

A Comparative Study of Certain Birds
Banded at a Station in North-central Vermont, 1963,
and a Location in the Mid-Hudson Region of New York, 1964
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It has been observed that food is by far the most important habitat factor controlling population density of animals. Plant foods of animals are, in turn, controlled by climate--an indirect factor, therefore, in regulating bird numbers (Welty, 1962). For example, cone-feeding birds are found wherever suitable fruiting conifers are growing (Clarke, 1954).

Climax vegetation types found in the mid-Hudson region of New York consist of the white oaks and hickories at the latitude of about 41° , $4'$. Central Vermont, at a latitude of approximately 44° , $2'$, is dominated by a climax vegetation composed of maple, beech and white and yellow birch (Clarke, 1954; Oosting, 1956). It was the aim of this study to compare the avian fauna trapped by the author from January through April, 1963, at Plainfield, Vermont, with those caught by him at New Paltz, New York, during the same months in 1964, in the context of the climax vegetation types found in these areas.

Since both of the localities where banding took place contained tracts which were in various stages of succession, conifers and other gymnosperms were found in significant numbers. Characteristic of gymnosperms found in the Plainfield, Vermont, area were: Abies balsamea, Juniperus communis, Larix laricina, Picea canadensis, P. rubra, Pinus strobus, Thuja occidentalis and Tsuga canadensis (Vermont Botanical Club, 1937; Jaques, 1941). The most common gymnosperms at New Paltz, New York, were: Juniperus communis, J. virginiana, Tsuga canadensis, Pinus strobus and P. rigida. Rare or absent at New Paltz were: Picea sp., Abies balsamea and Thuja occidentalis. Abandoned fields in the mid-Hudson region surrounding New Paltz are readily invaded by the red cedar, the most common gymnosperm to be found there now. Balsam fir, American larch, red cedar and American arborvitae characterize Plainfield.

The winters of 1963 and 1964 were seasons of heavy snowfall and severe cold. Likewise comparable were the months when the birds were banded, January through April in each case, and the trap used, a Mason-type ground trap. Also similar was the seed production in each area. In the seasons preceding the winter of 1963 at Plainfield and the winter of 1964 at New Paltz abundant seeds were produced by gymnosperms and certain angiosperms. Another area for comparison of the two regions was the degree of real estate development. Both banding stations were in relatively rural localities, though New Paltz is in a rapidly growing district because of its proximity to New York City.

The following table is a comparison of the total number of birds of each species banded at the two localities during the same four-month periods of 1963 and 1964.

Table 1. Comparison of certain birds banded January through April at Plainfield, Vermont, in 1963, and at New Paltz, New York, in 1964.

Species	Plainfield, Vermont	New Paltz, New York
Downy Woodpecker	1	0
Blue Jay	8	2
Black-capped Chickadee	14	19
Tufted Titmouse	0	3
Cowbird	2	11
Purple Finch	199	0
Evening Grosbeak	143	0
White-throated Sparrow	1	17
Song Sparrow	26	28
Tree Sparrow	14	24
Fox Sparrow	0	1
Pine Siskin	31	0
Junco	7	54
House Sparrow	0	4
Total	446	163

It will be noted in the foregoing table that certain species were banded in significant numbers at one locality and were completely absent at the other. Notable are the Purple Finch, the Evening Grosbeak and the Pine Siskin...banded at Plainfield, but absent from New Paltz. These three species are all members of the same family, Fringillidae, and are attracted to areas with heavy cone crops.

Juncos, White-throated Sparrows and Tree Sparrows were banded in significantly greater numbers at New Paltz than at Plainfield. Were these birds winter residents, casual transients, or were they late winter or early spring northward-bound migrants? This could be indicated only by an analysis of those banded during each month as set forth in Table 2.

Table 2. Monthly comparison of birds banded during 1963, Plainfield, Vermont, and 1964, New Paltz, New York.

Species	Location	Jan.	Feb.	Mar.	Apr.	Total
Downy Woodpecker	Plainfield	1	0	0	0	1
	New Paltz	0	0	0	0	0
Blue Jay	Plainfield	2	6	0	0	8
	New Paltz	0	0	0	2	2
Black-capped Chickadee	Plainfield	3	9	0	2	14
	New Paltz	3	13	3	0	19

Table 2 continued

Species	Location	Jan.	Feb.	Mar.	Apr.	Total
Tufted Titmouse	Plainfield	0	0	0	0	0
	New Paltz	0	1	2	0	3
Cowbird	Plainfield	0	0	0	2	2
	New Paltz	0	0	2	9	11
Purple Finch	Plainfield	1	0	165	33	199
	New Paltz	0	0	0	0	0
Evening Grosbeak	Plainfield	0	35	108	0	143
	New Paltz	0	0	0	0	0
White-throated Sparrow	Plainfield	0	0	0	1	1
	New Paltz	1	0	0	16	17
Song Sparrow	Plainfield	0	0	6	20	26
	New Paltz	1	1	9	17	28
Tree Sparrow	Plainfield	11	1	1	1	14
	New Paltz	0	18	5	1	24
Fox Sparrow	Plainfield	0	0	0	0	0
	New Paltz	0	1	0	0	1
Pine Siskin	Plainfield	0	0	26	5	31
	New Paltz	0	0	0	0	0
Junco	Plainfield	0	0	0	7	7
	New Paltz	0	4	21	29	54
House Sparrow	Plainfield	0	0	0	0	0
	New Paltz	0	0	1	3	4
Total						609

Of the three species banded in greatest numbers at the Plainfield location, all appeared to be nomadic transients, wandering far and wide in their quest for winter food. Purple Finches did not appear until March, except for a "loner" in January. Evening Grosbeaks arrived in February and disappeared with the snows in late March. The erratic Pine Siskins delayed their coming until March and vanished by mid-April. The Tree Sparrows at Plainfield appeared to be winter residents, though in limited quantities because the deep snows covered their usual fare of weed seeds (Allen, 1961).

The Tree Sparrows captured at New Paltz, however, were not taken until February, perhaps because the heavy snows did not appear as soon as they did in Plainfield. Does this also mean that birds can exist about a month after heavy snowfalls (January at New Paltz) before being forced to feeders?

Juncos did not come to Plainfield until April, indicating that they must have been north-bound spring migrants. This same species, however, appeared at New Paltz in February, increased markedly in March and reached a peak in April, suggesting that both winter residents and migrants of this bird were trapped in this area.

A White-throated sparrow, a bird commonly nesting in Vermont, was not banded until April, and was without question a migrant. A lone specimen was taken at New Paltz in January, and was probably a winter resident. Those captured in April were undoubtedly spring arrivals from farther south.

Song Sparrows did not come to the Plainfield station until March, and were, therefore, no doubt spring arrivals. At New Paltz one was taken each of the months of January and February, demonstrating that they remain in this area in limited numbers, even during the severest winter weather. Those apprehended in March and April were likely migratory birds.

What conclusions can be drawn from this study? From the evidence set forth it would appear that:

1. Abundant cone crops attract Pine Siskins, Evening Grosbeaks and Purple Finches to the upper Winooski Valley of Vermont.
2. More Tree Sparrows winter in the mid-Hudson Valley region of New York than in north-central Vermont, perhaps because of the longer availability of weed seeds in the former area.
3. Limited numbers of Song Sparrows and still fewer White-throated Sparrows winter at New Paltz, while apparently none brave the rigors of Plainfield's winter.
4. Juncos winter at New Paltz, but not at Plainfield.
5. Fringillids ignore winter severities if sufficient food is available (James, 1963).

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