1	3	9	28	22	69	0	0	0	0	32	100
20	9	3	69	23	181	61	31	11	5	2	295	100
27	11	13	24	29	34	41	11	13	3	4	83	100
Total	124	5	261	11	1413	62	406	18	69	3	2273	100

* Zone 13 note surveyed because of standing water.

Table 131. Number and percent of cottontail rabbit tracks and trails in four plant communities along a 4.0-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community: Second Growth Hardwood Forest (37%)		Conifer Forest (15%)		Hemlock-Red Maple Swamp Forest (9%)		Open Meadows and Fields (39%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%
5 Jan 1977	11	33.3	2	6.1	0	0.0	20	60.6	33	100.0
20	2	13.3	0	0.0	0	0.0	13	86.7	15	100.0
9 Feb	3	15.0	1	5.0	0	0.0	16	80.0	20	100.0
16	5	41.7	0	0.0	0	0.0	7	58.3	12	100.0
Total	21	26.3	3	3.8	0	0.0	56	70.0	80	100.0

Table 132. Estimated number and percent of cottontail rabbit tracks and trails per mile of plant community type in four plant communities along a 4.0-mile route on Dog Hill during the winter of 1976-77.

Date	Plant Community: Second Growth Hardwood Forest (37%)		Conifer Forest (15%)		Hemlock-Red Maple Swamp Forest (9%)		Open Meadows and Fields (39%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%
5 Jan 1977	7	30.4	3	13.0	0	0.0	13	56.5	23	100.0
20	1	11.1	0	0.0	0	0.0	8	88.9	9	100.0
9 Feb	2	14.3	2	14.3	0	0.0	10	71.4	14	100.0
16	3	42.9	0	0.0	0	0.0	4	57.1	7	100.0
Total	13	24.5	5	9.4	0	0.0	35	66.0	53	100.0

Table 133. Number and percent of cottontail rabbit tracks and trails in five plant communities along a 4.5-mile route on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest (36%)		Conifer Forest (15%)		White Pine Forest (7%)		Hemlock-Red Maple Swamp Forest (8%)		Open Meadows and Fields (34%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	0	0	0	0	0	0	0	0	0	0	0	100
6 Dec	0	0	0	0	5	100	0	0	0	0	5	100
13	2	7	1	4	3	10	0	0	23	79	29	100
19*	1	10	1	10	4	40	0	0	4	40	10	100
23 Jan 78	0	0	0	0	1	5	0	0	20	95	21	100
31	47	36	1	1	4	3	3	2	77	58	132	100
13 Feb	4	31	1	8	3	23	0	0	5	39	13	100
28	12	30	4	10	3	8	0	0	21	53	40	100
7 Mar	3	30	0	0	0	0	0	0	7	70	10	100
13	1	50	0	0	0	0	0	0	1	50	2	100
20	9	22	8	20	6	15	0	0	18	44	41	100
27	1	25	0	0	2	50	0	0	1	25	4	100
Total	80	26	16	5	31	10	3	1	177	58	307	100

* Zone 13 not sampled because of standing water.

Table 134. Estimated number and percent of cottontail rabbit tracks and trails per mile of plant community type in five plant communities on Dog Hill during the winter of 1977-78.

Date	Plant Community											
	Second Growth Hardwood Forest (36%)		Conifer Forest (15%)		White Pine Forest (7%)		Hemlock-Red Maple Swamp Forest (8%)		Open Meadows and Fields (34%)		Total (100%)	
	#	%	#	%	#	%	#	%	#	%	#	%
28 Nov 77*	0	0	0	0	0	0	0	0	0	0	0	100
6 Dec	0	0	0	0	16	100	0	0	0	0	16	100
13	1	4	1	4	9	35	0	0	15	58	26	100
19*	1	6	1	6	13	72	0	0	3	17	18	100
23 Jan 78	0	0	0	0	3	19	0	0	13	81	16	100
31	29	29	1	1	13	13	8	8	50	50	101	100
13 Feb	2	13	1	7	9	60	0	0	3	20	15	100
28	7	19	6	17	9	25	0	0	14	39	36	100
7 Mar	2	29	0	0	0	0	0	0	5	71	7	100
13	1	50	0	0	0	0	0	0	1	50	2	100
20	6	12	12	24	19	39	0	0	12	24	49	100
27	1	13	0	0	6	75	0	0	1	13	8	100
Total	50	17	22	7	97	33	8	3	117	40	294	100

* Zone 13 not sampled because of standing water.

Table 135. Location of registration of vehicles counted on and near Dog Hill during the 1977 white-tailed deer hunter survey.

Location	Nov				Dec						Total	
	21	22	24	27	3	4	8	10	11	13	#	%
New York State												
County:												
Albany	7	1	1	1		4			4		18	10.2
Broome				1							1	0.6
Chenango		1									1	0.6
Columbia	1					1					2	1.1
Delaware		1	2	1			1	2	1		8	4.5
Dutchess	1	1	1		1						4	2.3
Erie								1			1	0.6
Fulton	1										1	0.6
Greene	3	1	3		1	2					10	5.6
Kings				1		1					2	1.1
Montgomery					1						1	0.6
Nassau	5	4				2			1		12	6.8
Niagara	1										1	0.6
Oneida				1							1	0.6
Oswego		1									1	0.6
Queens	2	2	1	1							6	3.4
Rensselaer	1	1			1	2			1		6	3.4
Richmond	2	1				1					4	2.3
Rockland	1	1	1					1			4	2.3
Saratoga				1							1	0.6
Schenectady	8	4	1	1	4	8		3	2	1	32	18.1
Schoharie	1		1			1					3	1.7
Schuyler		1									1	0.6
Steuben			1								1	0.6
Suffolk	4	3			2						9	5.1
Ulster	2	3									5	2.8
Warren	1			1	1						3	1.7
Westchester	2	1			1	2				1	7	3.9
N.Y.S. County Total	43	27	12	9	12	24	1	7	9	2	146	82.5
N.Y.S. Unidentified	5	1	3	2	1	1	0	1	3	1	18	10.2
N.Y.S. Total	48	28	15	11	13	25	1	8	12	3	164	92.7
Out-of-State												
State:												
Connecticut	1	1	1								3	1.7
New Jersey		1			1	2	2	2	1		9	0.6
Florida			1								1	0.6
Out-of-State Total	1	2	2	0	1	2	2	2	1	0	13	7.3
Grand Total	49	30	17	11	14	27	3	10	13	3	177	100.0

Table 136. New York State regional distribution of registration of vehicles counted on and near Dog Hill during the 1977 white-tailed deer hunter survey.

Region*	Nov				Dec						Total	
	21	22	24	27	3	4	8	10	11	13	#	%
Capital	16	6	2	3	5	14	0	3	7	1	57	45.6
Mohawk Valley	2	0	0	0	1	0	0	0	0	0	3	2.4
Nothern Catskill	4	2	6	1	1	3	1	2	1	0	21	16.8
New York City	16	12	2	2	3	6	0	1	1	1	44	35.2
Total	38	20	10	6	10	23	1	6	9	2	125	100.0

* Counties included in each region:

Capital: Albany, Rensselaer, Saratoga, Schenectady

Mohawk Valley: Fulton, Montgomery, Oneida

Northern Catskill: Delaware, Greene, Schoharie

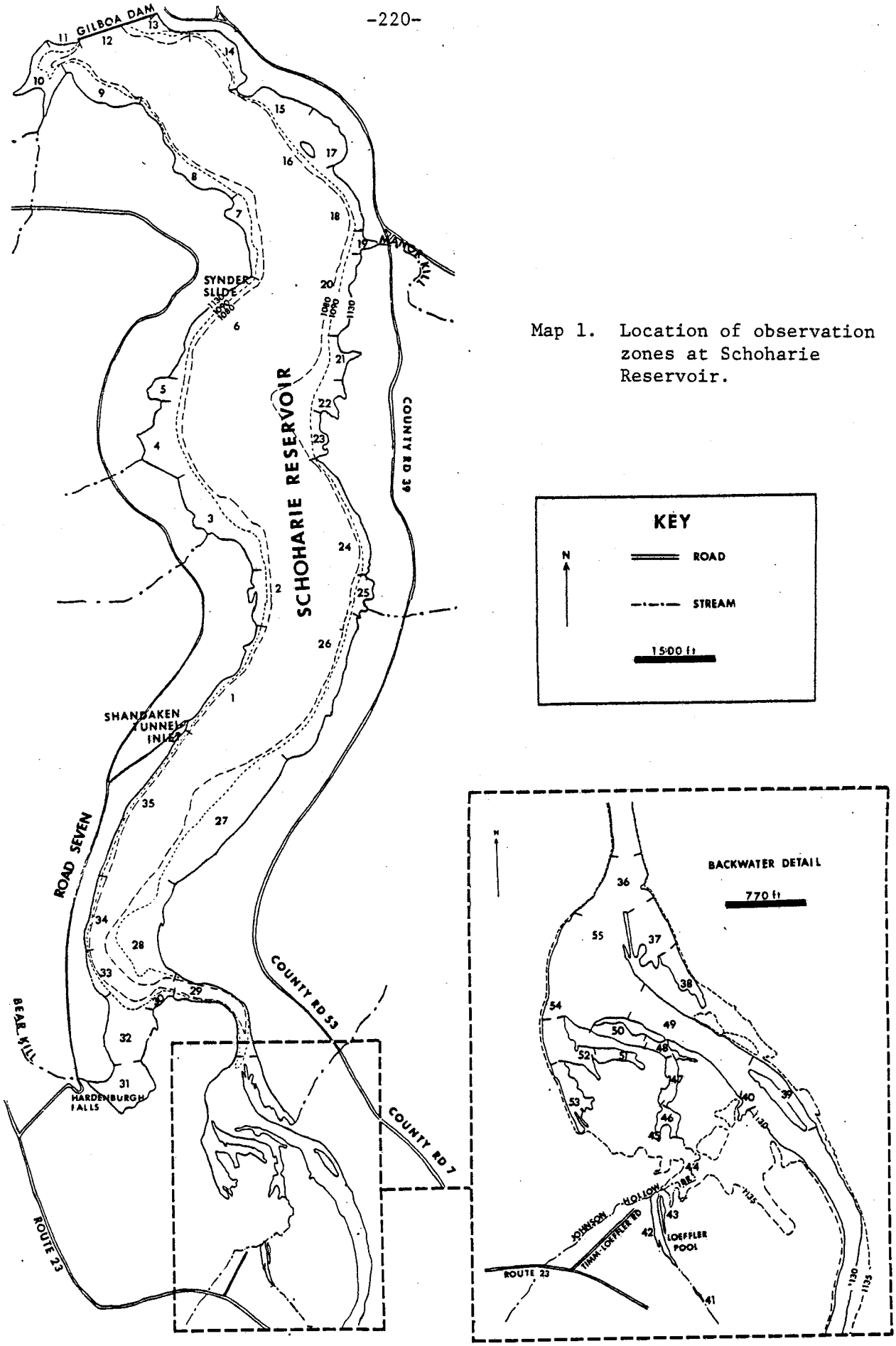
New York City: Kings, Nassau, Queens, Richmond, Rockland, Suffolk, Westchester

Table 137. Number of hunter vehicles observed on a 19.5-mile route and number of vehicles per mile on and near Dog Hill during the 1977 white-tailed deer hunter survey.

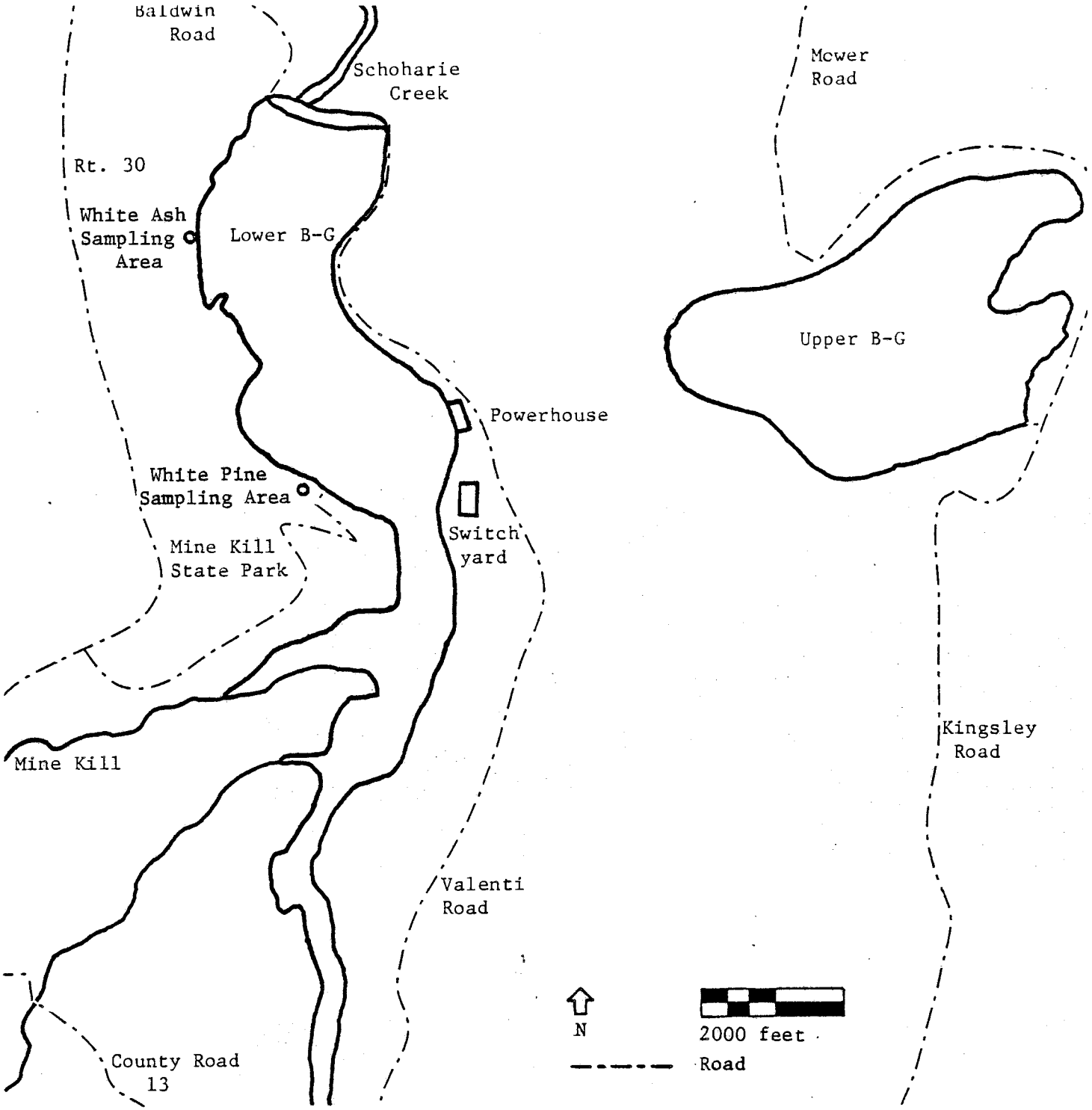
Date	Number of Vehicles	Number of Vehicles Per Mile
21 Nov 77	49	2.51
22	30	1.54
24	17	0.87
27	11	0.56
3 Dec	14	0.72
4	27	1.38
8	3	0.15
10	10	0.51
11	13	0.67
13	3	0.15
Total	177	9.08
Average Per Day	17.7	0.91

Table 138. Estimated number of vehicles on surveyed and unsurveyed roads and estimated number of hunter use days (HUD) on and near Dog Hill during the 1977 white-tailed deer hunter survey.

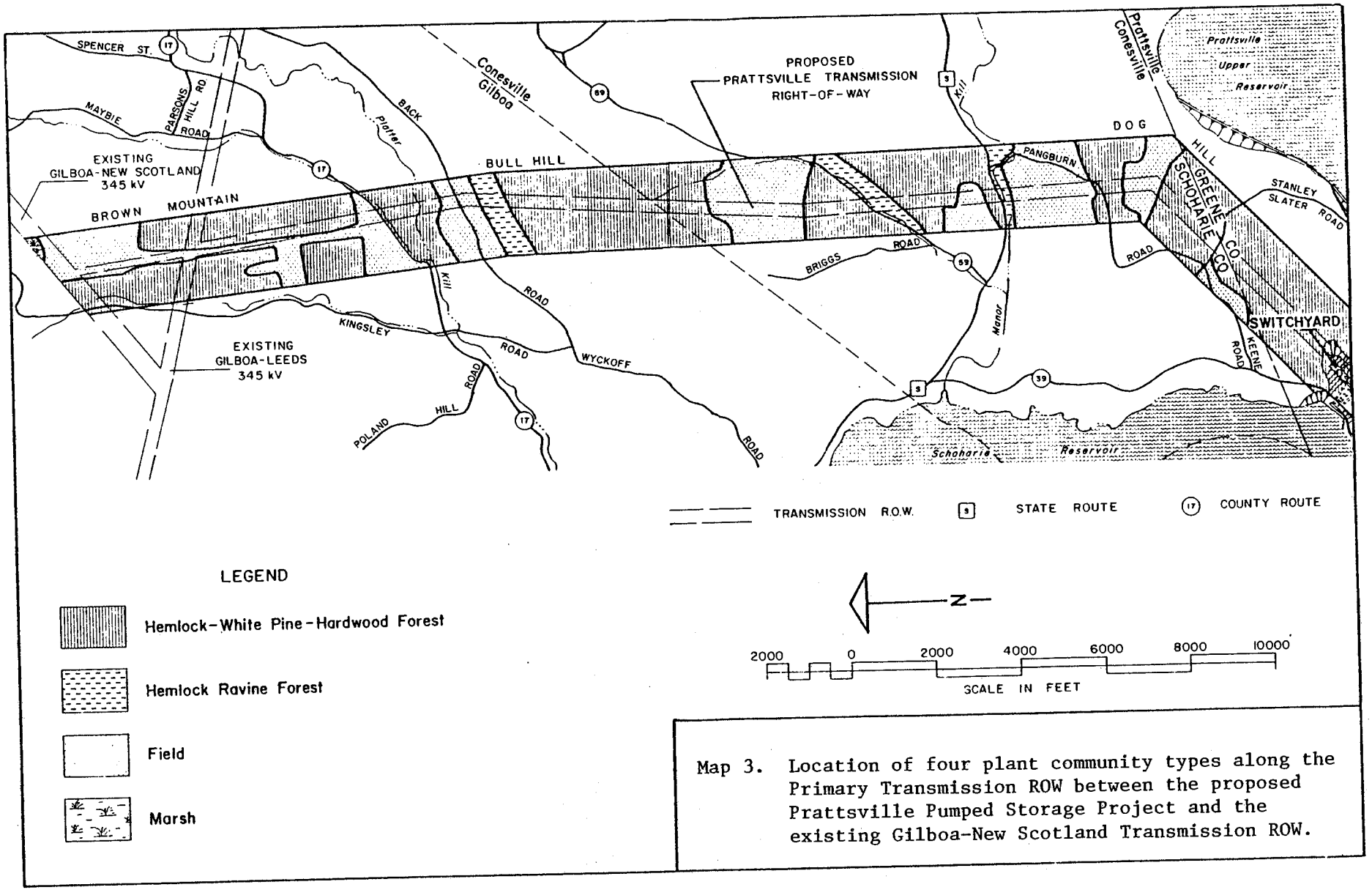
Date	Surveyed Roads	Unsurveyed Roads	Total	HUD #	HUD #/sq. mi. (12.5 sq. mi.)
21 Nov 77	49	11	60	150	12.0
22	30	7	37	93	7.4
23	17	4	21	53	4.2
24	17	4	21	53	4.2
25	17	4	21	53	4.2
26	11	3	14	35	2.8
27	11	3	14	35	2.8
28	3	1	4	10	0.8
29	3	1	4	10	0.8
30	3	1	4	10	0.8
1 Dec	3	1	4	10	0.8
2	3	1	4	10	0.8
3	14	3	17	43	3.4
4	27	6	33	83	6.6
5	3	1	4	10	0.8
6	3	1	4	10	0.8
7	3	1	4	10	0.8
8	3	1	4	10	0.8
9	3	1	4	10	0.8
10	10	2	12	30	2.4
11	13	3	16	40	3.2
12	3	1	4	10	0.8
13	3	1	4	10	0.8
Total	252	62	314	788	2.7



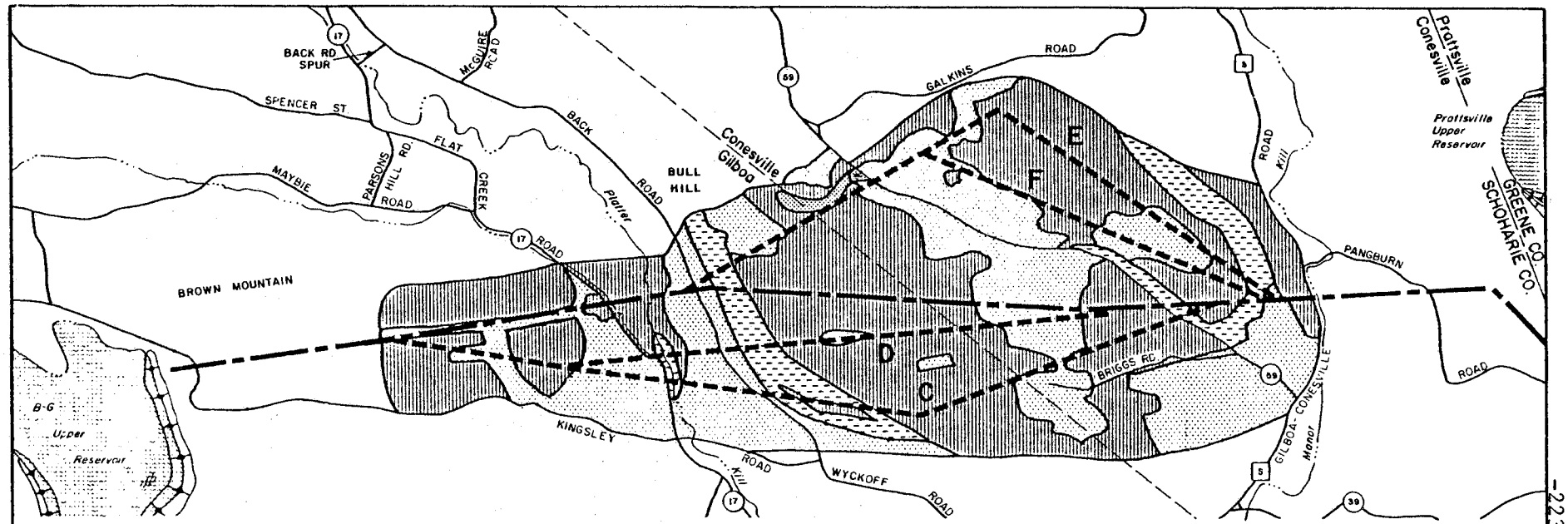
Map 1. Location of observation zones at Schoharie Reservoir.



Map 2. Location of areas sampled for white ash and white pine at Lower B-G Reservoir.



Map 3. Location of four plant community types along the Primary Transmission ROW between the proposed Prattsville Pumped Storage Project and the existing Gilboa-New Scotland Transmission ROW.



LEGEND

- Hemlock-White Pine-Hardwood Forest
- Hemlock Ravine Forest
- Open Field
- Hemlock-Red Maple Swamp Forest
- Open Marsh

PREFERRED ROUTE
ALTERNATE ROUTE

STATE ROAD

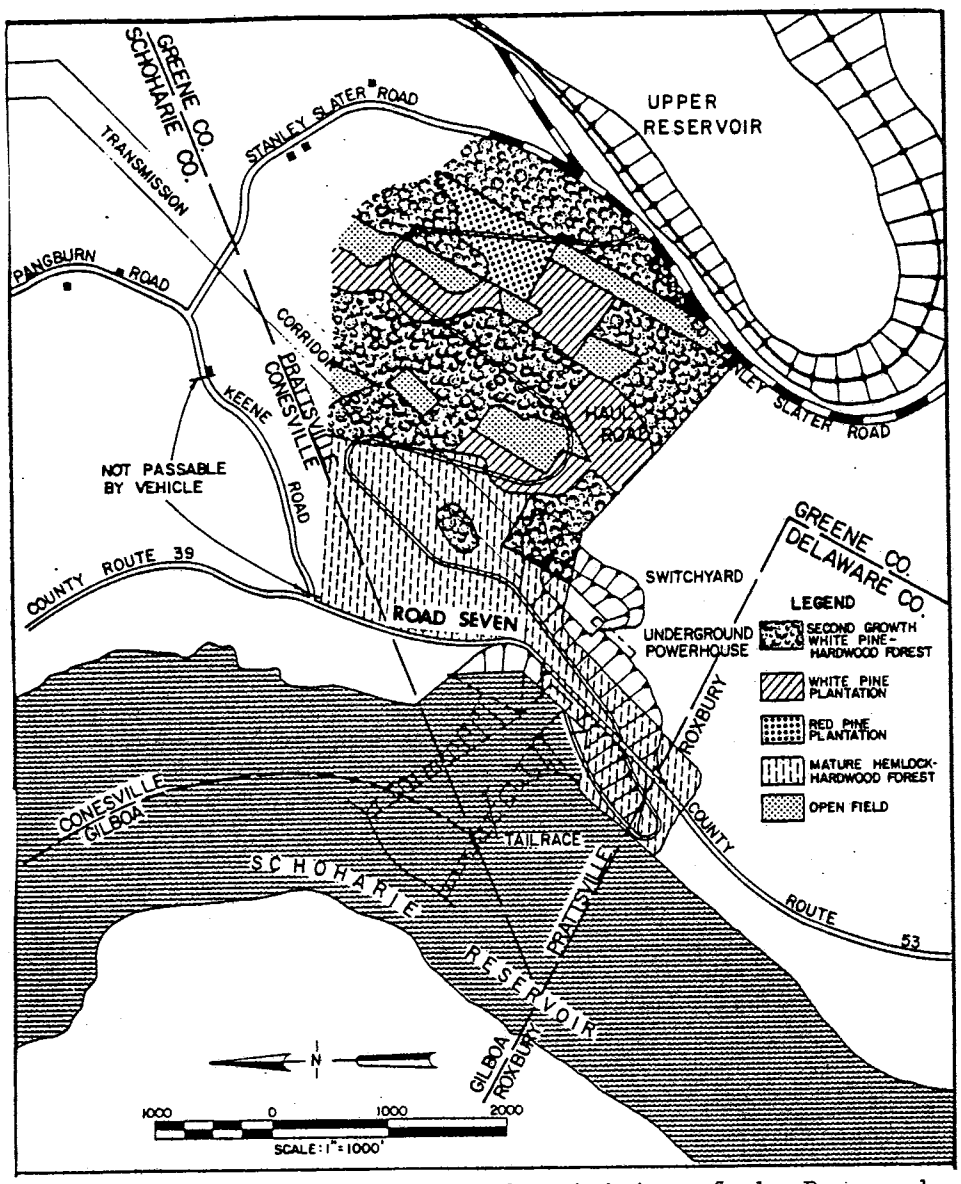
COUNTY ROAD

N

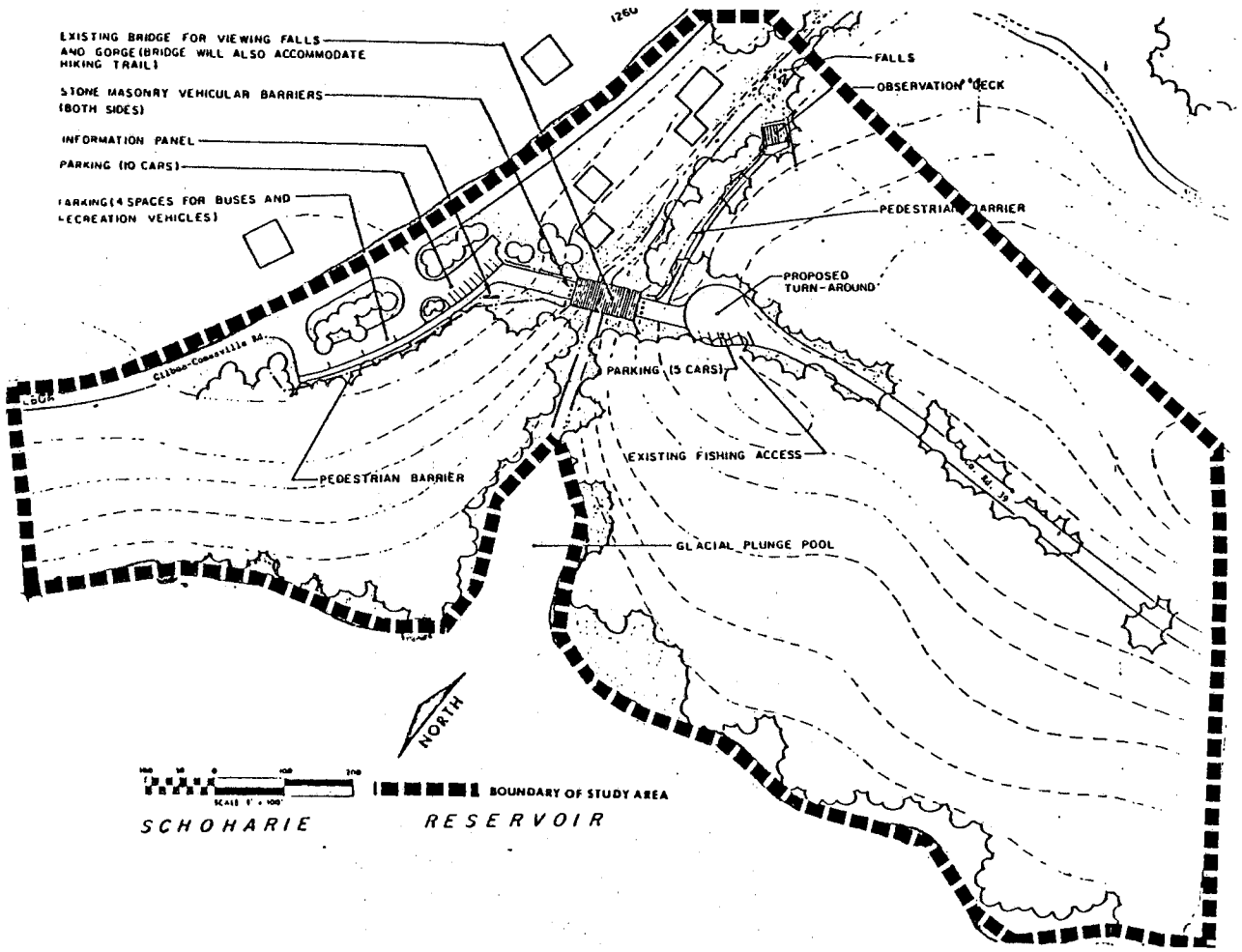
2000 0 2000 4000 6000 8000 10000

SCALE IN FEET

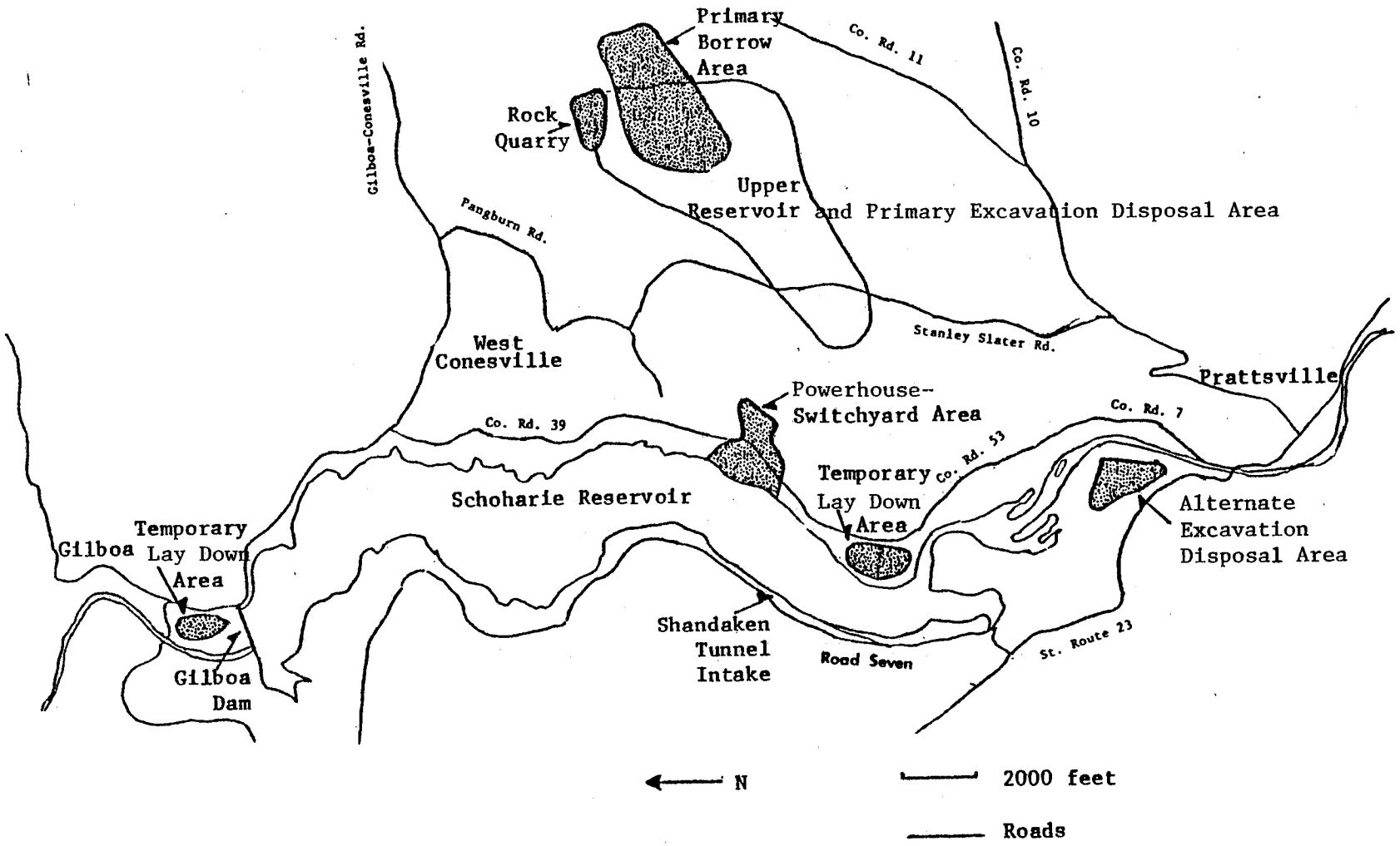
Map 4. Location of five plant community types along the Alternate Transmission ROWs between the proposed Prattsville Pumped Storage Project and the existing Gilboa-New Scotland Transmission Line.



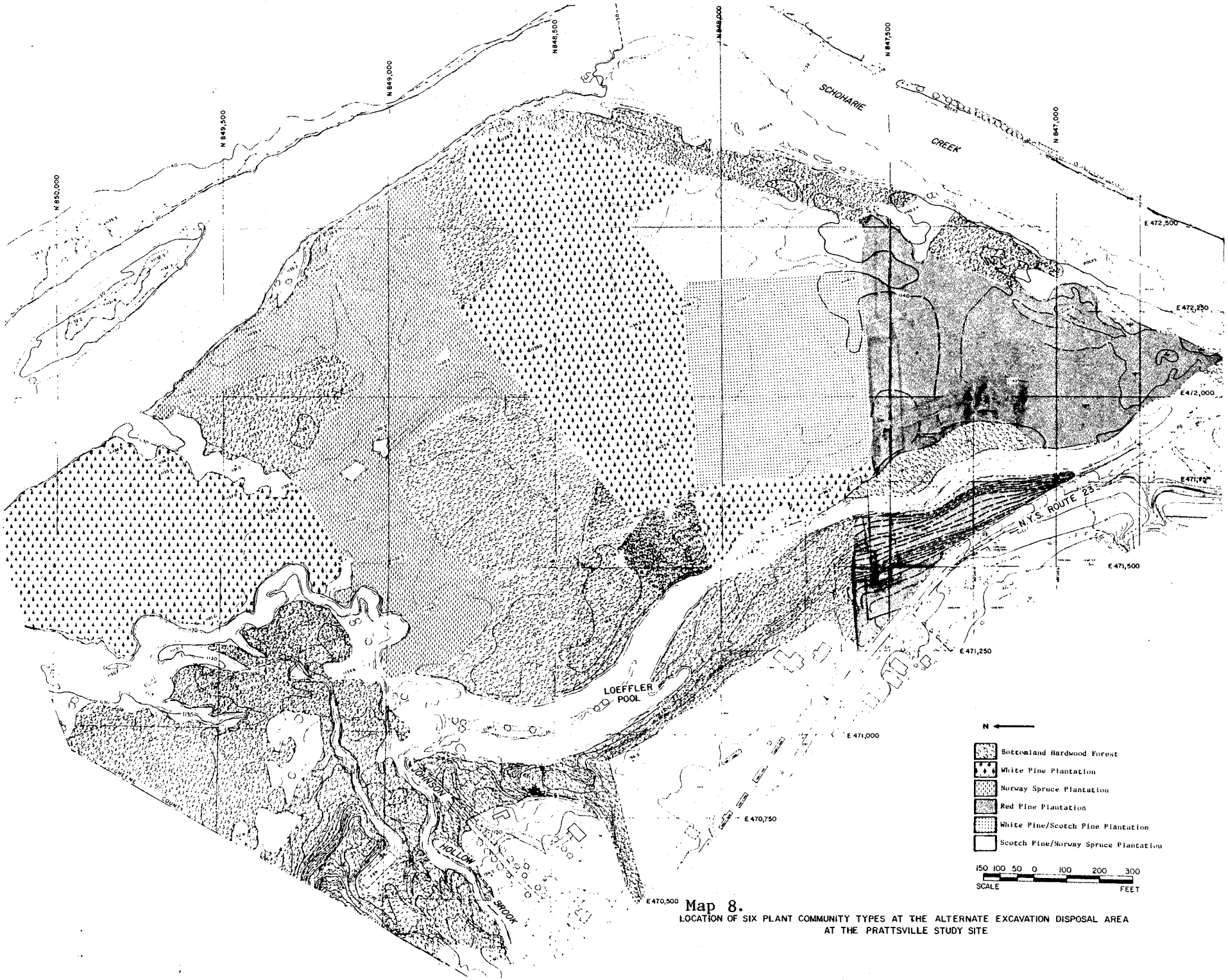
Map 5. Plant communities in the vicinity of the Proposed Haul Road between the Power House and Stanley Slater Road on Dog Hill.



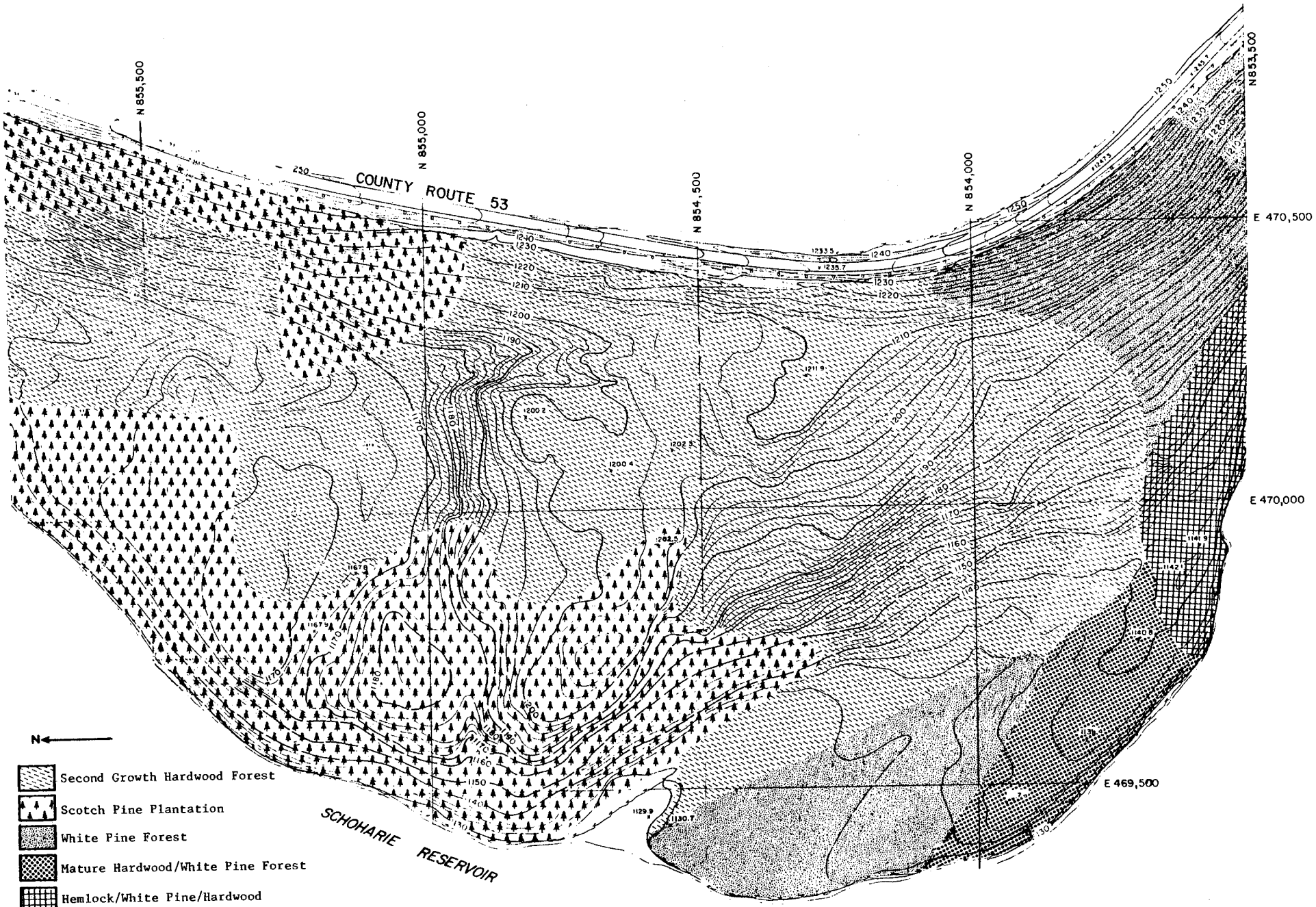
Map 6. Location of the Proposed Manorkill Falls Scenic Overlook.



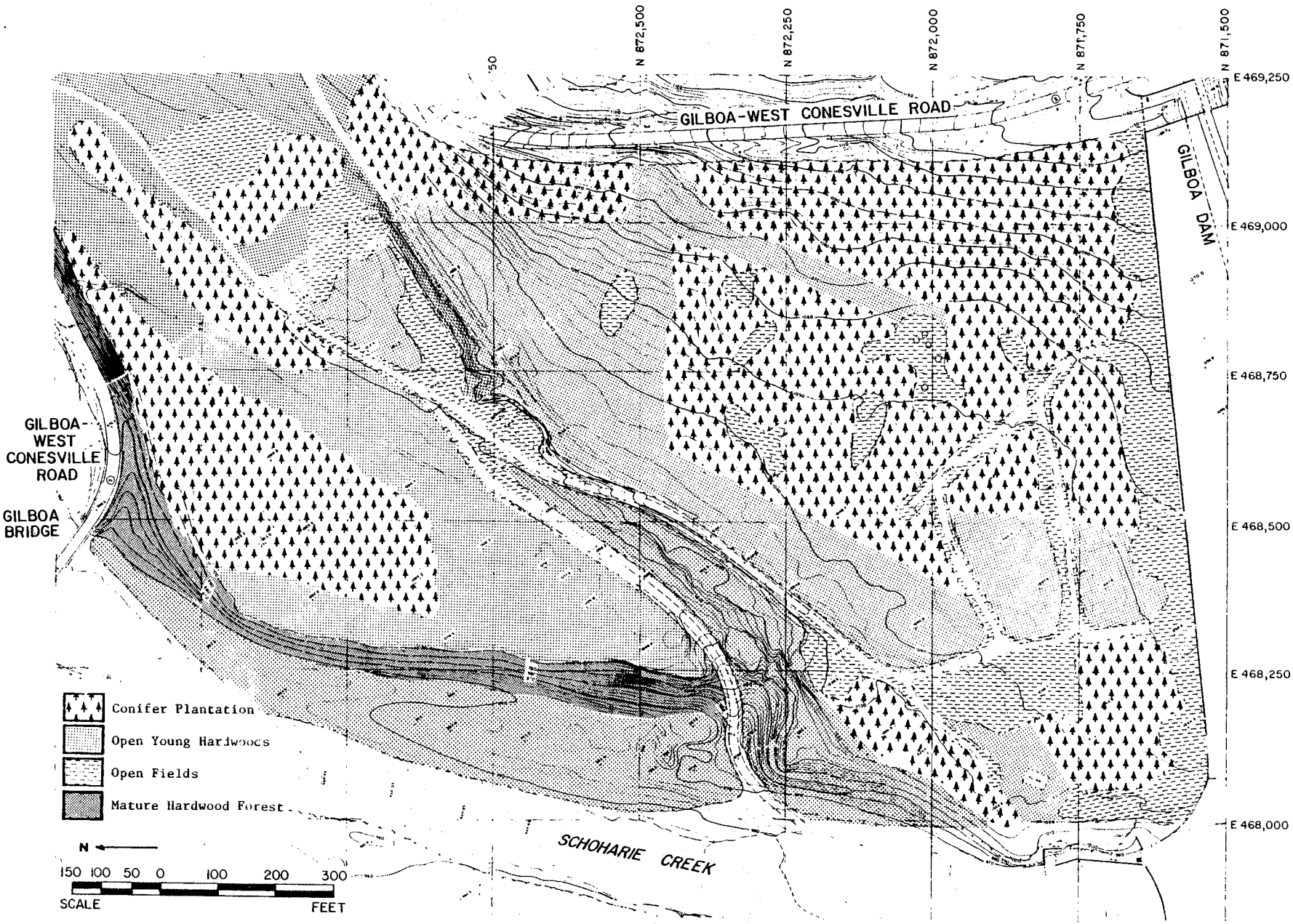
Map 7. Location of the Primary Excavation Disposal Area, Alternate Excavation Disposal Area, Schoharie Reservoir Temporary Lay Down Area, Powerhouse-Switchyard Area, and Gilboa Dam Temporary Lay Down Area.



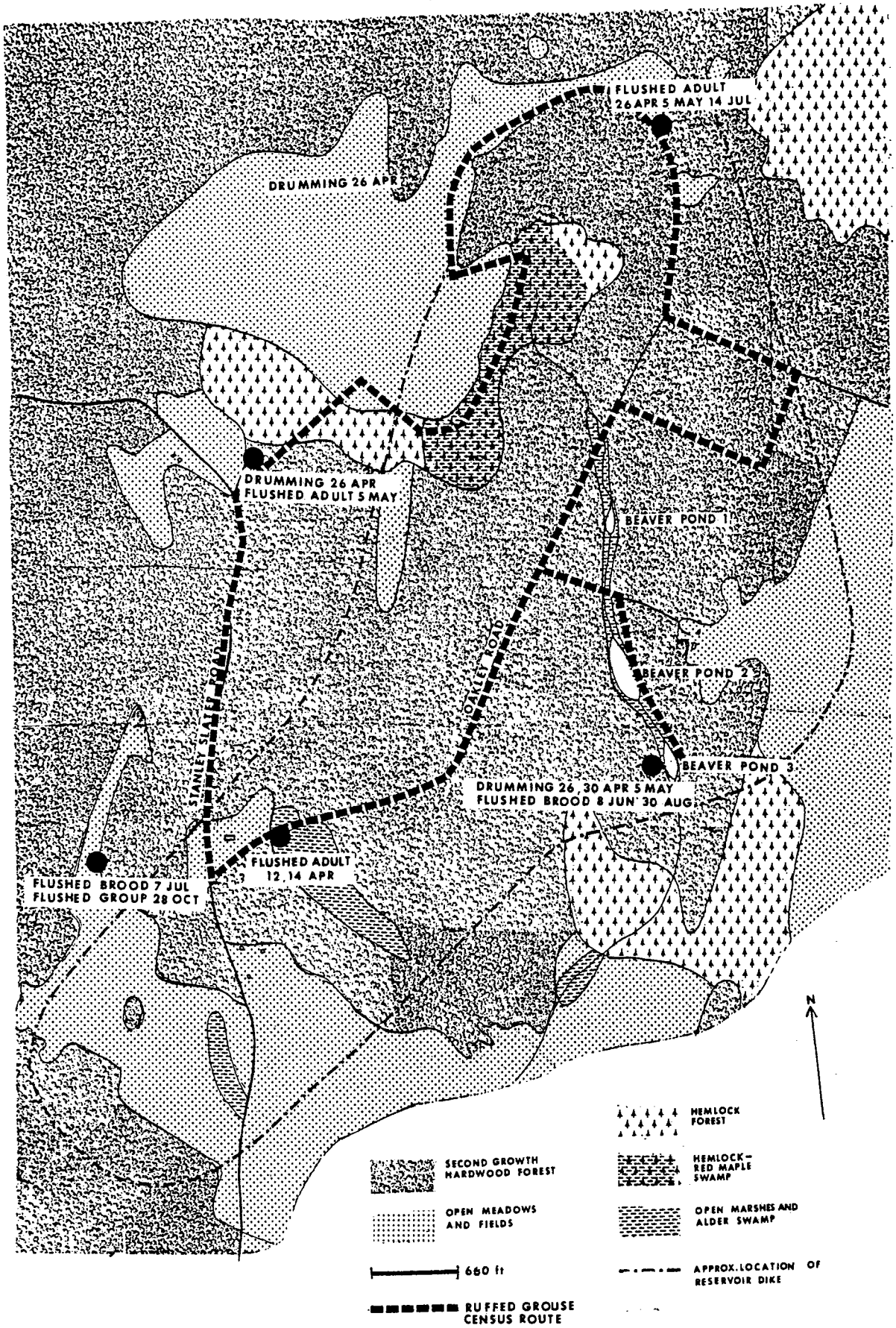
Map 8.
LOCATION OF SIX PLANT COMMUNITY TYPES AT THE ALTERNATE EXCAVATION DISPOSAL AREA AT THE PRATTSVILLE STUDY SITE



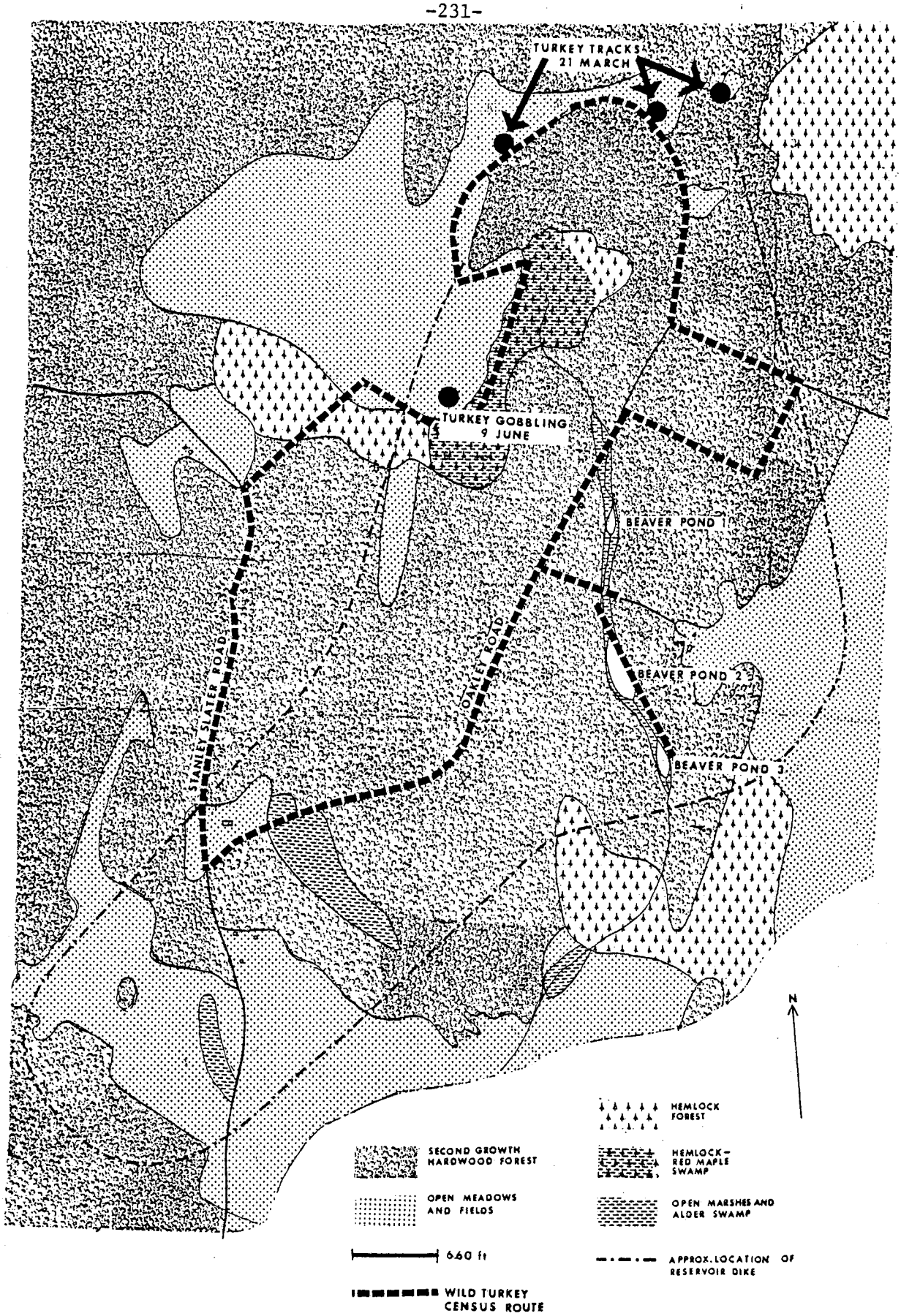
Map 9. LOCATION OF FIVE PLANT COMMUNITY TYPES AT THE SCHOHARIE RESERVOIR TEMPORARY LAY DOWN AREA AT THE PRATTSVILLE STUDY SITE



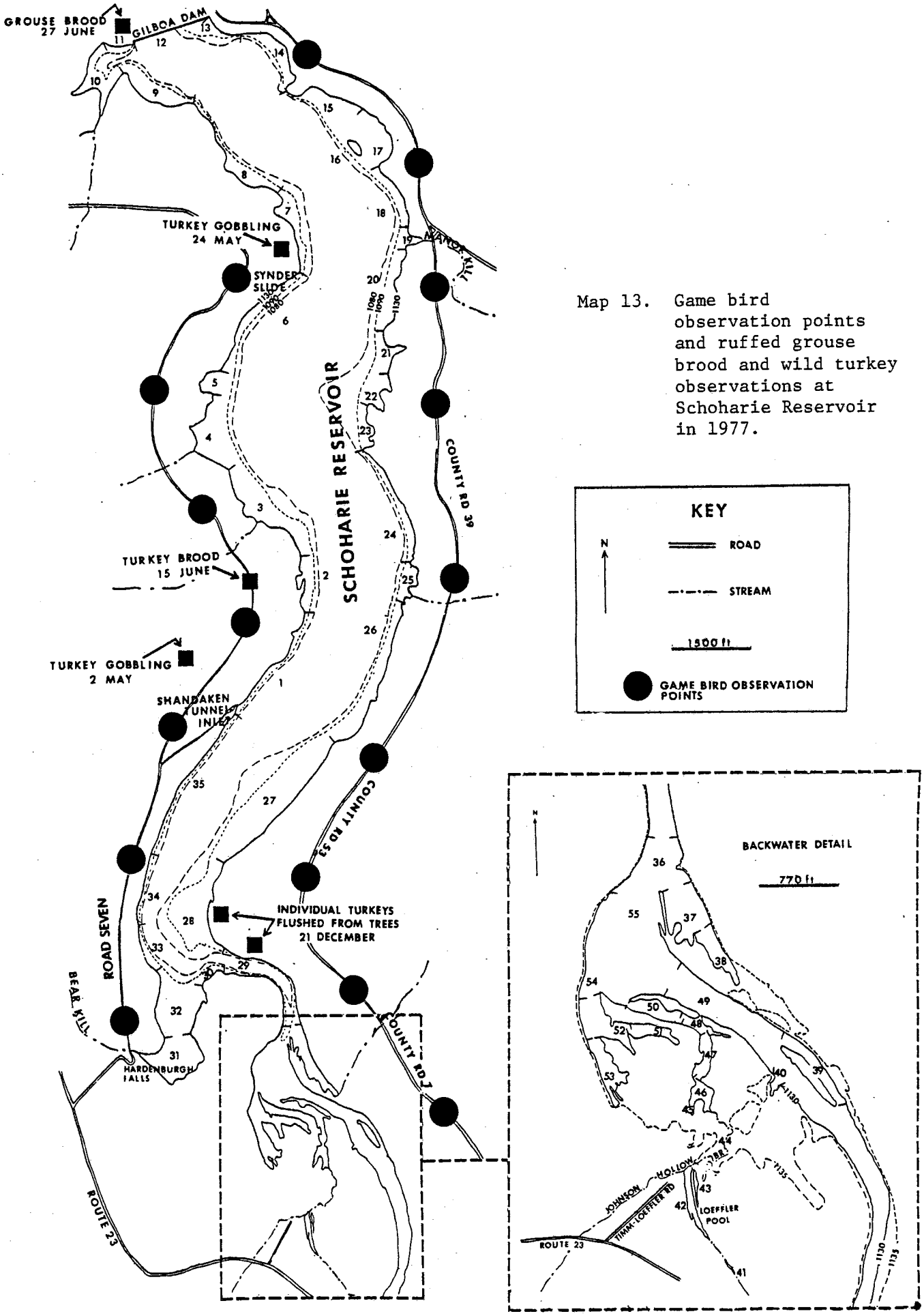
Map 10. LOCATION OF FOUR PLANT COMMUNITY TYPES AT THE GILBOA DAM TEMPORARY LAY DOWN AREA AT THE PRATTSVILLE STUDY SITE



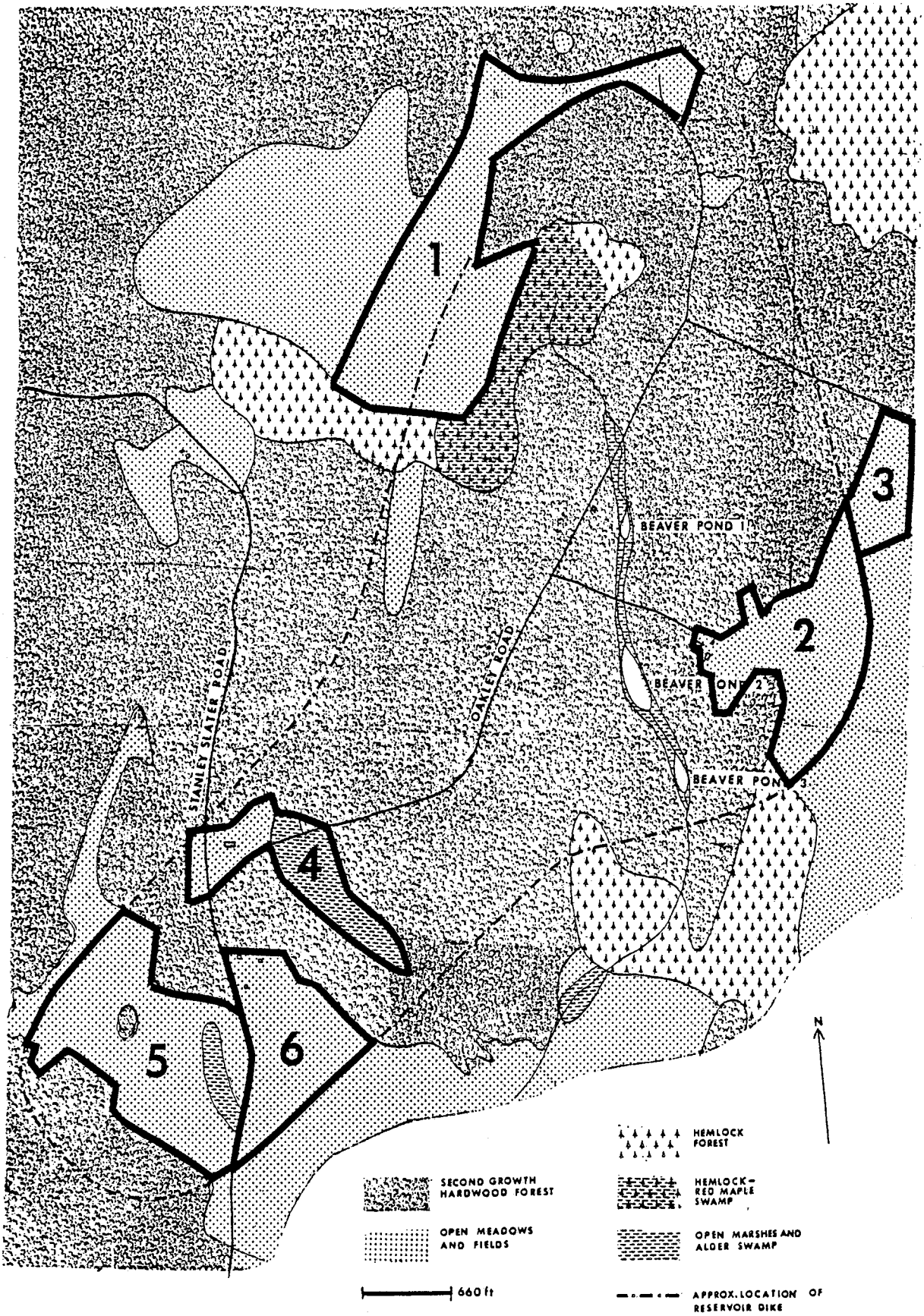
Map 11. Ruffed grouse census route and observations on Dog Hill in 1977.



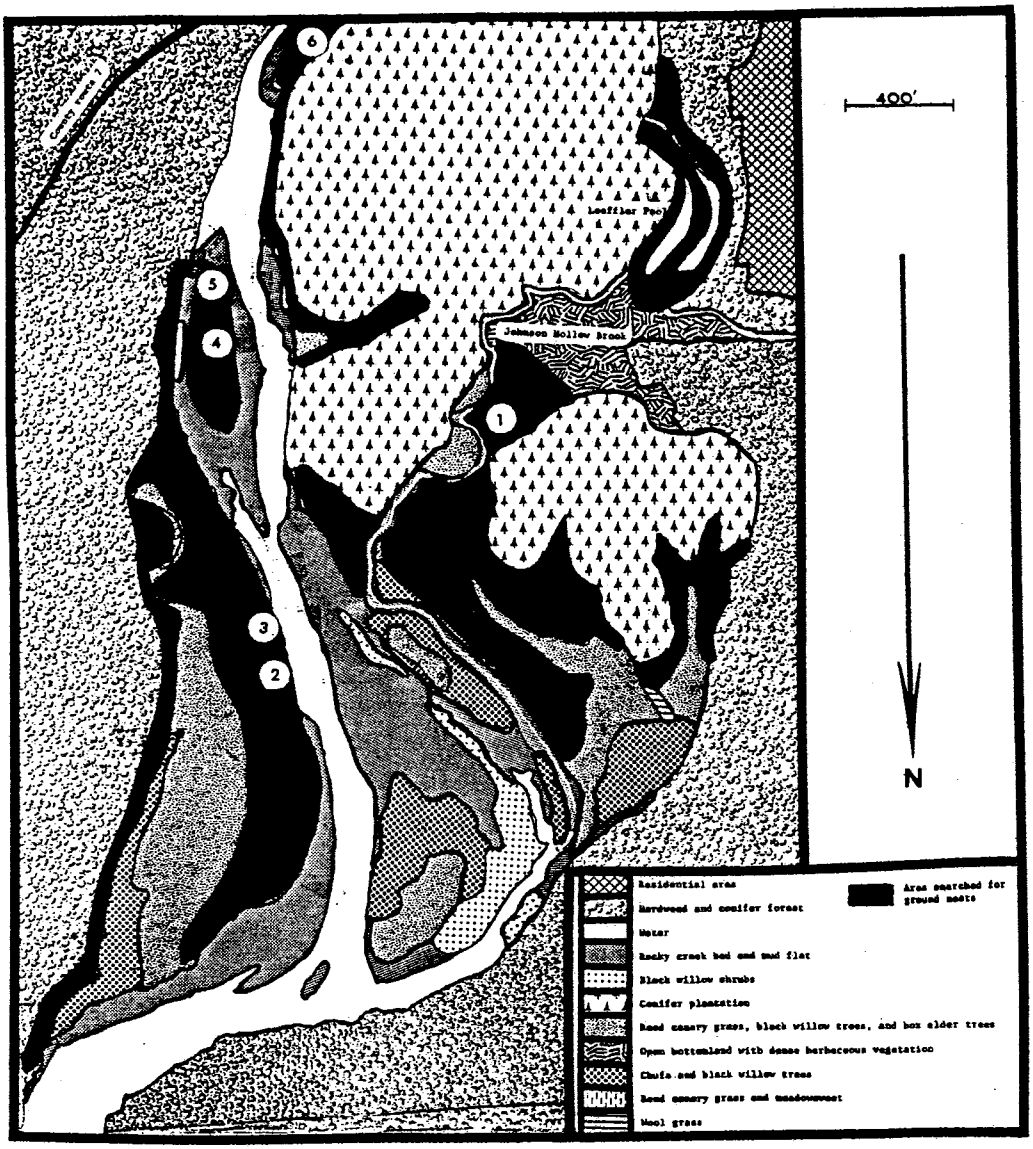
Map 12. Wild turkey census route and observations on Dog Hill in 1977.



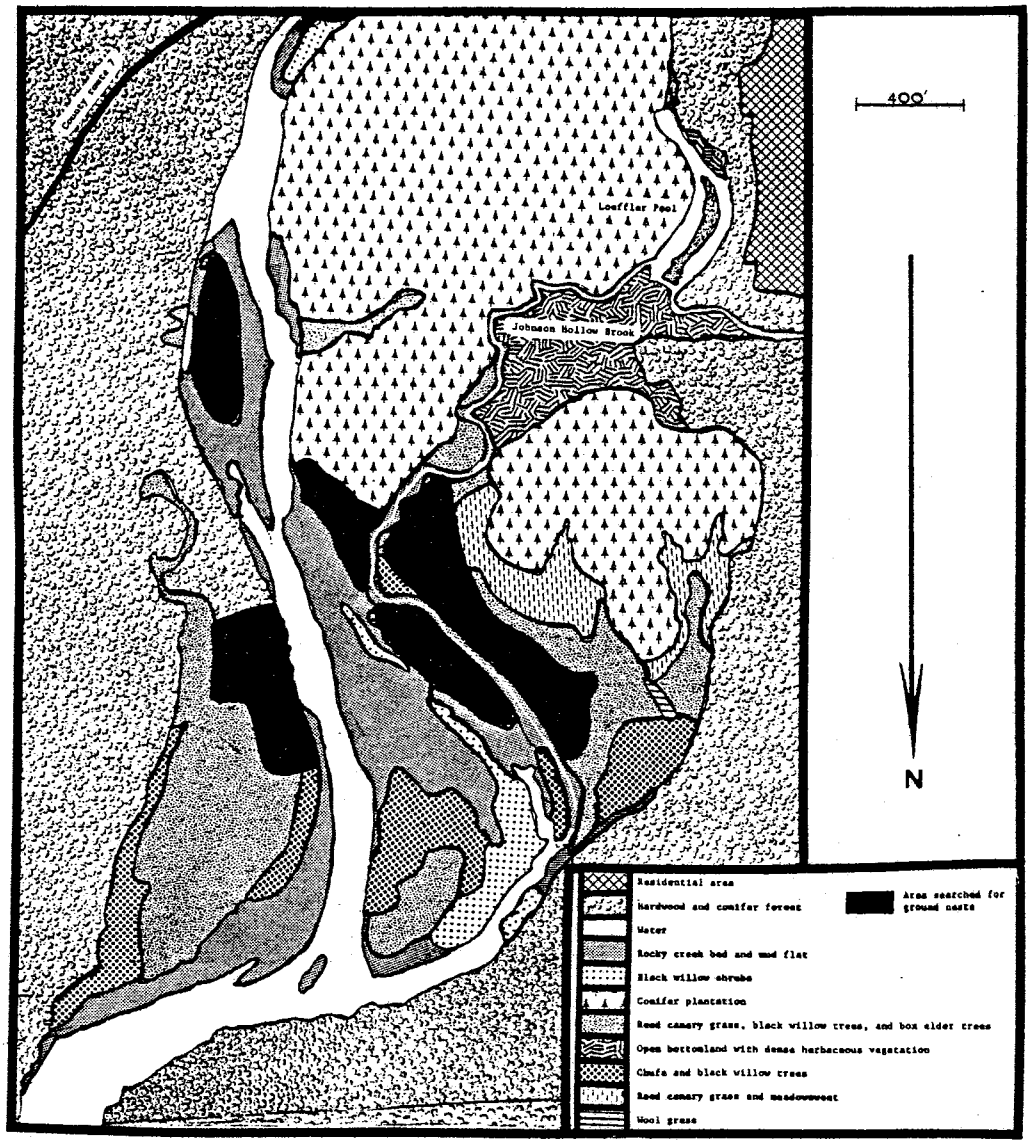
Map 13. Game bird observation points and ruffed grouse brood and wild turkey observations at Schoharie Reservoir in 1977.



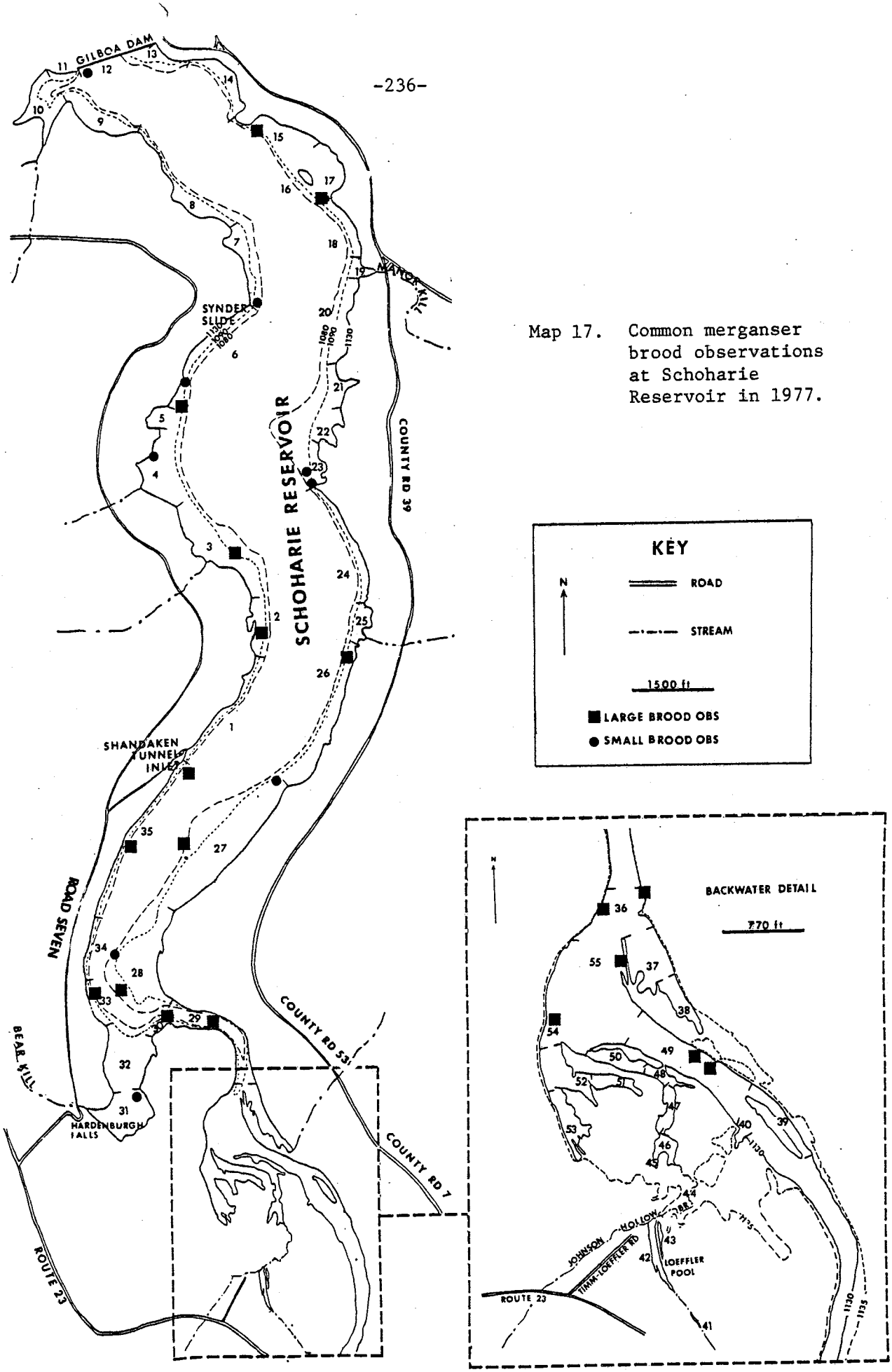
Map 14. Areas (indicated by numbers) censused for singing woodcock on Dog Hill in 1977.



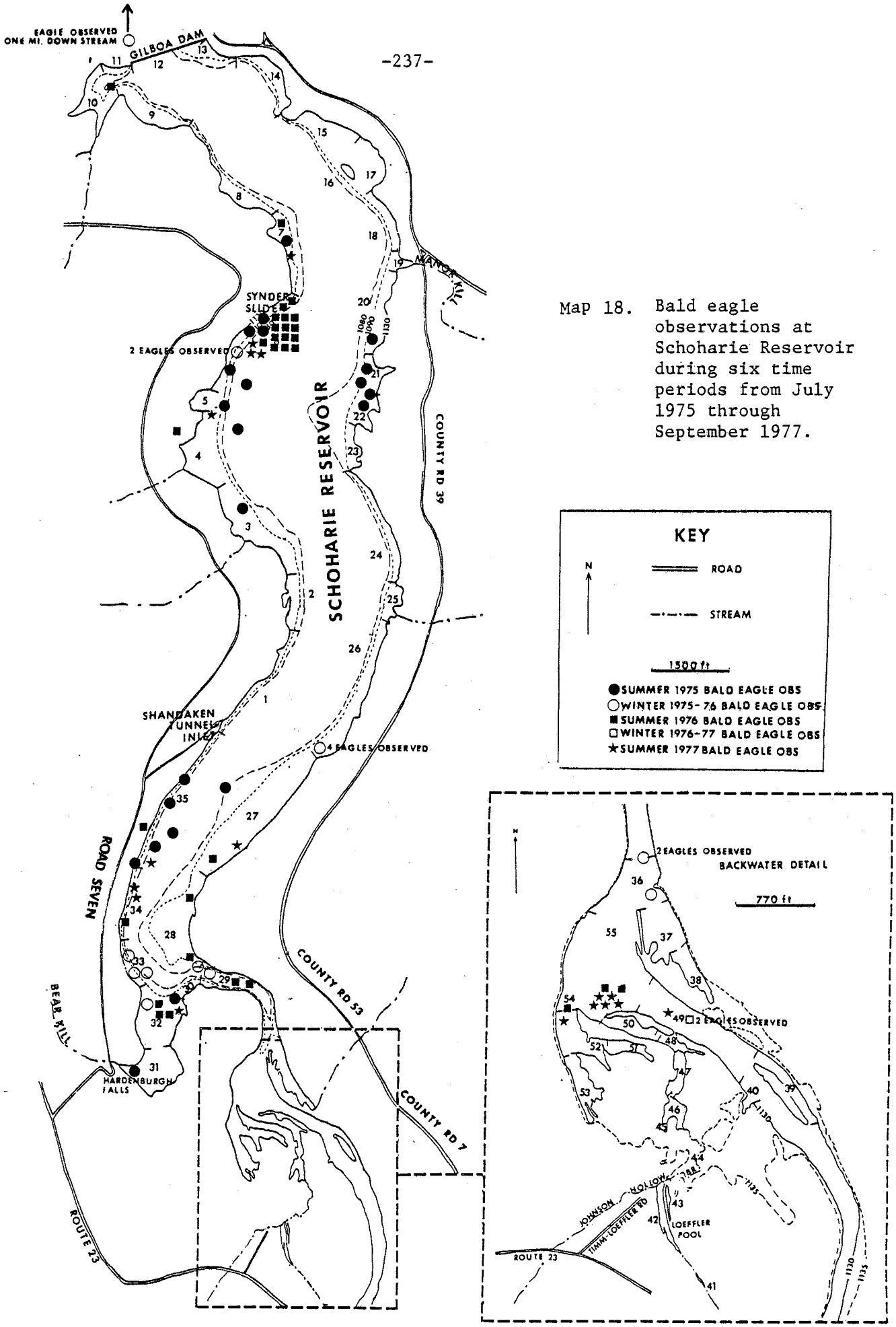
Map 15. Area searched for ground nests of waterfowl and six mallard nests sites at the backwater of Schoharie Reservoir in May 1977.



Map 16. Area searched for ground nests of waterfowl at the backwater of Schoharie Reservoir in June 1977.



Map 17. Common merganser brood observations at Schoharie Reservoir in 1977.



Map 18. Bald eagle observations at Schoharie Reservoir during six time periods from July 1975 through September 1977.

LEGEND

Aerial route

Take-off, landing field

Boundary of survey area

2000 0 2000 4000 6000 8000 10000

SCALE: 1" = 2000'

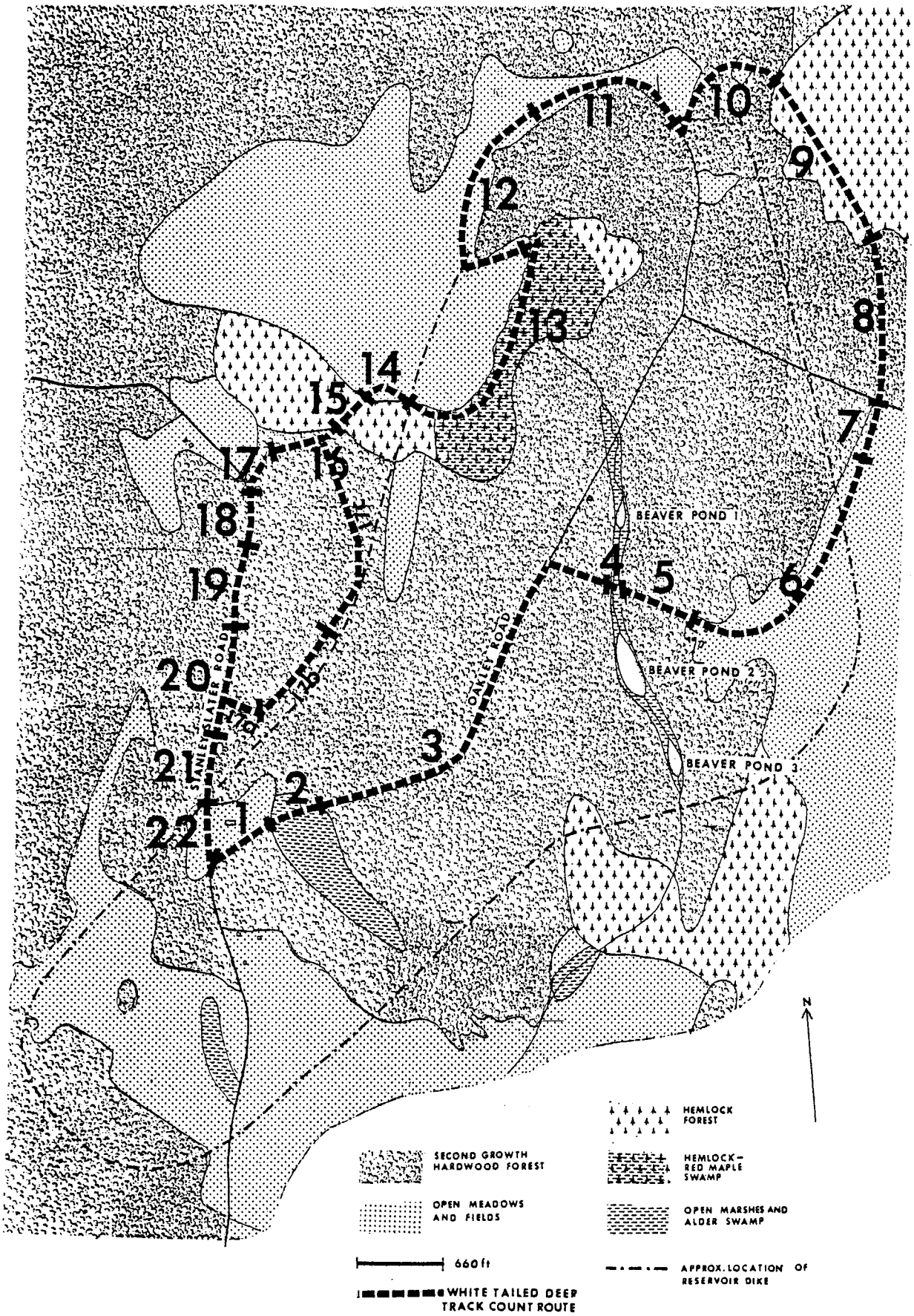
MAP 19 AERIAL ROUTE

of the

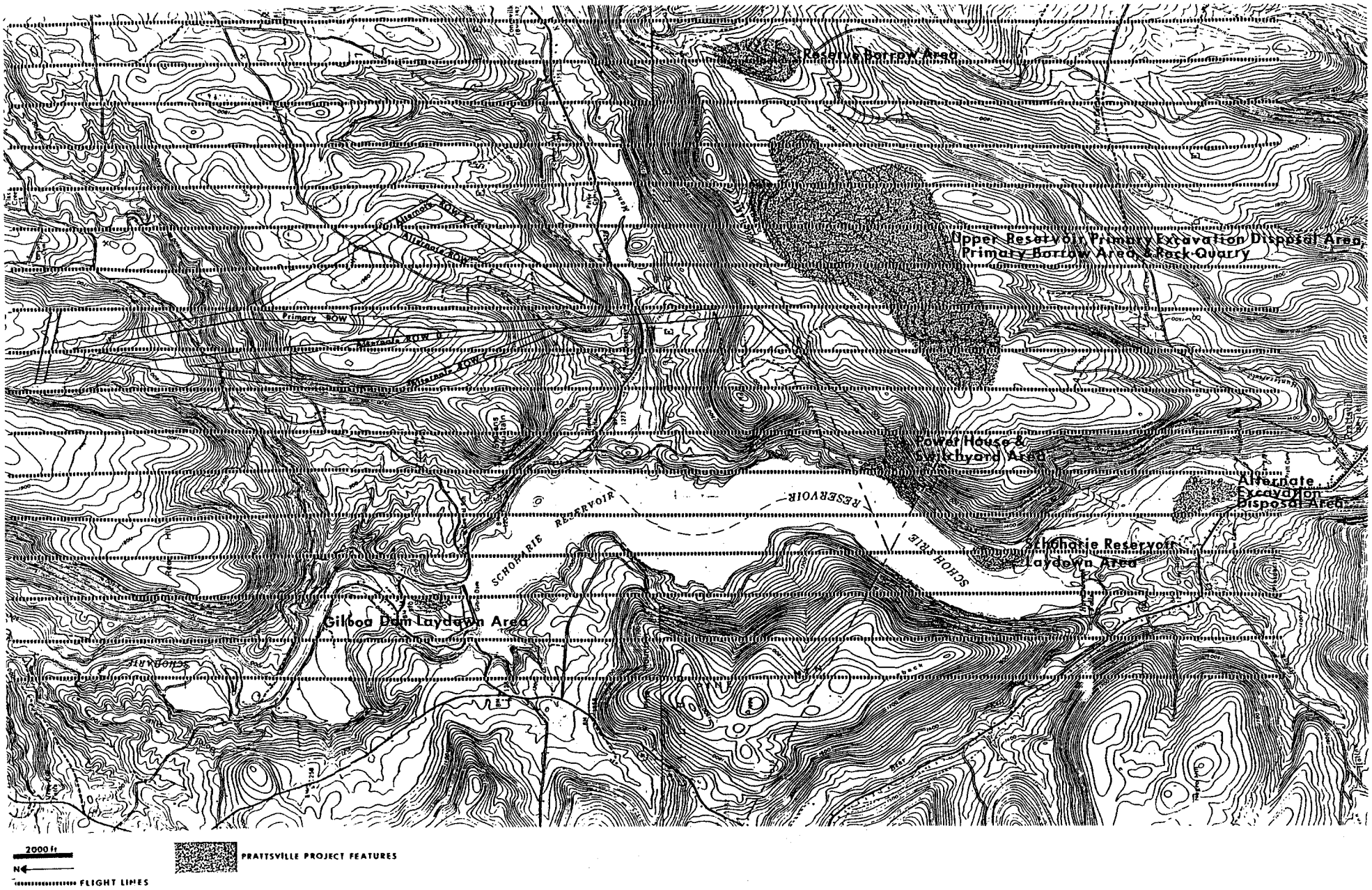
HELICOPTER EAGLE NEST RECONNAISSANCE

conducted on

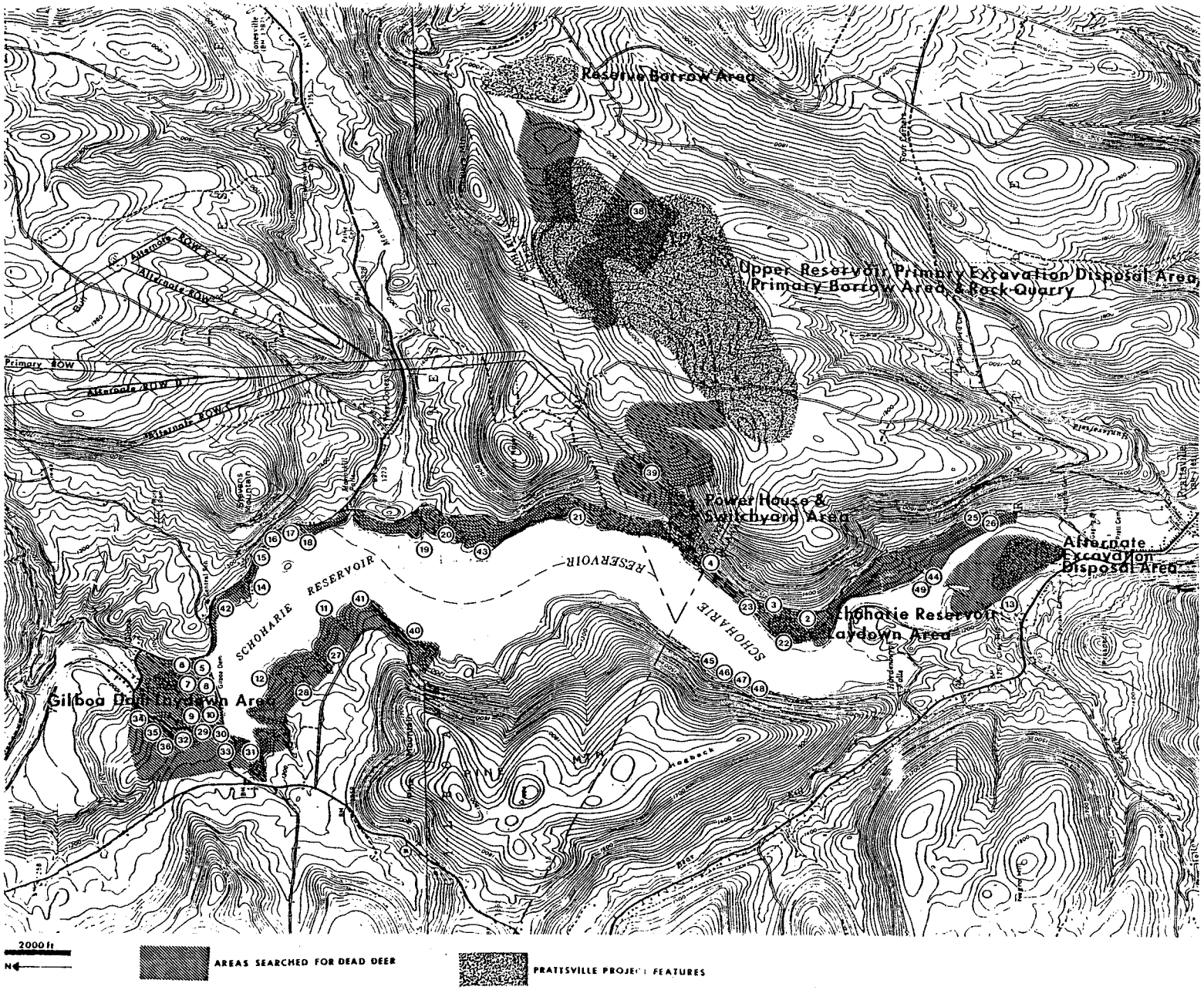
April 13, 1977



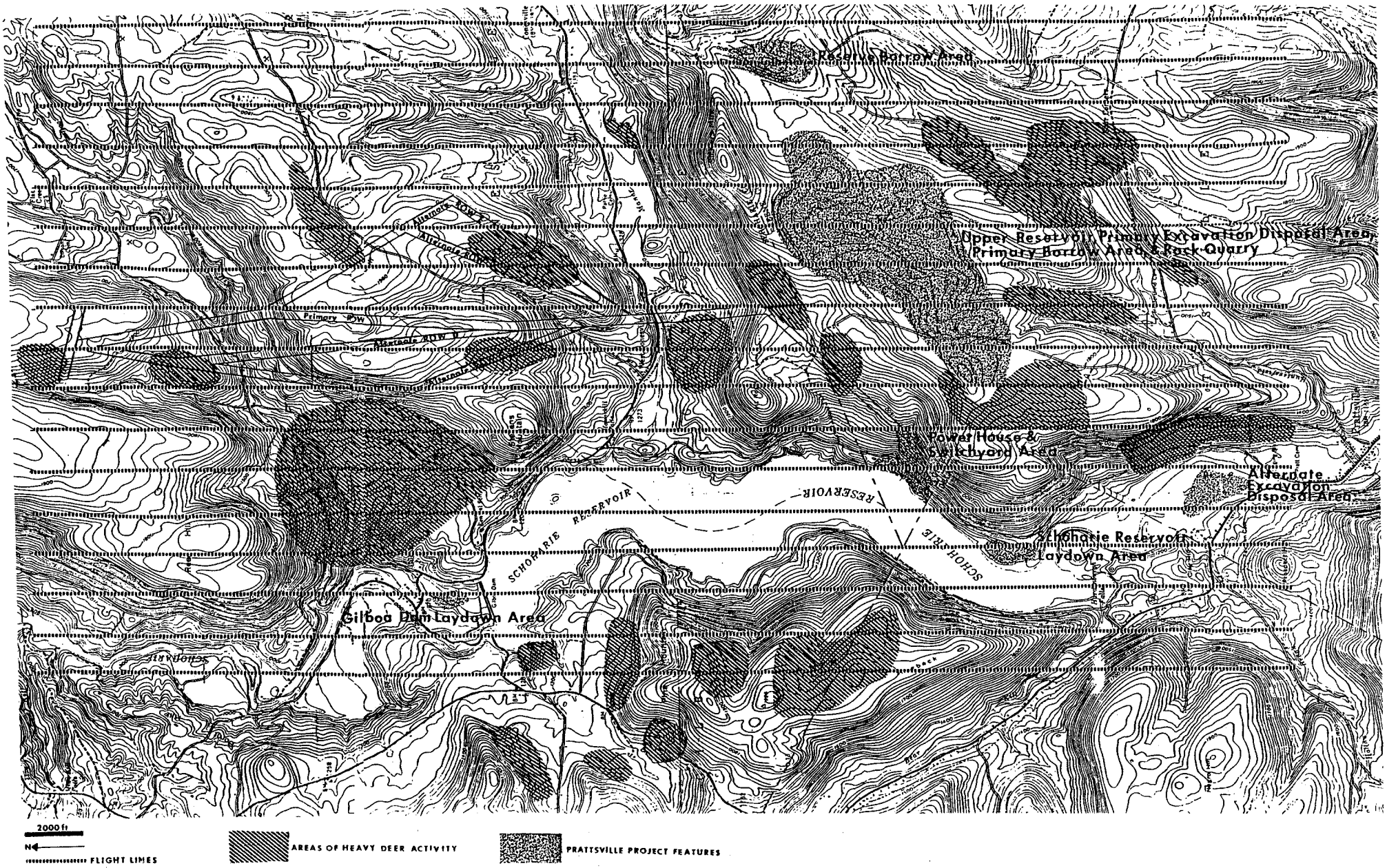
Map 20. Route used to count white-tailed deer tracks and trails on Dog Hill during the winters of 1976-77 (except 17A, 17B, and 17C) and 1977-78.



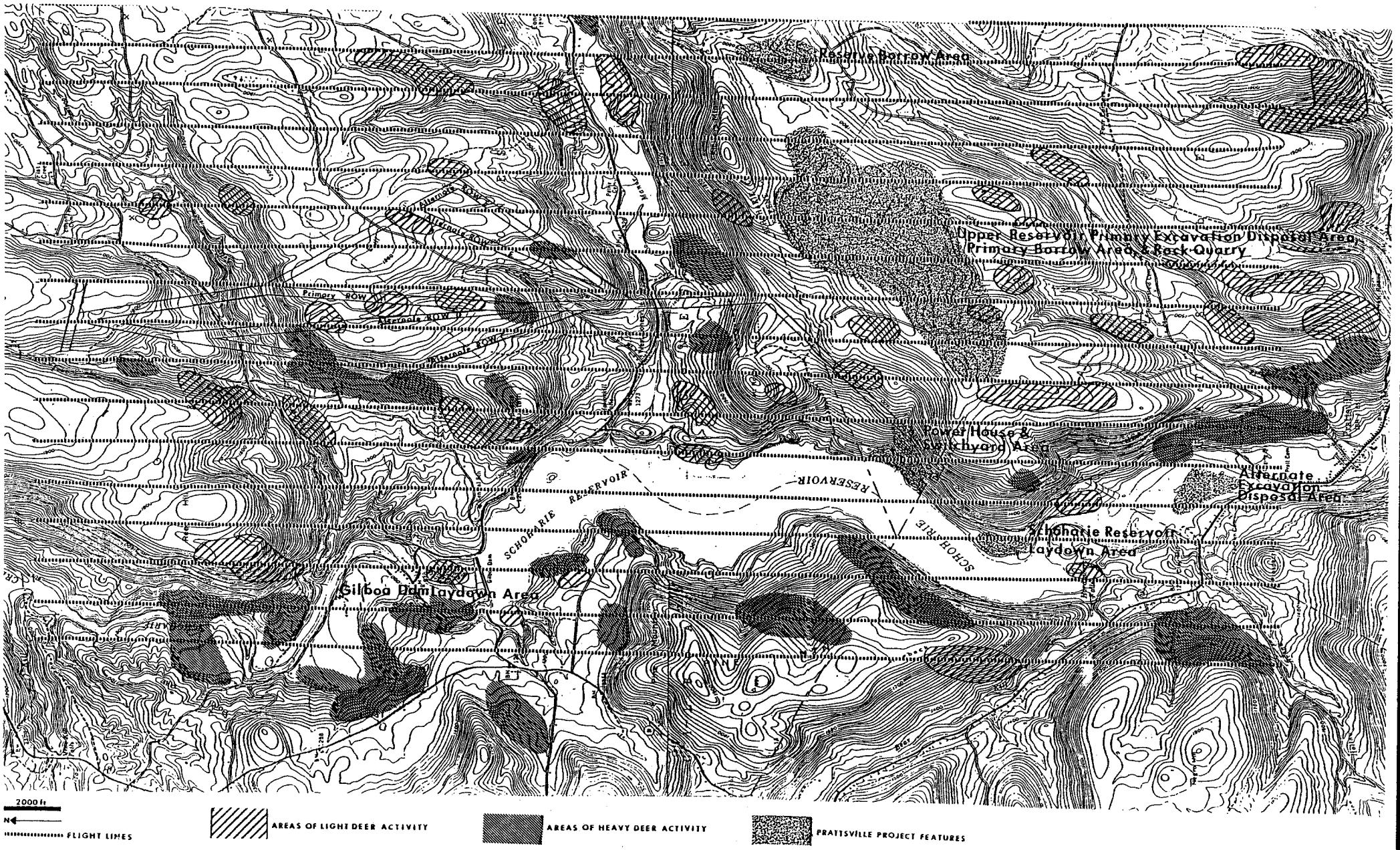
Map 21. Flight lines used during the 1978 aerial surveys for white-tailed deer at the Prattsville study site.



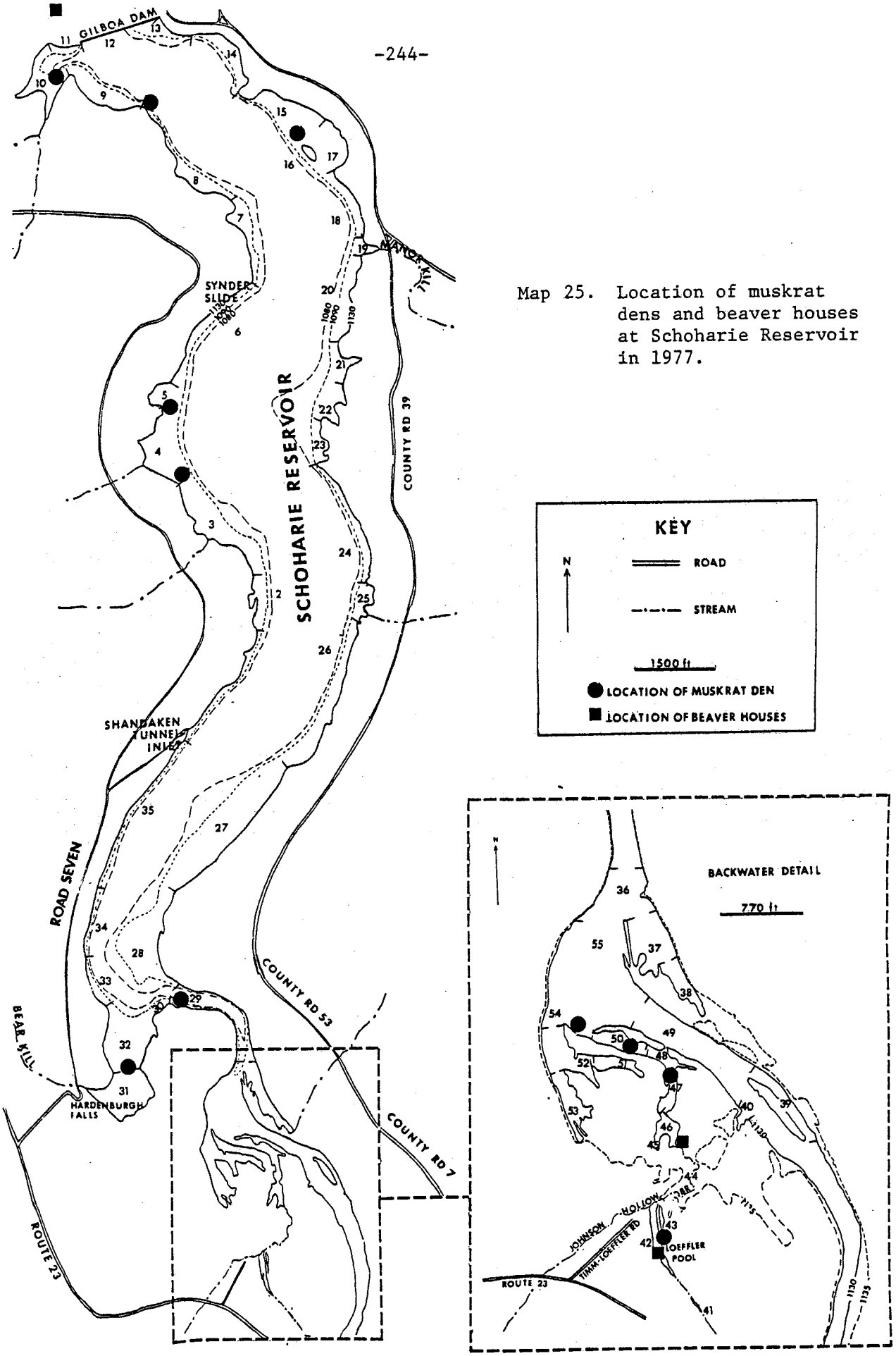
Map 22. Areas searched for dead deer in April 1978 at the Prattsville study site.



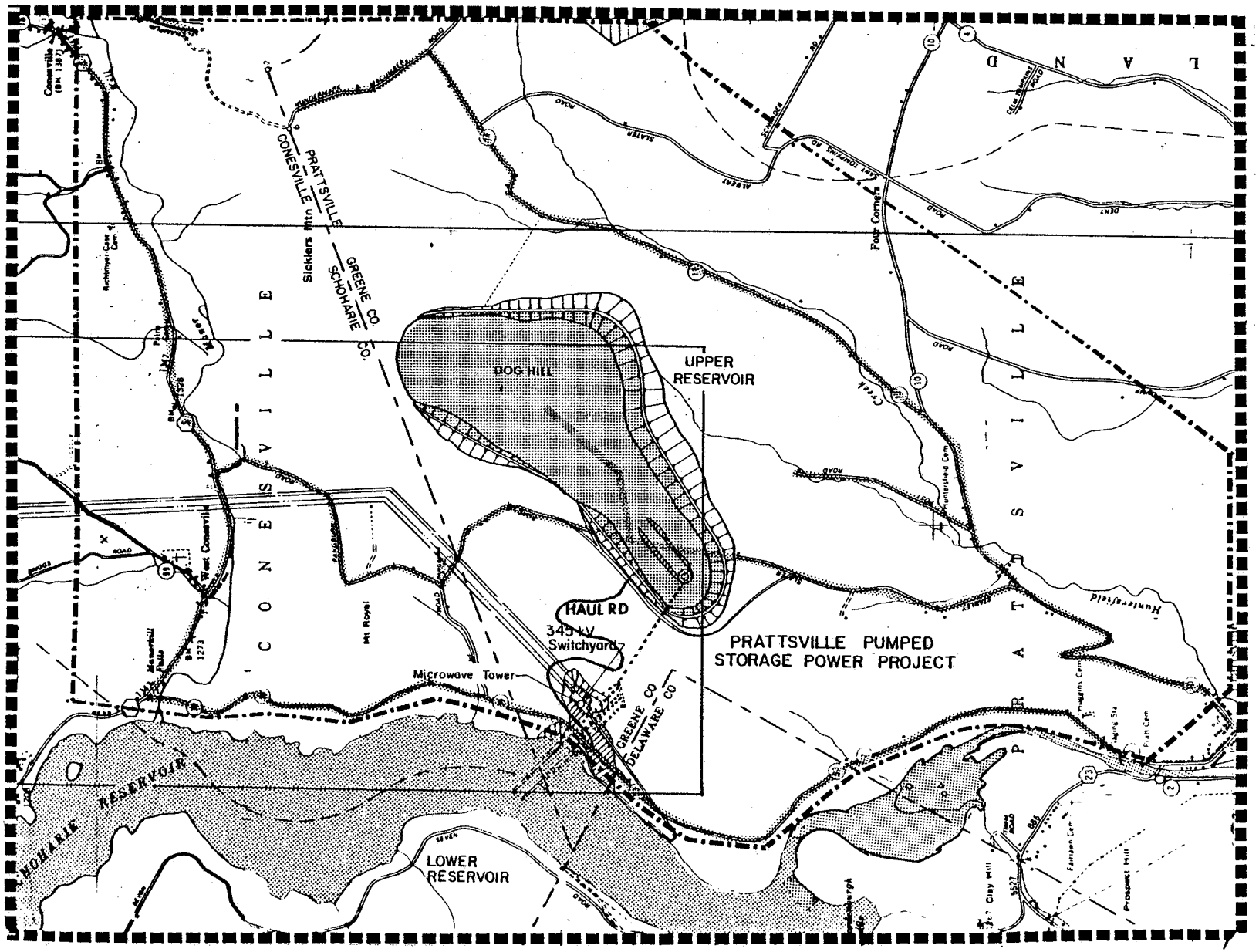
Map 23. Areas of heavy deer activity observed during the 24 January 1978 aerial survey at the Prattsville study site.



Map 24. Areas of light and heavy deer activity observed during the 16 February 1978 aerial survey at the Prattsville study site.



Map 25. Location of muskrat dens and beaver houses at Schoharie Reservoir in 1977.



Map 26. Route used for the 1977 white-tailed deer hunter survey at the Prattsville study site.

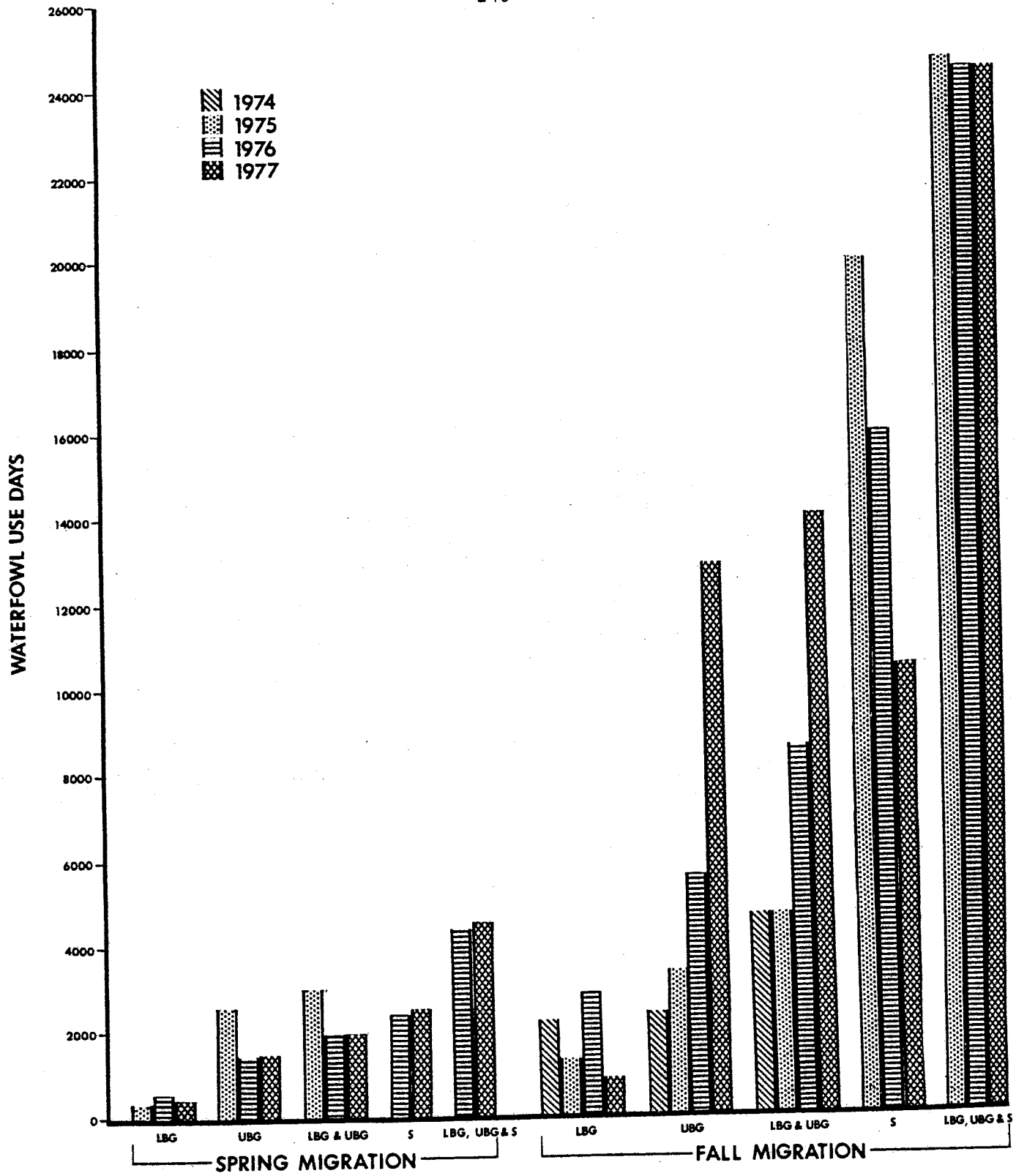


Figure 1. Total number of waterfowl use days at Lower B-G Reservoir (LBG), Upper B-G Reservoir (UBG), and Schoharie Reservoir (S) during the spring and fall migrations of 1974 through 1977.

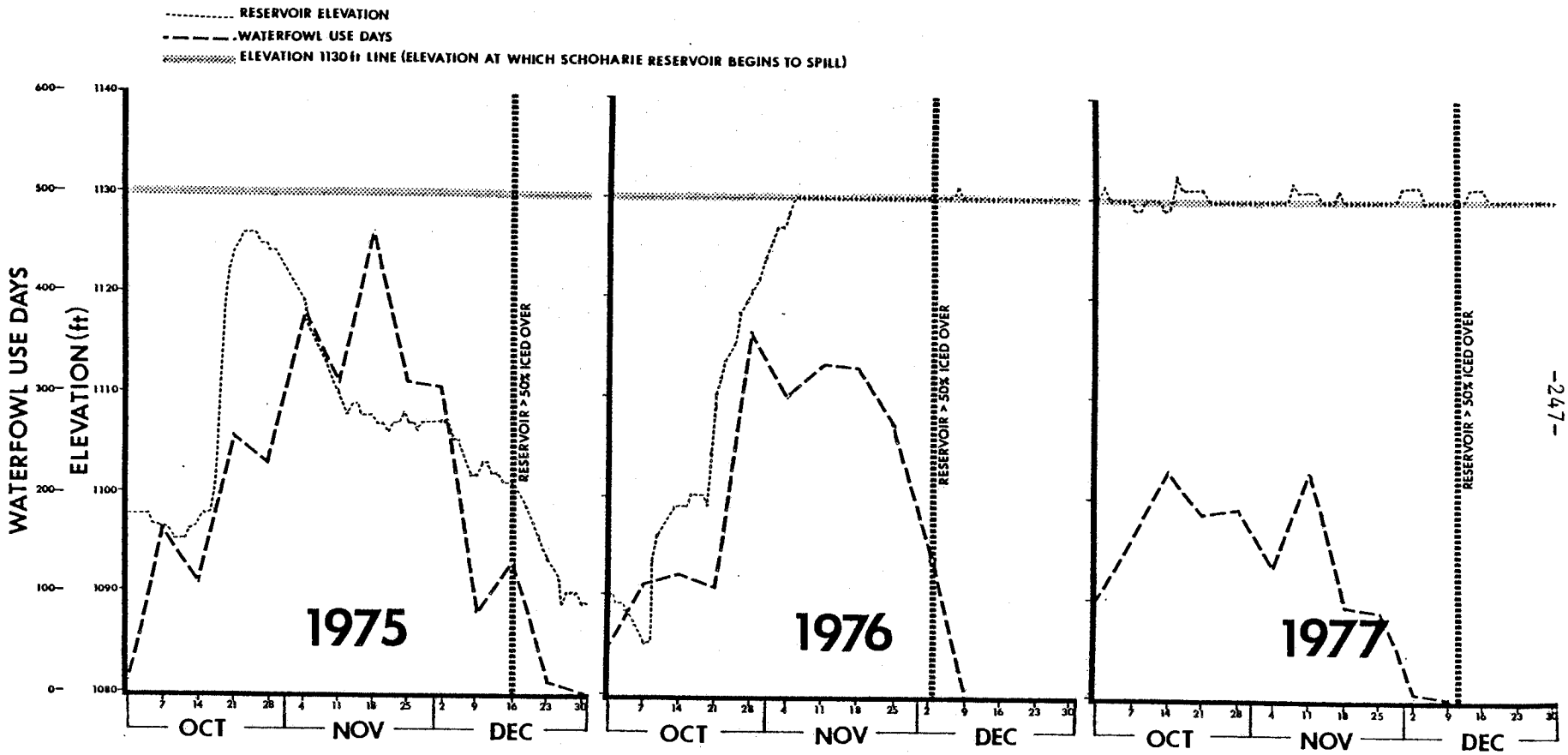


Figure 2. Average number of waterfowl use days per 7-day period and daily Schoharie Reservoir water level elevation during the fall migration of 1975 through 1977.

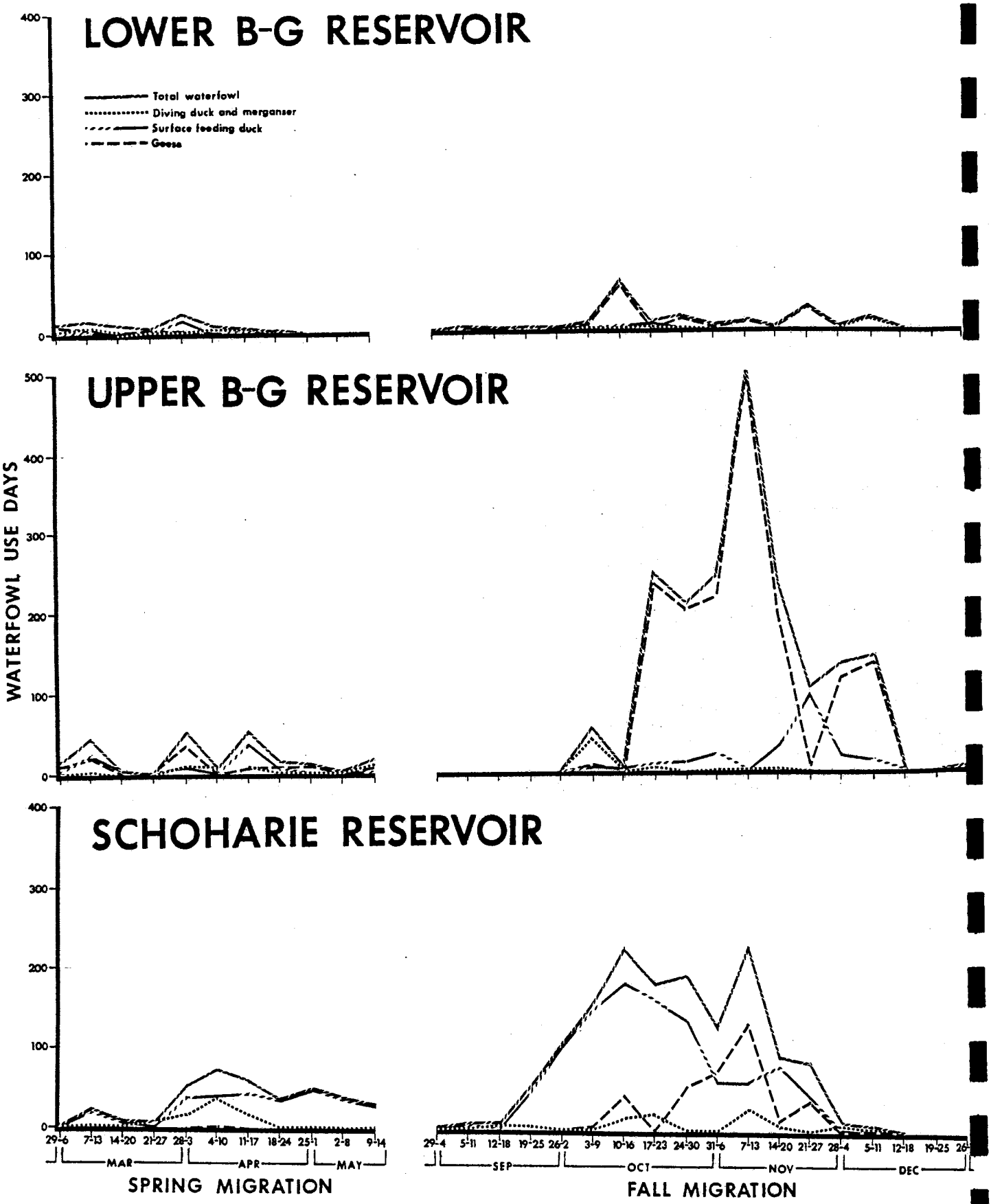


Figure 3. Average number of waterfowl use days per 7-day period at Lower and Upper B-G Reservoirs and Schoharie Reservoir during the spring and fall 1977 migrations.

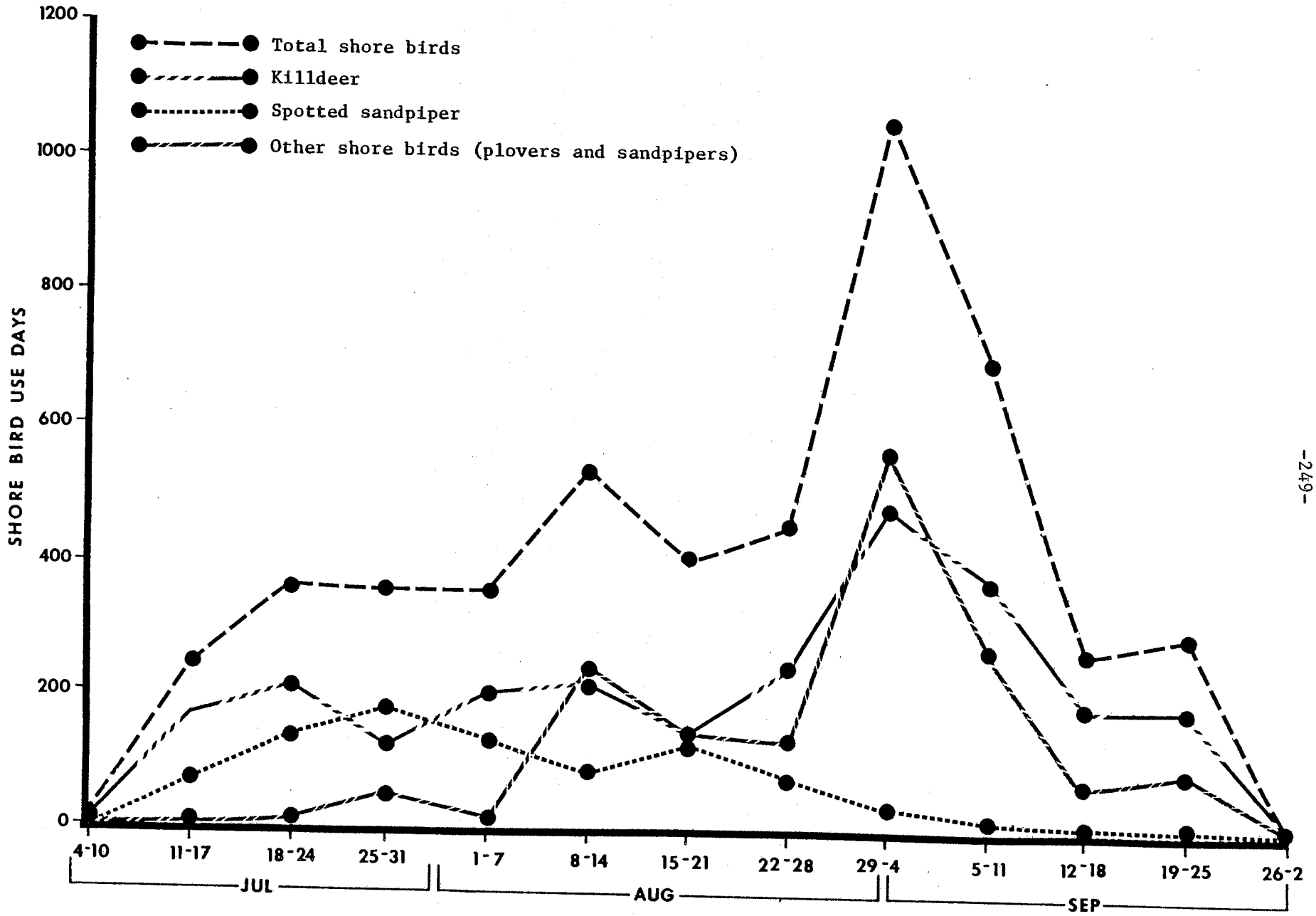


Figure 4. Total number of shore bird use days per 7-day period at Schoharie Reservoir during the fall 1977 migration.

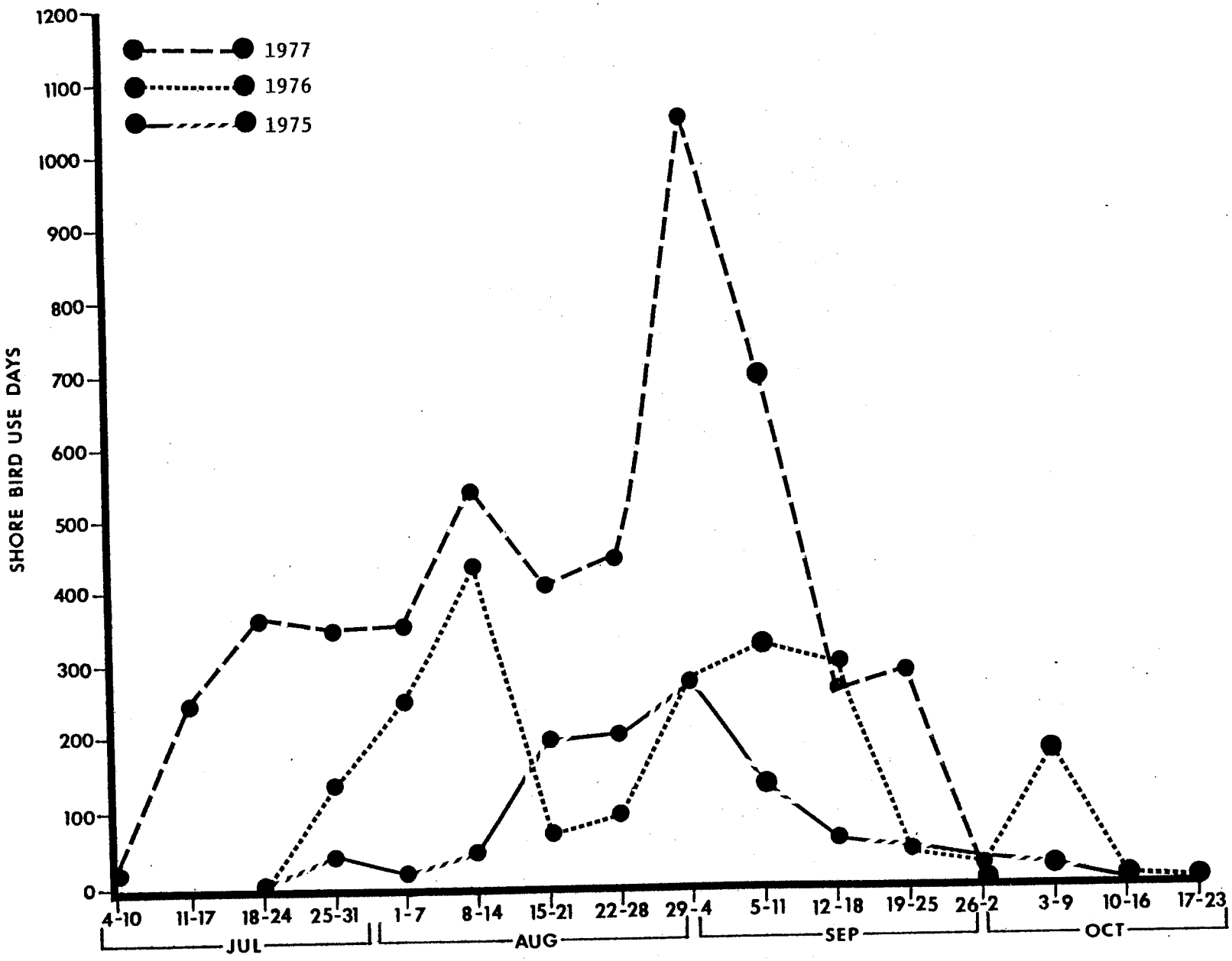


Figure 5. Total number of shore bird use days per 7-day period at Schoharie Reservoir during the fall 1975 through 1977 migrations.

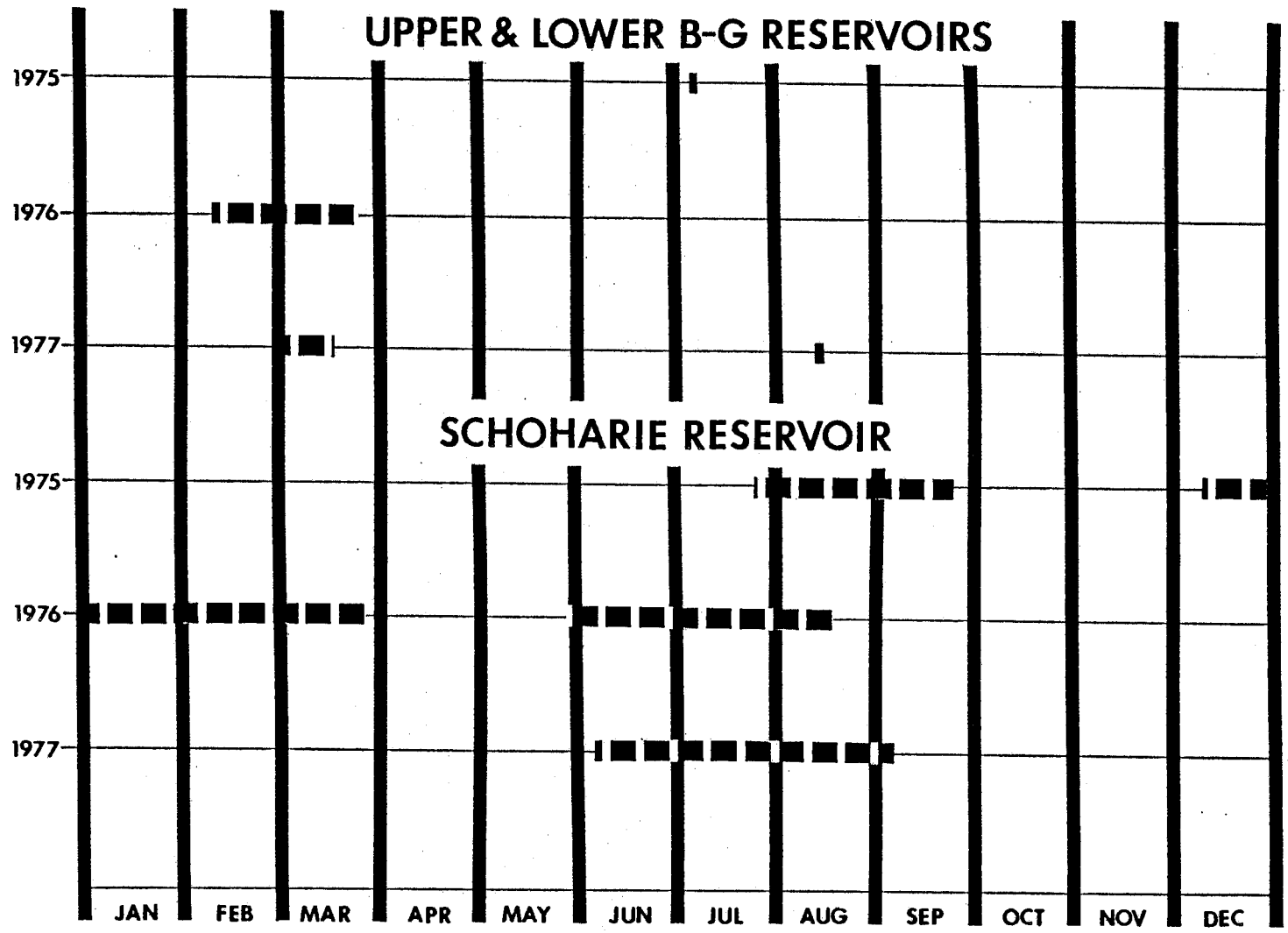


Figure 6. Periods of occurrence of the bald eagle at Upper and Lower B-G Reservoirs from 1975 through 1977 and at Schoharie Reservoir from July 1975 through 1977.

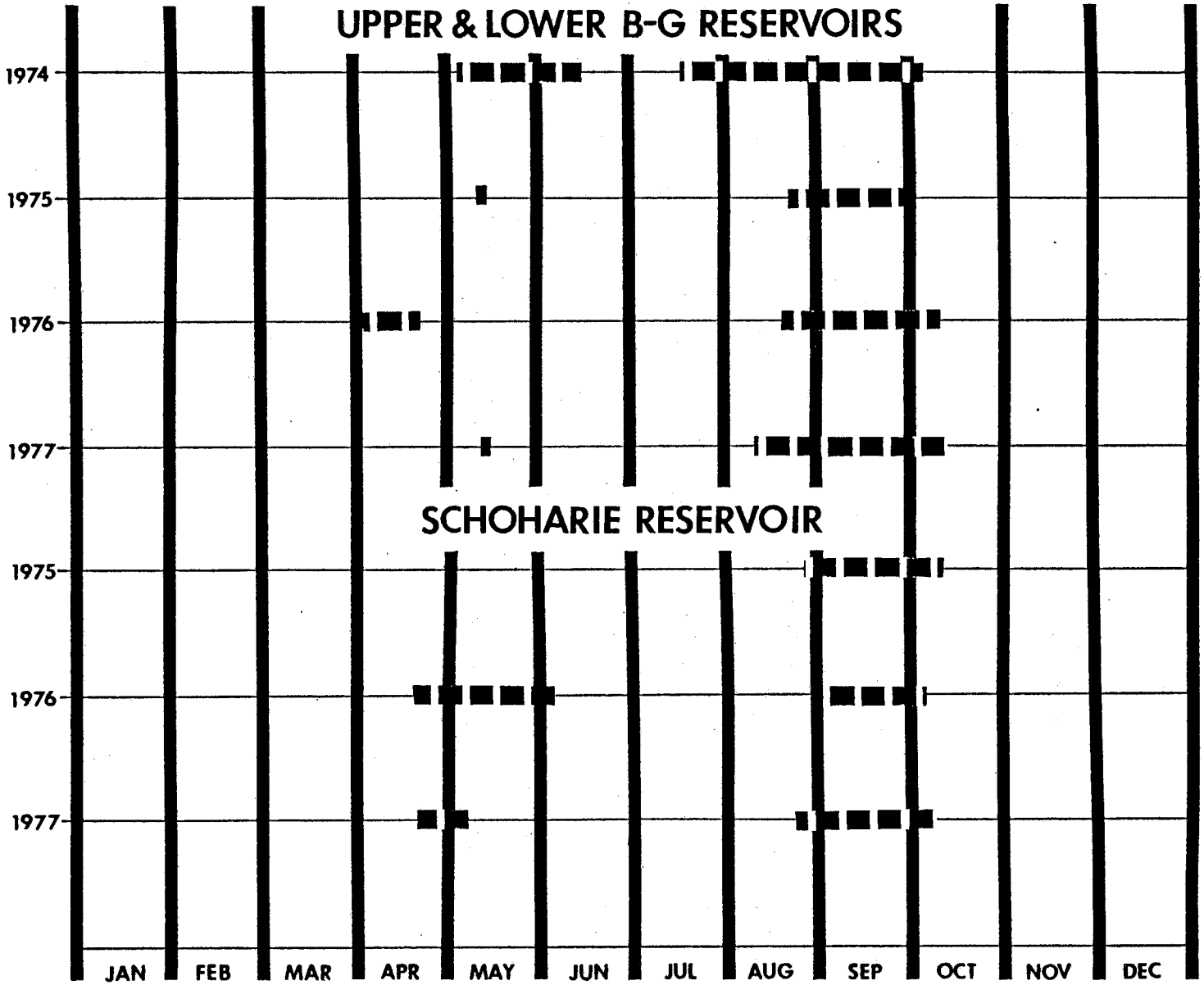


Figure 7. Periods of occurrence of the osprey at Upper and Lower B-G Reservoirs from 1975 through 1977 and at Schoharie Reservoir from July 1975 through 1977.

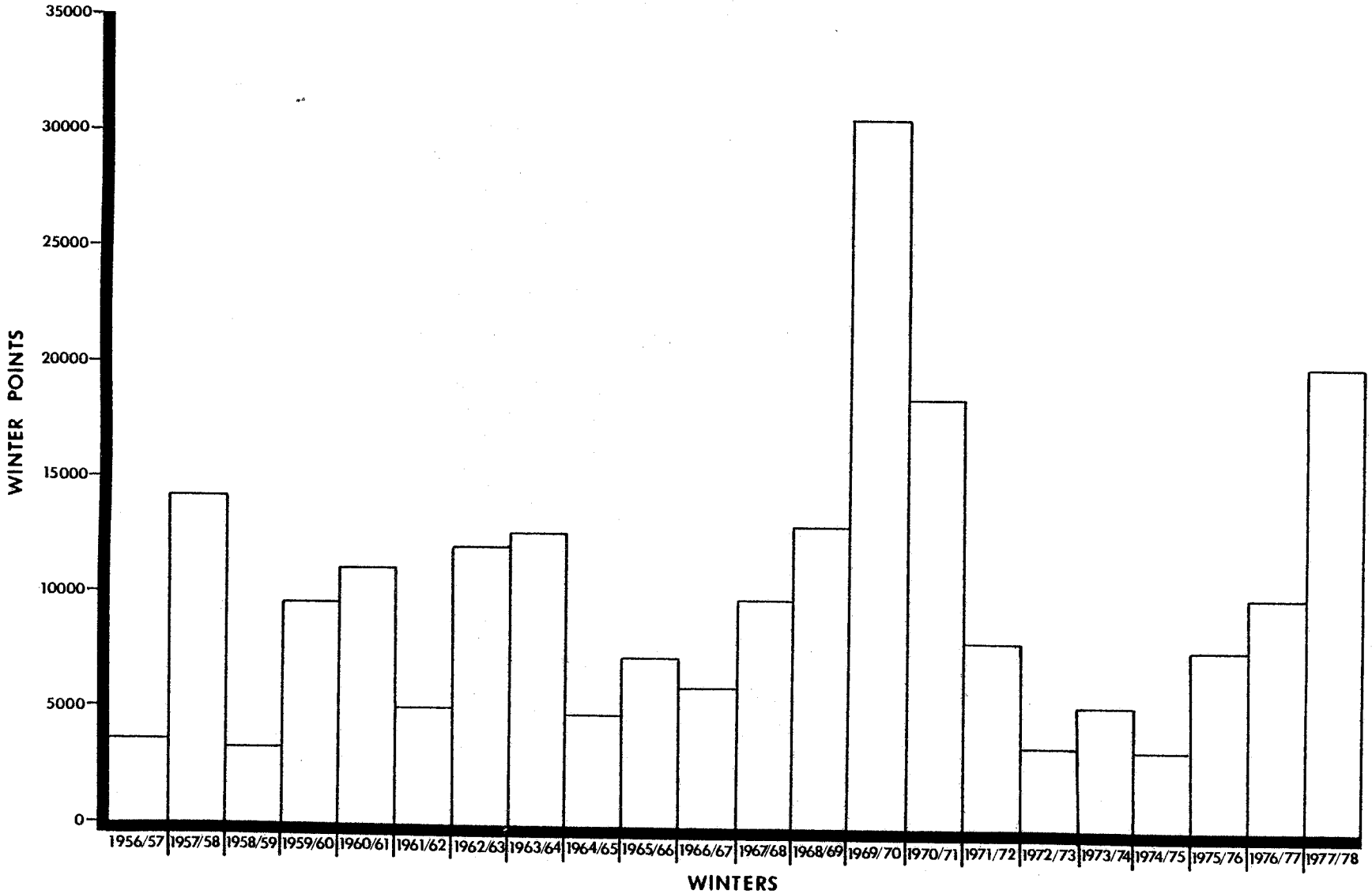


Figure 8. Total winter points for the winters of 1956-57 through 1977-78. Weather data recorded by the National Weather Service at Cobleskill, New York.

Appendix 1. Formulas used to calculate frequency, relative frequency, density, relative density, dominance, relative dominance, and importance value for point-quarter and quadrat sampling data.

Parameter	Formula
Point-quarter Data	
Frequency	$\frac{\text{number of points at which a species occurs}}{\text{total number of points}}$
Relative Frequency	$\frac{\text{frequency for a species}}{\text{total frequency for all apecies}} \times 100$
Relative Density	$\frac{\text{number of individuals of a species}}{\text{total individuals of all species}} \times 100$
Density (/hectare)	$\frac{\text{relative density}}{100} \times$ total density of all species where total density $= \frac{\text{unit area (1 hectare)}}{(\text{mean point to plant distance})^2}$ = number of trees per hectare
Dominance (cm^2/hectare)	density X mean basal area where basal area $= \pi(dbh/2)^2/100$
Relative Dominance	$\frac{\text{dominance for a species}}{\text{total dominance for all species}} \times 100$
Importance Value	relative frequency + relative density + relative dominance
Quadrat Data	
Frequency	$\frac{\text{number of quadrats in which a species occurs}}{\text{total number of plots}}$
Relative Frequency	$\frac{\text{frequency for a species}}{\text{total frequency for all species}} \times 100$
Density (/hectare)	$\frac{\text{number of individuals of a species}}{\text{area sampled } (m^2)} \times 10{,}000$
Relative Density	$\frac{\text{density for a species}}{\text{total density for all species}} \times 100$
Dominance (m^2/hectare)	$\frac{\text{total area coverage value for a species}}{\text{area sampled } (m^2)} \times 100$
Relative Dominance	$\frac{\text{dominance for a species}}{\text{total dominance for all species}} \times 100$
Importance Value	relative frequency + relative density + relative dominance Note: for herbs, density and relative density were not measured; hence, Importance Value = relative frequency + relative dominance

Appendix 2. Criteria used by Keith (1961) to note nest concealment.

Classification	Criteria
Very good	Hen and nest concealed from both the sides and above.
Good	Hen and nest concealed from the sides; little concealment from above.
Fair	Hen and nest only partially concealed from the sides; no concealment from above.
Poor	Hen and nest with little or no concealment from the sides; no concealment from above.

Appendix 3. Age classification criteria for wild ducklings (Blankenship et al. 1953).

Plumage Class	Sub-Class	Description
I. Downy Young - No feathers visible.	a	"Bright ball of fluff". Down bright. Patterns distinct (except diving ducks). Body rounded and the neck and tail are not prominent.
	b	"Fading ball of fluff". Down color fading, patterns less distinct. Body still rounded and the neck and tail are not yet prominent.
	c	"Gawky - downy". Down color and patterns faded. Neck becomes prominent in all species. Tail becomes prominent in dabblers, not in divers. The first feathers on shoulder and side visible on a bird in the hand. Body becomes long oval.
II. Partly Feathered - As viewed from the side.	a	"First feathers". First feathers show on the side under field observation. Stays in this class until a side view shows one-half of side and flank feathered.
	b	"Mostly feathered". Side view shows more than one-half of side and flank feathered. Stays in this class until side view shows down only on head and neck.
III. Fully Feathered - As viewed from the side.	a	"Feathered-flightless". Side view shows down only on head and neck. Stays in this class until primaries break from sheaths and no down is visible.
	b	"Feathered and Fledged". Side view shows no down and the sheaths breaking off the primaries. Stays in this class until primaries fully grown and the bird capable of strong flight. Some divers may retain down on head and neck.