

AN ECOLOGICAL SURVEY OF THE BIRDS OF REESE'S
BOG, CHEBOYGAN COUNTY, MICHIGAN

by

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The fact that certain birds are found in certain areas and that certain areas are inhabited by certain birds has always been of great interest to me. And so when an opportunity to study some phase of bird life was afforded me last year as a member of the Advanced Ornithology Class, at the University of Michigan Biological Station on Douglas Lake, Michigan, and ecological study of birds was begun. This study was carried on under the direction of Dr. Olin S. Pettingill Jr. and Dr. Theodora Nelson during the summer of 1939 by Mr. Royal Brunson and me, and during the present summer (1940) I have worked the area alone.

Mr. Brunson and I, upon the advice of Dr. Nelson, chose the area of Reese's Bog for our study. Reese's Bog is situated on the north shore of Burt Lake, just south of the University of Michigan Biological Station. This bog is a lake formation, originally a piece of Burt Lake proper, but the formation of sand bars over a considerable period of time cut off the tip of the old lake to form a series of beach pools. Vegetation and resulting debris filled in these pools, and formed the peat base of the bog. This very moist peat base is covered by a mat of sphagnum moss, in which are rooted cedar, balsam, blackspruce and tamarack trees forming one of the well-known, typical bogs of Northern Michigan.

Reese's Bog itself is much too large an area to be studied carefully over a limited period of time. So, in order to do a more complete piece of work, a portion of the Bog which seemed best suited for study was chosen. The portion selected is the southern half of the triangular strip of land bounded on the

south by the shore of the lake, on the west by a road running from the lake towards the Station, on the north by the Brutus-Topinabee Road, and on the east by a private road running to a cabin on the shore just east of the area. (See map) The area studied is about nine hundred thousand square feet large.

This choice was a most fortunate one, for due to the bog's geological history as filled-in beach pools and old lake shore, the area is arranged in good ecological sequence, enabling it to be divided into 10 zones based upon the different types of vegetation. (See map) These zones range from a narrow strip of sandy beach, thirty feet wide, through good sequence of various developmental stages, up to a typical young upland hardwood area.

Zone 1, as stated before, is a strip of sand extending about thirty feet back from the water's edge. This zone is covered by sand and gravel and sparse low growing beach plants, which make excellent cover for the Spotted Sandpipers.

Zone 2 is a grassy, marshy strip from the beach to the edge of the trees. It contains low shrubs and young trees which afford a fine habitat for certain birds such as the Northern Yellow-throat and Song Sparrow.

Zone 3 is a narrow strip of thick woods extending in width from the edge of zone 2 to the edge of an abandoned road.

Zone 4 is the abandoned road, which is heavily overgrown and bordered by dense woods on both sides, and the open areas and paths throughout the bog.

Zone 5 is the bog proper. This is the most intriguing area of all. It is heavily forested with cedar and balsam, and is the habitat of the birds of the deep woods, such as many of the wood

warblers and the winter Wrens.

Zone 6 is a bluff, arising sharply from the bog itself up onto a typical young hardwood area of this region. The vegetation of this zone is extremely thick and very difficult to penetrate. It consists, for the most part, of large balsams intermixed with scattered beech and striped maple trees.

From this bluff (Zone 6) the land continues to rise at approximately a one percent slope toward the north-eastern-most boundary of the area. Along with this slope a change in vegetation occurs. Here we have zones 7, 8 and 9. The limits of these zones are not sharply defined because of the way the types of vegetation intergrade. Zone 7 is typed by a birch-oak association, zone 8 by a beech-maple, and zone 9 by a maple-sumac. The forest floor of these three zones is covered by Pteris aquilina with an intermixture of blackberry bushes in zone 9.

Zone 10 is the area along the Brutus-Topinabee road. This is an area with thickets and brush formed by the numerous blackberry and elderberry bushes. Overhanging the road are maples, oaks, and Norway pines.

The next step in the study was to chart the various plants in each zone to show what types of plant life exist in the various zones. Some sixty species of the more common plants were identified and listed. (See Chart I) These plants for the most part are those which might serve as food trees or nesting sites for birds. In addition to these plants, sphagnum moss was found abundantly on the forest floor of zones 4 and 5, and lichens, especially the large amounts of Usnea found on the trees of 4 and 5, were found on the trees of all zones, except 1 and 2.

The birds found in the area are of two categories - resident and non-resident birds. The resident birds are those birds whose territories are within the bog boundaries; the non-resident birds are those not residing in the area but whose territories may include a portion of the bog. There were 45 resident birds in the area during the summer of 1939, four of these have not been seen during the summer of 1940. These are the Winter Wren, House Wren, Parula warbler, and Black-poll warbler. This latter, however, probably was a vagrant. To this list have been added during the past summer, three new birds - the Hairy Woodpecker, Myrtle warbler, and the Blackburnian warbler.

The non-resident birds total eight. Two, the Loon and Common Tern, were seen near the area, but not actually in it. The other six birds of last year were sighted just above the area; they included Belted Kingfishers, Purple Martins, Herring Gulls, Crows, and two hawks, Cooper's and Marsh which have not been seen over or in the area this year. Although I have seen a pair of Cooper's near Carp Creek Mouth (about one-half mile west) and a pair of Sharp-shin Hawks have been reported from the area just adjoining that under observation.

The resident birds have all been charted according to the zones in which they were found and it indicates that certain birds do inhabit certain types of vegetational zones. (See Chart II) Some birds inhabit or rather frequent almost all types of situations as does the Robin, while others are restricted to one or two associations or life zones, - as for example the Northern Yellow-throat and Winter Wren which are restricted to Zone 2 and 5 respectively. The Spotted Sandpipers were charted last year as occurring

only in Zone 1, but this year I have seen them perch when frightened or alarmed as far back as the trees on the edge of Zone three. This change in area may be due to the presence of dogs which were observed several times chasing the Sandpipers up and down the beach and interfering a great deal with their nesting activities.

Birds build their nests and establish their territories in the zones in which they are found. Each nest usually is centrally located in the defined territory, but not always. The extent of the territory may be estimated by watching the limitations of daily wanderings and observing just where, if two birds of the same species have adjoining territories, fighting takes place.

Light and temperature are definite factors in bird activity and song. The former may best be observed in the morning, starting just before dawn. The following data was gathered on seven mornings which were set aside for this phase of the study. The Whip-poor-will was the first bird to show activity in the morning, singing just as the sky began to lighten, continuing until a half-hour before sunrise. Shortly after the Whip-poor-will began its song, the Robins began their "twittering," followed by the Red-eyed Vireo, Wood Pewee, Veery, Hermit Thrush and the Winter wren. Just as the first rays of the sun struck the tops of the taller trees the warblers began their songs. Singing activity increases and seems to reach its zenith at about 8:00 a.m., beginning to decrease toward 9:00 a.m. and ending about 10:00 a.m., except for those birds that sing all day. In the late afternoon singing activity increased, fading toward dusk, ending with the Whip-poor-will's song from dusk to darkness. Variations of the time succession during the day are caused apparently by changes in the weather

such as cloudiness, rain, heat, cold, et cetera. Thus on cool, cloudy days we find only such birds as the Red-eyed Vireo, the Winter Wren, and the Robin singing. A slight rain in the morning seems to keep the birds active for a longer time, while a very muggy morning retards singing activity.

The area will undoubtedly support between 250-300 birds. The population, in 1939, was estimated to be between 200-225 birds, but this past year (1940) the author hesitates to go higher than 200, probably setting it closer to 175 birds. The reason for this decrease in population was not apparent, but it may be due in part to the unusually cool spring and early summer of this year.

In conclusion, let me note a most interesting and important fact which can be drawn from this work. That there is an ecological succession of birds quite similar to and seemingly corresponding to the ecological succession of plants. This conclusion is supported by the fact that certain birds are typical of certain areas. Thus we find the Spotted Sandpiper and Killdeer are typical of a sandy beach; the Northern Yellow-throat is found in low grassy and bushy places; the Parula warbler, Nashville Warbler, Black and White Warbler, Winter Wren, Chick-a-dee, Red-breasted Nuthatch, and the Black-throated Green Warbler are typical birds of deep bog. The Red-eyed Vireo, Wood-Pewee, Indigo Bunting and Least Flycatcher are found in the more open woods of upland areas; and there are certain species as the Robin and Blue Jay, that are not restricted to any definite location, but may be found in any type of area.

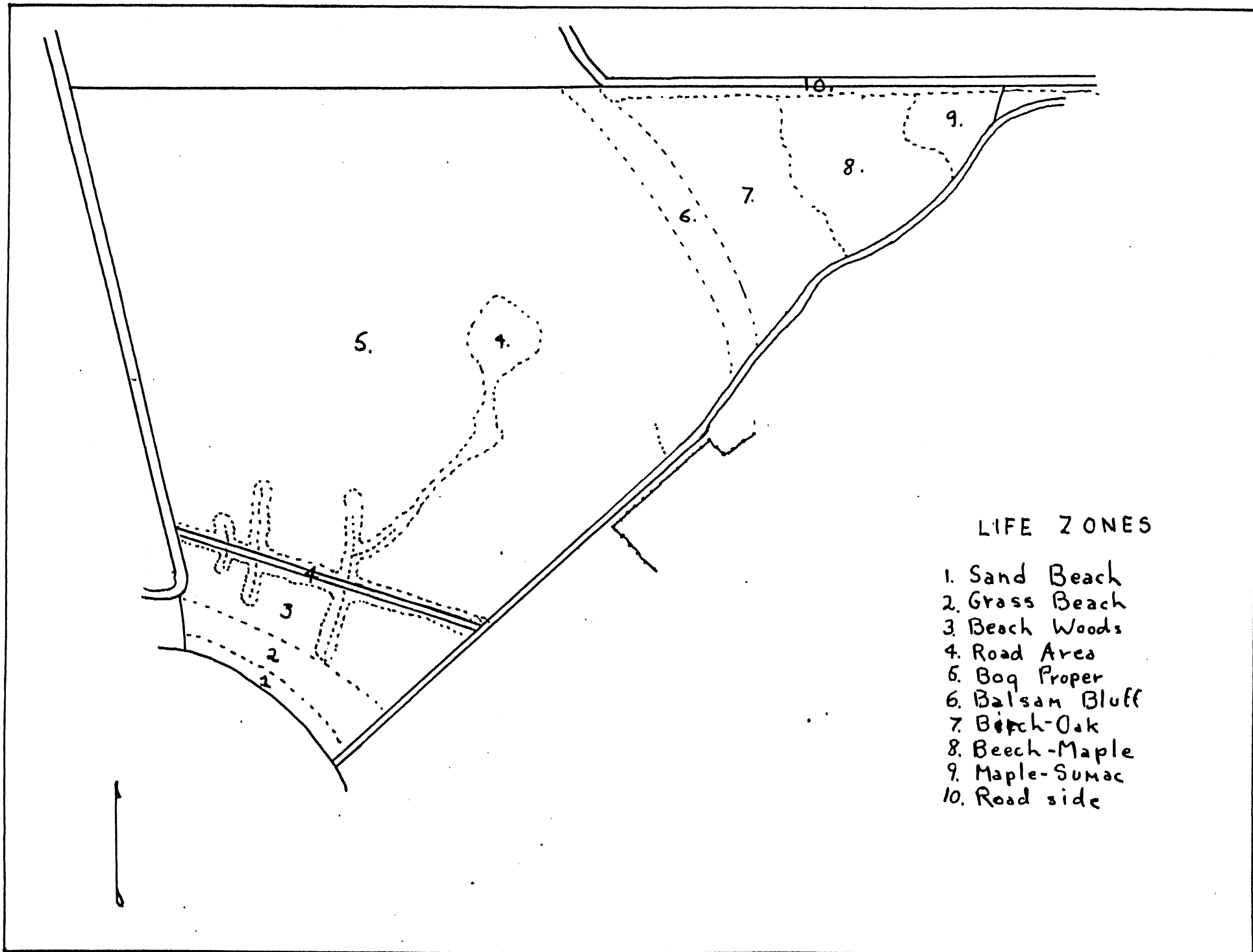


Chart I

Plant	Zone									
	1	2	3	4	5	6	7	8	9	10
<i>Abies balsamies</i>		x	x	x	x	x				
<i>Acer pennsylvanicas</i>				x				x	x	x
<i>Acer rubrum</i>		x	x		x	x		x	x	x
<i>Acer spicatum</i>	x		x	x	x					
<i>Alnus incana</i>		x								
<i>Ambrosia sp.</i>			x				x			
<i>Amelanchies spicatum</i>				x						
<i>Anaphala margretacia</i>			x	x	x		x			
<i>Anemone canadensis</i>		x	x							
<i>Aralia nudicaulis</i>		x	x	x	x					
<i>Asclepias syrica m</i>	x	x		x						
<i>Betula alba paperifera</i>		x	x	x		x	x			x
<i>Campanula rapunculoidea</i>	x									
<i>Carex sp.</i>			x							
<i>Cercum arvense</i>			x	x						
<i>Chemopodium sp.</i>							x			
<i>Chitonium borealis</i>			x		x					
<i>Cornus canadensis</i>				x						
<i>Cornus stolonifera</i>		x	x		x					
<i>Cornus sytica</i>		x								
<i>Dryopteris thelypteris</i>		x			x					
<i>Equicetum arvense</i>			x							
<i>Equicetum hymale</i>	x									
<i>Erigeron canadensis</i>					x					
<i>Eupatorium purpureum</i>	x	x	x		x					
<i>Fagus grandifolia</i>								x		
<i>Fraximus niger</i>		x	x	x						

Chart II

Bird	Zone									
	1	2	3	4	5	6	7	8	9	10
Spotted Sandpiper	x	x	x							
Mourning Dove	x	x	x		x			x		
Yellow-billed Cuckoo				x				x		
Ruby-throated Hummingbird							x	x		
Wood Pewee							x	x	x	
Blue Jay				x	x					
House Wren		x	x							
Robin		x	x	x	x	x	x	x	x	x
Red-eyed Vireo							x	x		x
Cow-bird							x	x	x	x
Chipping Sparrow							x	x	x	
Ovenbird				x	x	x	x	x		
Northern Yellow-throat		x								
Flicker			x	x	x					
Black-capped Chickadee			x	x	x					
Red-breasted Nuthatch				x	x					
Winter wren					x					
Black and White Warbler			x	x	x					
Grouse					x					
Killdeer	x									
Black-billed Cuckoo			x				x	x		
Downy Woodpecker				x	x					
Kingbird		x								x
Crested Flycatcher		x		x						
Eastern Phoebe		x								
Least Flycatcher								x		
White-breasted Nuthatch					x					

