

BIRDS OF A SPRUCE PLANTATION IN THE ALLEGHENY PLATEAU OF WESTERN NEW YORK

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Although various breeding bird censuses have been carried out in native coniferous forests in eastern North America, apparently few such studies have been made in artificially planted evergreen stands, particularly in those composed of spruces. These spruce plantations are fairly numerous in New York State and some have attained a tree maturity in which they appear to possess a rather stable bird species composition, so it seems appropriate to document their bird populations during the breeding season.

We studied a maturing spruce plantation 2 miles east-southeast of the village of Farmersville in northeastern Cattaraugus County. This is in New York State Reforestation Area 7 and is one of the stands that we visited in our investigation of Golden-crowned Kinglet range extension (*Wilson Bulletin*, 83:313, 1971). It is about 20 acres in area and lies at the top of a hill at an average elevation of 2080 feet above sea level. It is generally rectangular in shape, about 575 yards long, and varies from about 150 to 200 yards wide. Terrain within it slopes eastward from almost level near the road along the west edge to a maximum 30° slope near its eastern border. An open field is on the north side, a native deciduous woodland, chiefly of sugar maple and beech mixed with some introduced spruces, is on the east, and a partly open area of scattered spruce clumps and single large spruces and smaller pines lies on the south side. On the other side of the dirt and gravel road bordering the west edge and extending the length of the study area are, successively, a small plantation of tall spruces and pines, some scattered spruces, a small section of aspens, and a stand of medium sized pines.

The study area woodland was planted in 1932 and is composed chiefly of Norway Spruce (*Picea abies*) with some White Spruce (*Picea glauca*). Trees range generally from 40–50 feet in height and most are 8–10" DBH. They are spaced from about 2–4 yards apart and form an essentially closed canopy at middle levels except for a few openings where trees have died and fallen or been removed. The lower branches of many trees have been pruned to a height of 8–10 feet above ground. Many dead fallen or wind-downed branches and trees are scattered on the needle-covered forest floor. A few Yellow Birch (*Betula lutea*), Black Cherry (*Prunus serotina*), and relict apple (*Malus* sp.) trees grow in the woodland, particularly near one small spring and pool near the eastern border. Blackberries (*Rubus* sp.), ferns (*Dryopteris* sp.) and mosses (*Heterophyllum* sp.; *Atrichum* sp.) grow on the ground scattered through the tract. In places the moss forms beds covering several square yards. The interior of the forest is otherwise generally open ex-

cept where lower branches of the spruces have not been pruned. Further discussion of the characteristics and history of this type of plantation is in *Wilson Bulletin* (*op. cit.*) and *Prothonotary* (37:90, 1971) on the birds of McCarty Hill.

We first visited the study area on 1 July 1969 and subsequently in 1971 on 19 and 25 June and 4 July, on the last three dates spending from 1½ to 3½ hours each day between 4 and 7:30 AM. Calm air to light winds, temperatures ranging from 55–70° F, and clear to partly cloudy skies made these three mornings very suitable for both hearing and observing birds. We also checked the tract on 19 March 1972. During the 1971 visits we recorded a total of 16 species of birds within it. Of these we believe that 11 species were probably breeding and 5 were very likely visitors.

Following are the 11 species thought to be breeding, the first figure after each being the number of breeding pairs that we calculated were in the tract based on singing males heard or on individuals seen when determination by sound or sex was not possible. The figure following in parentheses is the number of pairs per 100 acres.

Black-throated Green		Robin	2 (10)
Warbler	8 (40)	Blue Jay	1 (5)
Chipping Sparrow	4 (20)	Black-capped Chickadee	1 (5)
Golden-crowned Kinglet	3 (15)	Red-breasted Nuthatch	1 (5)
Magnolia Warbler	3 (15)	Solitary Vireo	1 (5)
Blackburnian Warbler	3 (15)	Slate-colored Junco	1 (5)

No nests were found in the tract. The Solitary Vireo was also in the spruce plantation across the road one morning, so it possibly was not breeding in the study area. The five species that we considered to be visitors are Wood Thrush, Cedar Waxwing, Red-eyed Vireo, Brown-headed Cowbird (non-territorial possible breeder), and Purple Finch. Wood Thrushes occasionally entered the study area from the adjacent mixed woodland, as did the Red-eyed Vireo on one morning. Cedar Waxwings moved about in varying numbers and did not seem to be located in the area. The Purple Finch was recorded only the first day.

Most of the birds in the tract kept to middle and upper levels in the spruces. The Robins and Slate-colored Juncos often frequented the ground and lower branches and the Black-capped Chickadee also did this to a lesser extent. Chipping Sparrows were either at the edges or just within the borders of the plantation. There was a random distribution of species and individuals within the study area, but less birds were noted in the northern part and along the western side of the tract than in the eastern and southern sectors. This may have a relation to contiguous forest on the east and south which affords continuous cover and a medium for bird movement. The fact that most of these plantations

are small in area and bordered either by open areas or various types of forest or shrub habitats increases the difficulties encountered with edge effect in assessing their breeding bird populations.

Birds noted close to the study area border in the adjacent tree habitats on the east and south are Robin, Wood Thrush, Red-eyed Vireo, and Ovenbird. In the field on the north were Redwinged Blackbird and Song Sparrow. Across the road on the west in the evergreen and aspen woodlands we recorded Mourning Dove, Yellow-shafted Flicker, Brown Creeper, Red-breasted Nuthatch, Golden-crowned Kinglet, Wood Thrush, Solitary Vireo, Black-throated Green Warbler, Blackburnian Warbler, Ovenbird, Brown-headed Cowbird, Rufous-sided Towhee, Chipping Sparrow, and Slate-colored Junco. A Red-shouldered Hawk flew over the study area one morning. The visit on 19 March revealed an expected very low population of birds in the study area. Two Brown Creepers, a Blue Jay, and several Black-capped Chickadees were the only birds recorded. Since no Golden-crowned Kinglets or Red-breasted Nuthatches were found, this possibly indicates that a breeding population normally does not remain in its nesting area through the winter. These species may forage through various evergreen stands which usually make up the reforestation area. Both species occur in winter in small flocks or single individuals, so it is possible that the spruce plantations' breeding populations derive from these wandering birds.

It is interesting to compare some of the results of the Farmersville study with data for species we recorded during the breeding season of 1965 in the approximately 60 acres of Norway and White Spruces in a plantation on McCarty Hill (2320 ft. a. s. l.) near Ellicottville, Cattaraugus County (*Prothonotary, op. cit.*). This area was planted about the same time as the Farmersville tract, but the spruces vary more in height and density and the plantation is cut by several roadways, a ski tow opening, ski runs, and a fire tower clearing. In addition to these differences it has extensive pine plantations, mixed pine and spruce, and deciduous woodlands completely surrounding it. In the McCarty Hill spruce tract Magnolia and Blackburnian Warblers were slightly less abundant (13 prs per 100 acres) than in the Farmersville area. However, Black-throated Green Warblers were much more numerous (40 prs per 100 acres) at Farmersville than on McCarty Hill where only 5 prs per 100 acres were recorded. Their abundance in the former area is near to that recorded in some mature pure spruce and mixed coniferous-deciduous native woodlands in other parts of the Northeast. Possibly the more variable tree size and disruption by roads and other openings at McCarty Hill are factors affecting the density of this species there. Dense Black-throated Green Warbler populations appear to correlate with mature and more uniform coniferous woodlands or with mixed woodlands having a large percentage of evergreens. Recent studies in an upland, ma-

turing, artificially planted pine stand of 38 acres in Allegany County, New York (Klingensmith, *American Birds*, 25:984, 1971) revealed a very dense breeding population of this species (58 prs per 100 acres). The pines in this tract are similar in age and height to the trees in our study area.

A study by Saunders (New York State Museum Handbook 16, 1936) of a mature 504 acre section of beech-maple-hemlock forest in Allegany State Park, a typical upland habitat in this region, showed 24.2 prs per 100 acres of Black-throated Green Warblers, considerably less than the density in the Farmersville spruce tract and in the Allegany County pine stand. Blackburian Warblers were also less dense 8.7 prs per 100 acres) in Saunders' mixed woodland than in our pure spruce plantation (15 prs per 100 acres) and the Allegany County pine stand (37 prs per 100 acres). The density of Magnolia Warblers in the mixed woodland (28.8 prs per 100 acres) considerably exceeded that in our study area (15 prs per 100 acres), and this species was not present in the pine stand, probably owing to pruning and the open character of most of its understory or merely to its known predilection for hemlock and spruce. The Farmersville plantation lacked two of the most common breeding species of the beech-maple-hemlock forest, the Red-eyed Vireo and Ovenbird, as well as various flycatchers and other warblers. Its species composition was very similar to that of Klingensmith's pine area, Ovenbird and Brown Creeper being the only two of the pine stand's more abundant species absent, while Chipping Sparrow, Golden-crowned Kinglet and Magnolia Warbler were lacking in the latter area. Our study area possessed an overall density of about 140 prs per 100 acres compared to 182.2 prs per acres in the beech-maple-hemlock forest and 204 prs per 100 acres in the pine plantation. Additional studies in this region of other artificially planted pure spruce and pine plantations of varying ages to augment the few data now available on their breeding birds will perhaps allow more meaningful comparisons and lead to the acquisition of more knowledge about factors influencing their populations.

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RECORDS FROM GREAT GULL ISLAND — 1972

For the past four summers, intensive netting and observation has been conducted on Great Gull Island, Suffolk County (Duffy 1970, 1971; Pasquier, Poole 1972). This paper is a summation of interesting records for the spring and summer of 1972. Bull's *Birds of the New York Area* (1964) and *Supplement* (1970) were used for evaluation of status of the species mentioned.

Cory's Shearwater: 1-May 25. Seen during a day of extremely high east wind; this is the fourth record before July and the earliest sighting for the area by four days.

Great Cormorant: 2-June 5; 3-June 6; 1-June 9. Bull lists the previous spring extreme as May 3.

Common Scoter: 24-July 20. Bull lists this species as rare in summer but this flock and others seen in past summers in Gardiner's Bay indicate that it may not be uncommon in the vicinity.

Pomarine Jaeger: 1-June 21 (Hays) and 1-June 24 (Pasquier).

Parasitic Jaeger: 2-June 24 (De la Torre) Also three unidentified jaegers on June 24 and 2 on June 30. Although possibly not rare offshore (Wynne-Edwards, 1935; Alperin 1958) they are probably rather casual as far inshore as Gull Island early in the season, despite their frequency later (Pasquier, Poole 1972, Pasquier in prep.) These birds were probably the result of Hurricane Agnes, on June 21.

Royal Tern: 1-May 7 (Hays and Donaldson); 3-June 16; 1-July 1. The previous earliest spring record for this species is June 20.

Monk Parakeet: 1-June 4.

Swallow sp.: 1000-June 1. Estimated total for species: 500 Tree; 300 Barn, 200 Bank, 10 Cliff, 1 Rough-winged, 3 Purple Martins; and one Chimney Swift. Rather late for a migrating flock, the birds appeared on the day of a *Chironomid* midge swarm and vanished immediately after.

Acadian Flycatcher: 1-June 12-13, banded and keyed (Phillips et al. 1966) there seems to be a regular occurrence of this species in early June.

Short-billed Marsh Wren: 1-May 17-singing, little known as a migrant.