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Winter Bird Studies At The UWM Field Station

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ist and the stay-at-home naturalist, if the latter is aware of the presence of such trees in his immediate vicinity.

The third species, which bears the name (and possibly the title), "Harbinger-of-Spring," is one of the rarest plants in our state. It has been collected only in a few localities in southeastern Wisconsin, and most of these sites have disappeared. The plant is a small herbaceous perennial, four to six inches high, with one or two leaves which are twice- or thrice-divided into narrow segments, and bears one or more umbels (umbrella-like clusters) of small flowers at the tip. It usually occurs in moist woods of maple, basswood, beech and oak. This writer is very interested in knowing of any remaining places in Wisconsin where this plant may still be present.

The question as to which of these is the earliest flowering plant has not been answered. Phenology records (observations of various events for many years) kept by Dr. James Zimmerman of Madison, indicate that the nod goes to the Skunk Cabbage. However, in any given year with unusual vernal climatic conditions, it is possible for any one of these to be the earliest flowering state plant. Which one was it this year?

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WINTER BIRD STUDIES AT THE UWM FIELD STATION

When the UWM Field Station was acquired in 1964, it provided opportunities for planning and conducting long-term field studies in an area protected from disturbance, vandalism and "development." In line with my interests in population ecology, physiology and bioenergetics of birds, I began to plan investigations that would utilize the full potential of the station to integrate and coordinate field and laboratory approaches. After considering the birds at the station in terms of abundance, migration habits, and known physiological and ecological traits, three species were singled out for intensive study: the Ovenbird, Black-capped Chickadee and Slate-colored Junco.

The Ovenbird is an abundant breeding bird of the upland hardwood forest, present in the area from May to September. It is a long-distance migrant with a short, highly synchronized breeding and molting period. The Black-capped Chickadee has a less dense but more widely distributed nesting population, being found in the swamp and bog forests as well as the upland woods. The breeding population is believed to

be non-migratory, although some birds from farther north may winter on the station, at least in some years. The weight and fat cycles and bioenergetics are much different from those in the migratory birds. The third species, the Junco, is abundant in migration in October and April and is fairly numerous in winter. It is a short distance migrant with its main breeding range in the Boreal Coniferous Forest areas of Canada.

The study of the Ovenbird was begun in 1965 and has been continued each summer since. This will be described at another time. The present paper describes the winter field studies of the Chickadee and Junco.

The Winter Trapping Program

The winter trapping program was begun in the winter of 1965-66 and was expanded and conducted more systematically in 1966-67 and 1967-68. The primary objective has been to determine accurately the daily and seasonal changes in body weight and depot fat in the Chickadee and Junco. Many birds have the ability to deposit fat rapidly and in large quantities, and also to utilize it rapidly as a source of energy for migration flights or for survival in adverse weather or environmental conditions. This ability varies seasonally, and its physiological and endocrinological regulation is of prime interest to biologists. Secondly, we (my students and I) have been interested in the winter population densities of these birds, their organization into social groups and flocks, their movements and range of activity in the local area. In the Chickadee it would also be of interest to know what the relationships are between these aspects of winter behavior and the formation of breeding pairs, location of territory, etc. in the spring. Attaining the primary objective has generally required most of our time and effort. Information regarding the secondary objectives has been obtained more sporadically and incidentally.

Our trapping methods have been improved and extended each winter. We started with a few simple drop traps set in the yard of the manager's residence. This year we have seven trapping sites located more or less equidistant from each other, along the borders of the main Cedarburg Bog and a small outlying bog where the wintering Juncos and Chickadees are heavily concentrated. In addition to drop traps, some of the sites are equipped with Mason traps, government sparrow traps, 4-cell standby traps, Japanese mist nets, or other devices so that if one type fails (due to weather, for example) another may be successful in catching birds. Three of the sites are equipped with specially constructed feeder-traps, one on the ground for Juncos and one elevated on a post for Chickadees. These can either be operated manually, or used as automatic funnel traps or simply as feeding tables. At each of these sites there is also a permanent blind from

which the traps can be operated or from which observations can be made of feeding or agonistic behavior.

During the last two winters, from November through April, we have conducted trapping operations on one day a week, or more frequently during certain critical periods. Captured birds are banded with U.S. Fish and Wildlife Service numbered aluminum bands. Chickadees and sometimes Juncos are also color-banded so that they can be recognized individually when seen in the area. Among the data collected are: body weight; amount of subcutaneous and abdominal fat; reproductive condition as determined by incubation patch or cloacal protuberance; wing length and other measurements; presence or absence of molt in ten body areas and in all flight feathers; time and precise location and method of capture. Sex and age of most birds are determined from wing length and degree of skull ossification. (Young birds, like human babies, have soft areas in the skull.) Of course many of the birds that are trapped are repeats, i.e. birds that have been trapped and banded on earlier trapping dates. Such birds are critically important to our study since we can follow the daily and seasonal changes in these individuals over many months or even years. We often catch birds other than Juncos and Chickadees. These are handled in the same way unless we are very hard-pressed for time, in which case they are simply released without banding or examination.

On our trapping days we also spend as much time as we can spare in the blinds observing behavior of the color-banded birds, and in traversing the suitable Chickadee and Junco habitat in order to estimate population size, determine the ratio of banded to unbanded birds, and obtain information on the movements of the color-banded birds.

Summary of Trapping Activities in 1966-67 and 1967-68

During the first winter we trapped only on a few dates and banded 37 Juncos and 16 Chickadees as well as some Tree Sparrows, Goldfinches and other wintering birds. Not much information was obtained, but some of the birds have returned and provided data in subsequent winters.

In 1966-67 we trapped once a week as mentioned above and handled a total of over 600 birds, counting repeats. The actual winter population of Juncos in our trapping area was estimated to be about 120, of which 66 were banded, and 55 were also color-banded. The purpose of color-banding the Juncos was two-fold: first to study behavior, flock organization and movements, and second, to distinguish winter birds from transients banded during the spring migration, so that we could determine precisely when the winter birds departed on their migration journey.

The winter flock of Chickadees in 1966-67 consisted of 26 individuals of which all were banded and 23 were color-banded. These birds were trapped and retrapped 105 times and there were about an equal number of sight observations. Without

making any special effort to do so, we located several of these birds on their nesting territories in May and found, as others have, that the birds whose nesting territories included the winter feeders were the ones who were at the top of the dominance hierarchy during the winter.

In the present trapping season (1967-68) we have encountered some unexpected problems. The nearly complete absence of snow cover has permitted ground feeding by Juncos throughout most of the winter. Also, there have been numerous extended warm spells which have reduced the energy requirements of the birds. To further complicate the matter, there was a very heavy tamarack cone drop last season and for some reason the seeds were retained in the cones for most of the winter. Chickadees (and Goldfinches) have been feeding persistently all winter high up in the tamaracks beyond the reach of traps and nets. Whether the Chickadees have been feeding on the seeds or on some insect eggs or larvae associated with the cones is not known. I have examined many of the cones and have failed to find any insects. In any case, these factors have interacted to our disadvantage. Birds have been attracted relatively little to our baited traps and feeding stations.

As a result we have had so much difficulty in trapping enough birds to provide adequate statistical samples for our study of fat and weight, that we have had very little time for the other aspects of the project. Nevertheless, we have been able to trap a larger proportion of the Junco population than last year, 86 out of an estimated 100 birds. This includes ten returns from the previous year. The Chickadee population (about 60) was much higher than the previous year. Fortunately the birds deigned to come down out of the tamaracks occasionally enabling us to catch 47 individuals for a total of 252 times. Of the 47, 13 were returns from previous years. Sight observations however, were less numerous.

During these two winters we have also trapped many Tree Sparrows and smaller numbers of other birds: Hairy and Downy Woodpeckers, Cardinals, Blue Jays, etc. In 1967-68 there were many more wintering birds of species that usually migrate farther south. Our mid-winter catches included three White-throated Sparrows, five Song Sparrows, two Swamp Sparrows, one Fox Sparrow, three Oregon Juncos and two Brown Creepers. Thus the number of wintering birds was higher at the Field Station than it was the previous two years, except possibly in the case of the Slate-colored Junco in which the population was only slightly lower. Some Milwaukee area bird-watchers have complained about the dearth of birds this winter, but I suspect that this is more apparent than real. In an open winter like this the birds are simply more generally dispersed and do not concentrate so much around feeding tables.

A summary of the results and conclusions relating to the fat-weight cycles will be presented in a later Bulletin. Students who have helped on this project include John Barker, Kemper Will, Thomas Pleyte and Donald Morzenti.

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