

1945

AN ECOLOGICAL STUDY OF THE INDIAN RIVER MARSHES

by

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AN ECOLOGICAL STUDY OF THE INDIAN RIVER MARSH WITH RESPECT
TO ORNITHOLOGY

DATE: June 25, 1945

DESTINATION: The Indian River Marshes, between Burt and Mullet Lakes, Michigan.

TYPE OF COUNTRY: Extensive marshes of sedges, bulrushes, and cattails along the sides of the river. Three marsh habitats are found here, the sedge, cattail, and bulrush climaxes, with ecotones of sedge-cattail, bulrush-cattail, and sedge-bulrush-cattail along the edges of the respective climaxes. The banks were an open bog of sedges and miraca, with scattered cedars. These increased inland, and there were several scattered groves. The bog gave way to the hardwood forest ~~with~~ where the aspen and the maple were the dominant trees.

WEATHER: Partly cloudy and cool. Temperature about 60°.

WIND: 0 to 5 MPH.

OBSERVERS: Dr. Olin S. Pettingill, the writer, and six others of the Advanced Ornithology class.

OBSERVATIONS: The marsh is composed of three climax habitats and two ~~kind~~ ecotones, with two types of habitats along the banks. A study was made of each habitat, with regards to species frequenting it, and nests found were measured.

The Bulrush Climax: This was frequented by both the Pied Billed Grebe and the Black Tern, though these two also frequented other habitats. One nest of the former species was found. It was a floating raft of damp, rotting vegetation gleaned from the bottom

of the marsh. The raft was 14 inches across. The top was two inches above the surface. The four white eggs were placed in a hollow two inches in depth. They were covered with damp vegetation so that they were kept cool during the bird's absence. Two Black Tern nests were found. They were placed on the large floating rafts of dead and dry rushes that were everywhere among the bulrushes. Three eggs were in each nest, which was a shallow bowl of green bulrushes. The dimensions of the nest were 25 by 35 inches across the raft, and five inches across the bowl of the nest. The egg measurements were 35 by 45 mm.

The Carex Climax: This harbored the Sora and Virginia rails, and several of the former species were seen and heard. One empty nest was seen. It was cup shaped, and was built on the water with sedges. The Long-billed Marsh Wren was seen here also, and one empty nest, possibly a dummy, was located. Coots were heard in this vicinity, but none were seen. Although the Red-wing is found here, it prefers the next habitat.

The Cattail Climax: This was the favored haunt of the ~~Red~~ Red-wing. Here the bird had plenty of high perches from which the males could show off. Thick as they were, surprisingly few nests were found, one empty nest being located. The Marsh Wren was also present, and several empty nests were located. Many of these were presumably dummies constructed by the male. One nest was located with one egg and one chick not four days old. The egg was a dirty brown, and measured 12 by 16 mm. The nest was constructed of cattail leaves and stems, and lined on the inside with cattail fuzz. It was round, with the entrance on the side, $3\frac{1}{2}$ inches high, and 4 inches across, and was $21\frac{1}{2}$ inches above the water. The Black Tern was common through this climax,

(3)

and, although no nests were seen, I believe that it may have been nesting, as they showed concern over our presence. A Sora Rail was flushed from her nest of twelve eggs. Constructed of cattail stems and leaves, the nest was placed down in a clump of dead cattails, and the top was ^{eight} ~~8~~ inches above the water. The nest was ^{seven} ~~7~~ inches across the top, and ^{three} ~~3~~ inches in depth. The eggs measured 24 by 33 mm.

The Cattail-Bulrush Ecotone: The Red-wing was common here, and the Pied Grebe was seen swimming ~~about~~ in a small open area surrounded by this habitat. One Least Bittern was flushed from its nest. It was a platform of sticks built ~~six~~ inches above the water. Its diameter was eight inches for the outer width and five inches for the inner. The bowl was one inch in depth. The measurements on one of the five greenish white eggs were 24 by 30 mm.

Cattail-Sarex Ecotone: The Red-wing, Long Billed Marsh Wren, ~~Sora~~ Sora and Virginia Rails, and the Coot are all found in this habitat. One American Bittern was seen flying over this habitat.

The Open Cedar-Sedge-Miraca Bog: Here was the first radical change, and the land loving species made their appearance. The ~~Swamp Sparrow~~ Swamp and Song Sparrows were found here, along with the Northern Yellow-throat. The latter two were found farther inland, along the edge of the Hardwood habitat, but the ~~Swamp~~ Swamp Sparrow was characteristic of this habitat. A flock of Cedar Waxwings was seen among the cedars, and the Redstart and ~~the~~ were the Black and White Warbler ~~was~~ heard. A pair of Spotted Sand-
piper

~~pipers~~ pipers was nesting in a sandy clearing at the edge of this habitat.

The Hardwood Forest: Composed of Aspens, Maples, and Oaks, this habitat was frequented by such forest loving species as the Ovenbird, Red-eyed Vireo, and the Veery. The last species was not noted, however, in this area, though it was heard near by in the same type of habitat. The Indigo Bunting, Cowbird, and Bronzed Grackle, /Flicker were heard or seen along the edges of this habitat.

Other Observations: The air above the marsh was inhabited by Tree and Rough-winged Swallows. Tree Swallows were nesting in a dead tree standing in the marsh. The Caspian Tern was seen flying over the marsh, and the Black Tern was everywhere, feeding.

DISTRIBUTION OF BIRDS IN SUCCESSIONAL COMMUNITIES

Location of area: MARSHES OF THE INDIAN RIVER, BETWEEN ~~LAKE~~ BURT LAKE + ^{MULLET} ~~LAKE~~ LAKE

Date (or dates): 6/25/45

Number persons making study: NINE

Weather rating: GOOD, COOL

General description of area: EXTENSIVE SEDGE, CATTAIL + BOLRUSH MARSHES LINE BOTH SIDES OF THE MAIN RIVER CHANNEL. EACH HABITAT MERGES INTO ECOTONES OF TWO OR MORE HABITATS. THE BANKS ARE BOGGY, WITH SPRUCE + CEDAR, AND GIVE WAY INLAND TO MARSHES.	Communities and Ecotones								
	CATTAILS	SEGES	BOLRUSHES	CATTAIL-SEGE ECOTONE	CATTAIL-BOLRUSH ECOTONE	CEDAR BOG (WITH SEGES + MANN)	HARDWOOD FOREST		
Species									
PIED BILLED GREBE			NEST FOUND						
AMERICAN BITTERN				SEEN OVER HAB.					
LEAST BITTERNS					ONE ON NEST				
VIRGINIA RAIL	SEEN HERE	SEEN HERE	SEEN HERE	FOUND HERE					
SORA RAIL	SEEN IN NEST	SEEN, 2 EMPTY NESTS							
COOT		HEARD		HEARD					
SPOTTED SANDPIPER						ON EDGES OF BOG			
BLACK TERN	IN AIR	SEEN	NEST A HERE	MARSH					
FLICKER							HEARD HERE		
TREE SWALLOW	IN AIR	OVER	THE	MARSH					
LONG BILLED MARSH WREN	NEST FOUND								
CEDAR WAXWING						1 FLOCK			
RED EYED VIREO									
BLACK + WHITE WARBLER							HEARD		
NORTHERN YELLOW THROAT						SEEN IN GROVE			
AMERICAN REDSTART						SEEN IN GROVE	SEVERAL		
RED-WING	NEST FOUND			RANGES INTO HERE	NEST FOUND				
INDIGO BUNTING							AT EDGE OF MARS		
SONG SPARROW						1 PAIR			
SWAMP SPARROW						SEVERAL			
BRONZED GRACKLE							SEEN		
COW BIRD							SEEN		
QUEEN BIRD							HEARD		

CENSUS OF A NESTING COLONY

Species in colony:
Sterna caspia imperata

Location of colony:
 Shoel Is. North of Hog Is.

Estimated size (in acres) of area containing nests: $\frac{1}{25}$ acre
 74 X 34 X 10

Date of census:
 7/8/45

Length of time involved in census: 20 m.

Number of persons making census:
 Ten

	Species	Species	Species	Species	Species
	<i>Sterna caspia</i>	<i>Sterna caspia</i>	Ring Billed Gull		
Total number of nests:	55	374	3		
Total number with eggs only:	45	304			
with one egg:	36	76			
with two eggs:	36	216	1		
with three eggs:	3	30	1		
with four eggs:	0	4			
with five eggs:	0	1			
Total number with one egg and young:	1	15			
with three combination:					
with four combination:					
with five combination:					
Total number with young only:	9	34			
with one young:	3	19	1		
with two young:	4	10			
with three young:	0	0			
with four young:	0	0			
with five young:	0	0			
Total number with empty nests:					
Total number of eggs and young:		694			
Average number of eggs and young per nest (empty nests not included):					
Estimated total of breeding adults:					
Estimated number of nests per acre:	10,027				
Approximate ratio of adults to eggs and young:					
Total number of eggs found destroyed: of young found dead:	24				

Comments or notes: