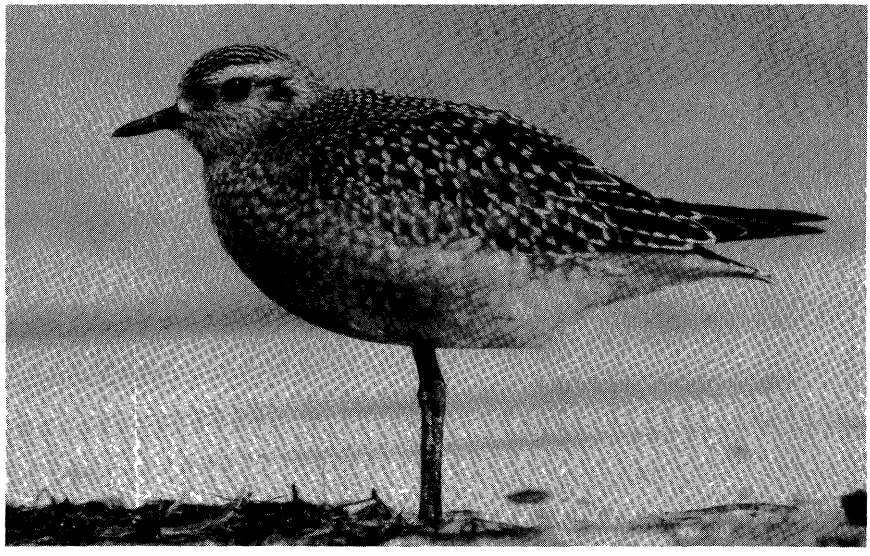


Lesser Golden-Plover, Juvenal plumage, Mecox, Long Island.

THE 1985 FALL SHOREBIRD SEASON AT JAMAICA BAY WILDLIFE REFUGE

ARTHUR MORRIS

I know because I have seen the Yellowlegs, I have crawled in the mud with the Yellowlegs, and I have followed that banded grey lady to land's end.[1]

Thirty-five species of shorebirds including New York State's first Rufous-necked Stint were noted at Jamaica Bay Wildlife Refuge (JBWR) during the 1985 fall migration. The refuge was visited fifty-four times between 22 June and 30 November. Every species present was censused at least once a week. My visits averaged three to seven hours in length. Virtually all visits overlapped the time of high tide, when the greatest number of birds fly into the East Pond from surrounding saltwater flats to rest, feed and preen. A majority of these birds disperse to tidal flats throughout Jamaica Bay as the tide recedes.

The refuge was divided into seven survey areas, "A" to "G" (Figure 1). Census results for areas "A" to "F" are presented in Table 1. Two partial censuses are omitted from Table 1. Species diversity is summarized in Table 2. Arrival dates for adults and juveniles of 17 migrant species are summarized in Table 3.

A massive bloom of the filamentous green algae *Cladophora* was observed on my first visit to the East Pond on 9 July. In fact, the high water level which had kept me from visiting the pond until this rather late date had been caused by the algae. The outlet pipe at the north end had become clogged with algae after the gate-valve was opened on 25 June (Clive Pinnock-pers. comm.) The pipe was cleared by refuge personnel and the pond quickly drained to its normal July level. As the pond drained the algae which had been floating at the pond's edges dried and formed dense mats ¼ to ½ inch thick, covering the normally exposed mud flats. These mats, which could be peeled away in huge sheets, persisted until the pond refilled prematurely in early October.

Many species were late this year and numbers for most species were much reduced in July and August (Figure 2). The algae, which covered almost the entire East Pond and all exposed flats in filamentous layers averaging twelve inches thick, made the pond extremely unattractive to returning shorebirds until mid-July. On many July counts the West Pond accounted for 50% to 100% of the daily total. Normally more than 90% of the birds censused during this period frequent the East Pond.

[1] Janovy, John, Jr. *Yellowlegs*. © St. Martin's Press, Inc., New York; reprinted with the publisher's permission.

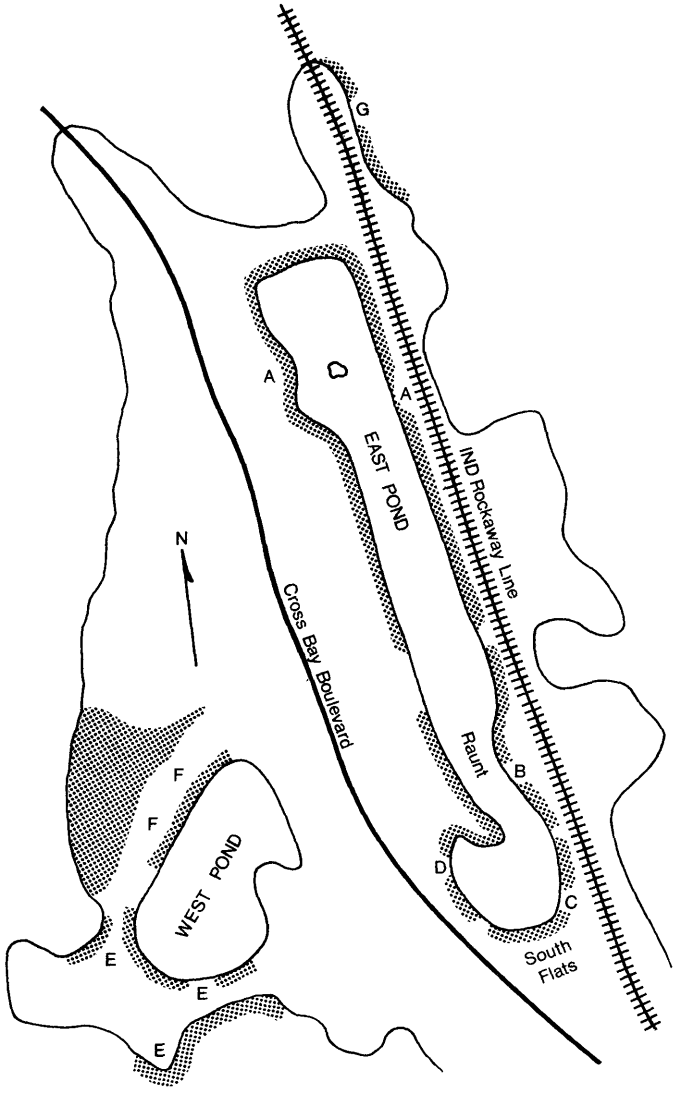


Figure One. Jamaica Bay National Wildlife Refuge Census Area.

Separate East Pond/West Pond data are presented for 28 Aug, to show the differences in both the numbers and the species of birds which normally occur at these two sites (Table 1). Censuses on 2 Sep produced comparable results. The birds which did visit the East Pond in early July uncharacteristically preferred the north end of the pond, especially the northwest quadrant. A large mat of algae just west of the island at the north end of the pond became their primary roost. The Raunt, normally the favored roost during southbound migration, was virtually devoid of birds in July. The entire southern half of the pond including the South Flats, usually a mecca for feeding flocks of the smaller *Calidris*, was sparsely utilized in the early season.

As the algae began to "cook" in the heat of summer it became alive with various forms of insect life. By late July the shorebirds, led by Semipalmated Sandpipers, had begun to feed upon the floating algal mats. By early August good numbers of shorebirds had returned to the Raunt to roost. Hundreds of peep and Semipalmated Plovers were scurrying about the South Flats in search of countless meals to fuel their upcoming trip to South America.

September, the only month in which numbers did not fall below the four-year average, (Davis 1982, 1983 and 1984; Morris 1985) offered consistently good shorebirding. Several less common species were noted. Mats of algae covering about half the pond persisted into late September, when the winds of Hurricane Gloria "grounded" most of the remaining algae along the shores of the northern third of the pond.

The East Pond normally refills very slowly with run-off (rainwater) in October and November. This year, however, the torrential rains which accompanied Hurricane Gloria reduced exposed mud-flats by about 50% in less than a day and several early October rains inundated the remaining flats and covered the Raunt as well. As a result of these high water levels, shorebird numbers for the period were but a fraction of the record numbers present during this period last year, and well below the four-year average. Numbers of the sand and gravel loving species—Black-bellied Plover, Ruddy Turnstone, Dunlin and Sanderling—were way down as the season progressed into October and November. These birds were present in the region, however. More than a thousand shorebirds of these four species roosted at Zach's Bay, Jones Beach, LI on most high tides. Their low numbers at the East Pond are directly attributable to unfavorable local conditions.

Area "G" was surveyed again this year (Table 4). While shorebird numbers at this site fluctuated wildly, no correlation could be made between the presence of Peregrine Falcons hunting on the East Pond and shorebird numbers at this site, as had been suggested by Davis (1983). Of note was the presence of 607 Red Knot (the season's maximum) on 27 July.

To sum up, many shorebirds came late, left early and were present in well below average numbers. The four year pattern which showed increasing numbers of shorebirds visiting the refuge each year was abruptly and emphatically ended due primarily to unfavorable local conditions: early season algae and late season rains with resultant high water levels.

I would like to thank the many observers who helped to "fill in the gaps," especially Arthur Berland for the counts of 3 July and 22 August taken while I was out of state. I would also like to thank Tom Davis for his careful review of this manuscript and Rob Villani for his skillful preparation of both the redrawn map and the graph.

This survey was done in cooperation with the International Shorebird Survey, Manomet, Massachusetts.

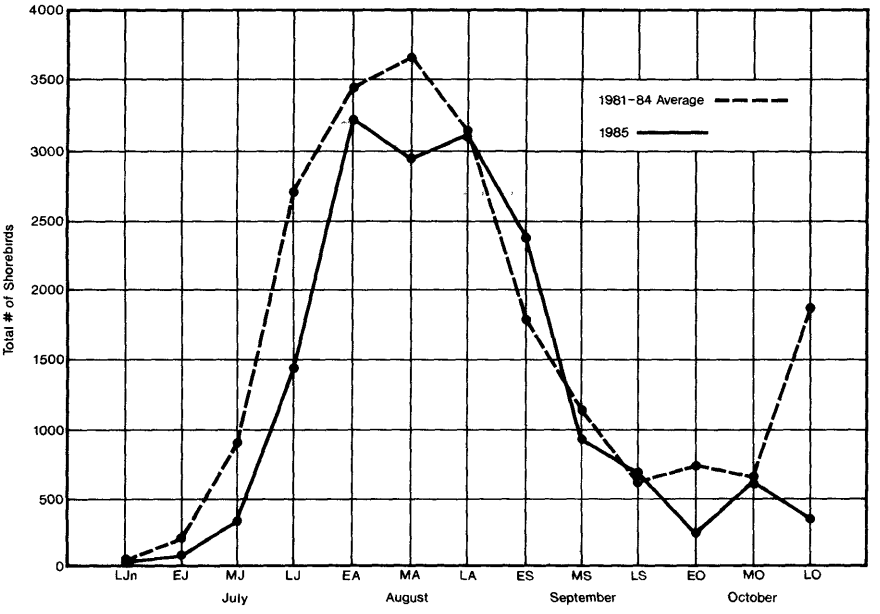
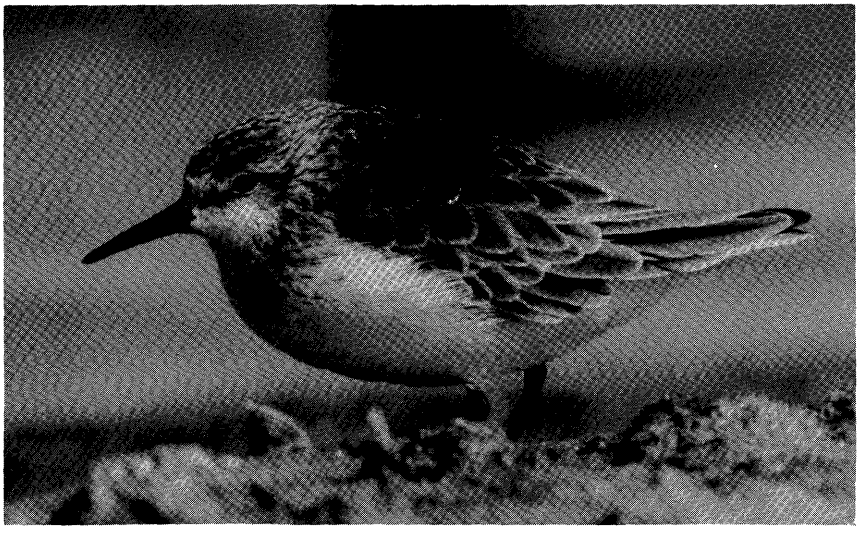


Figure Two: Jamaica Bay National Wildlife Refuge Total Shorebird Counts.



Western Sandpiper, Basic plumage, Mecox, Long Island.

SELECTED SPECIES ACCOUNTS

Black-bellied Plover: good numbers of this species roosted at the Raunt from mid-August through September in spite of the presence of hunting Peregrines on several dates. This species was absent from the East Pond during October due to high water levels. Black-bellied Plover were relatively scarce in September and October at Area G, except for an estimated thousand found there on 28 Sep by Rob Villani.

Lesser Golden Plover: 12 birds on 11 dates was the lowest total since at least 1980. The previous single day maximum is 21 on 11 Sep 1983.

Semipalmated Plover: a below average season for this common migrant.

Killdeer: a below average season for the local breeding population. A migrant flock of 46 Killdeer wheeling and calling high above the West Pond on 29 Sep was a remarkable sight. The new maximum (53) counted on this date was more than double the previous high.

American Oystercatcher: unprecedented numbers of this species reflect continued explosive increases in local and regional breeding popula-

tions as this species continues its northward range expansion. A new maximum of 125 was recorded on 19 Oct, and 55 were present on 15 Oct. This species lingered in numbers well past the usual departure dates: 25 were still present on 31 Dec! This species is best observed at its high tide roost – the triangular sandy beach just south of the old Tern Nesting Colony.

American Avocet: two birds, singles on 6 Aug (not in Table 1) and 27 Sep, was a good showing for this rare but regular western visitant, but neither bird lingered, perhaps being unable to feed in the algae-clogged waters.

Greater Yellowlegs: a far below average season. A good showing of juveniles molting into first-winter plumage were present in mid-late October. The first juvenile of this species did not appear until the unusually late date of 24 Aug. The average juvenile arrival date is 13 Aug, and the previous late arrival date was 15 Aug.

Lesser Yellowlegs: a well below average season.

Willet: local birds were slightly less numerous than usual. Strangely, no Willets were seen in October. A single bird in first-winter plumage seen on 3 Nov probably could be assigned to the western race on the basis of date alone.

Upland Sandpiper: one bird of this species "dropped in" momentarily to visit the West Pond on 18 Aug (T. W. Burke).

Whimbrel: only three "singles" on 7 and 28 Aug and on 21 Sep were noted.

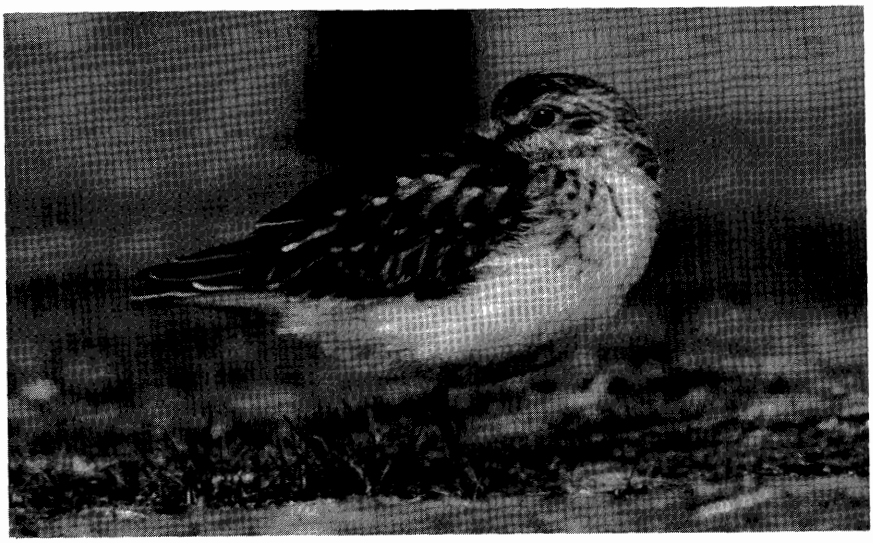
Hudsonian Godwit: a below average season for this uncommon migrant. In addition to those reported on Table 1, two were present on 23 July. Only one juvenile was observed this year in marked contrast to last year's impressive showing.

Marbled Godwit: a single juvenile which associated with Oystercatchers at the aforementioned Tern Nesting Beach from 15 to 30 Nov was the only one to visit the refuge this year.

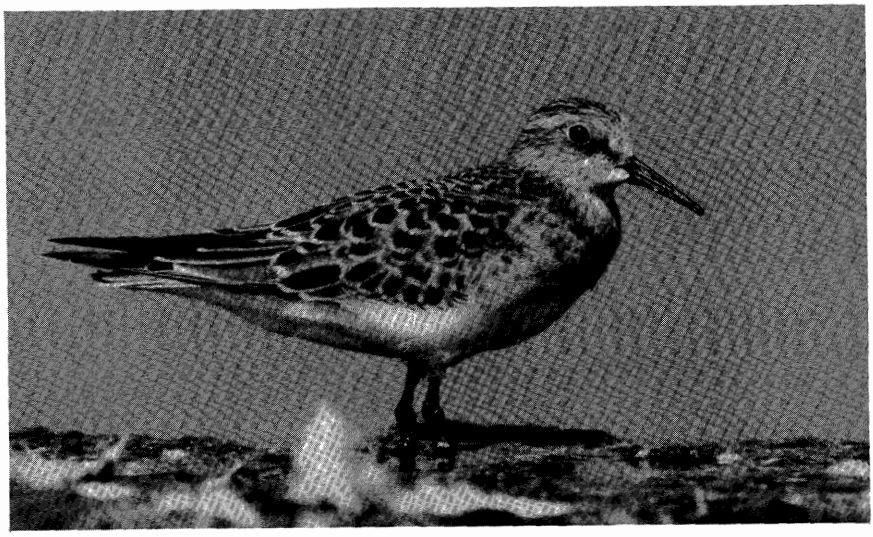
Ruddy Turnstone: this species was down 50% and left early. This was one of the many species which usually frequents the Raunt, but which apparently did not care for the algae which covered the rocks, boards, building stones and other debris upon which they prefer to roost.

Red Knot: a well below average season with numbers late in arriving and early to leave, probably for the same reasons as affected Ruddy Turnstone.

Sanderling: down almost 90%! This bird has become uncommon on the East Pond in the past two years, probably due to changes in its preferred microhabitat.



Least Sandpiper, Juvenal plumage.



Baird's Sandpiper, fresh Juvenal plumage.

Semipalmated Sandpiper: though number arrived late, this was the only abundant migrant to have an above average season. They were the first species to adapt to the algae by picking insects from the surface of acres of algal mats. A new maximum 2291, barely exceeding the old, was recorded on 3 Aug.

Rufous-necked Stint: Morris (1986) provides full details of this record.

Least Sandpiper: adults were scarcely evident in July and August and juveniles were below average in August and September. The last was noted on the unusually early departure date of 8 Oct. Of note was an adult of this species completely molted into winter plumage photographed by this observer on 7 Oct.

White-rumped Sandpiper: a below average season.

Baird's Sandpiper: the 2 or 3 birds of this species which visited the refuge this season uncharacteristically remained for quite some time; one was seen on most visits from 28 Aug to 30 Sep.

Dunlin: down almost 90% in Oct, apparently due to high water levels. This is marked contrast to the hordes of Dunlin counted in 1984.

Curlew Sandpiper: a fading adult seen sporadically on the West Pond 22-27 Jul was first discovered by Ron Borque. A surprisingly bright breeding-plumaged adult was present on the East Pond 17-21 Sep. A fresh-plumaged juvenile was present on the East Pond 25 Sep through 1 Oct.

Stilt Sandpiper: a far below average season was again apparently due to unfavorable conditions. The algae which clogged the shallows at the pond's edges apparently prevented those birds which probe for food deep in the water from feeding. Juvenile Stilt Sandpipers were markedly scarce this year; this observer encountered only a scant handful.

Buff-breasted Sandpiper: singles were noted on 18 Aug and 7 Sep.

Ruff:a Ruff discovered by this observer on 25 Sep was the first in Juvenal plumage to occur at JBWR. It remained until 30 Sep.

Short-billed Dowitcher: down 70% during its migratory peak, mid-July to mid-August, probably due to algae-clogged feeding areas.

Long-billed Dowitcher: adult numbers slightly down, juveniles slightly up. A juvenile of this species arrived on the record early date of 14 Sep and two were present the following day. The previous early date was 22 Sep.

American Woodcock: a new maximum of 12, flushed from the South Garden on 18 Aug (R. J. Kurtz), may indicate successful local breeding. A group of nine encountered the same day in the North Garden probably involved the same birds.

Wilson's Phalarope: very few individuals of this species were noted at the pond this season. In addition to those in Table 1, one was reported on 11 Sep.

Literature Cited

Davis, Thomas H. 1982. The 1981 Fall Shorebird Season at Jamaica Bay Wildlife Refuge. *Kingbird* 32 (2): 85-96.

_____. 1983. The 1982 Fall Shorebird Season at Jamaica Bay Wildlife Refuge. *Kingbird* 33 (2): 94-102.

_____. 1984. The 1983 Fall Shorebird Season at Jamaica Bay Wildlife Refuge. *Kingbird* 34 (2): 74-86.

Morris, Arthur. 1985. The 1984 Fall Shorebird Season at Jamaica Bay Wildlife Refuge. *Kingbird* 35 (2): 74-90.

_____. 1986. An Account of New York State's First Rufous-necked Stint. *Kingbird* 36 (1): 3-5.

35 Mimosa Lane, Staten Island, New York 10312

Table 1. JBWR 1985 Fall Shorebird Census

	June			July					
Species	**22**	**28**	**29**	**3**	**9**	**12**	**15**	**18**	**19**
Plover, Black-bellied						1			
Semipalmated							3	2	25
Killdeer	3	10	10	18	7	13	21	4	12
Oystercatcher, American				1	3			7	
Yellowlegs, Greater			1	3	6	10	39	17	16
Lesser				7	5	6	77	2	24
Sandpiper, Solitary								(1)	
Willet	3	3	4	12	1		1	2	
Sandpiper, Spotted					1	1	2	1	2
Whimbrel									
Godwit, Hudsonian								(1)	
Turnstone, Ruddy								3	1
Knot, Red								7	G
Sanderling							G		G
Sandpiper, Semipalmated					4		46	162	127
Western									1
Stint, Rufous-necked									
Sandpiper, Least					5	3	7	1	16
White-rumped									
Pectoral									
Curlew									
Stilt					1		4	(1)	1
Dowitcher, Short-billed				5	61	115	181	155	170
Long-billed								(5)	
Woodcock, American				2			6		
Phalarope, Wilson's	(1)								
No. of Species	3	2	3	7	10	7	12	16	13
No. of Individuals	7	13	15	48	94	149	387	371	395
Areas covered, East Pond					C	B,C	A-D	A-C	A-D
West Pond	E,F	E,F	E,F	E,F	E,F	E,F	E,F	E,F	

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 1. JBWR 1985 Fall Shorebird Census

	July			am	pm	August			
Species	**20**	**22**	**27**	**28**	**28**	**3**	**7**	**11**	**13**
Plover, Black-bellied			4	2	√	67	25	317	253
Semipalmated	10	84	177	70	30	530	437	706	437
Killdeer	5	9	3	2	√	4	5	8	1
Oystercatcher, American		3			13	12	(5)	9	
Yellowlegs, Greater	20	19	26	15	√	41	12	81	130
Lesser	10	16	14	10	√	13	26	54	65
Sandpiper, Solitary			1						
Willet							1	4	
Sandpiper, Spotted	2	4	1	1	√	1	3	2	2
Whimbrel							(1)		
Godwit, Hudsonian	(1)		(1)						
Turnstone, Ruddy	G	10	60	10	4	26	48	114	3
Knot, Red	20	19	142	5	6	6	(2)	362	66
Sanderling	G	4	3	20	30	4	5	2	
Sandpiper, Semipalmated	150	764	1772	350	800	2291	2136	2206	695
Western	1		5	2	1	3	4		1
Stint, Rufous-necked			(1)	1	1	1	1	1	
Sandpiper, Least	5	20	17	10	1	9	19	12	29
White-rumped				(1)		4	7	4	5
Pectoral	1	1				(1)	2	3	3
Curlew		1	1						
Stilt	3	2	11	5	√	4	4	5	
Dowitcher, Short-billed	100	573	69	30	10	44	98	48	39
Long-billed	1	1	(4)		(3)	2	2	(2)	2
Woodcock, American									
Phalarope, Wilson's								(1)	1
No. of Species	16	16	19	16	17	20	21	20	16
No. of Individuals	N/A	1530	2312	534	N/A	3064	2842	3941	1733
Areas covered, East Pond	A	A-D	A-D	A-D	A	A-D	A-D	A-D	A-D
West Pond	(E)	E	(F)	(E)		(E)	E	E	

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 1. JBWR 1985 Fall Shorebird Census

	August							
Species	**14**	**16**	**22**	**24**	**28**	**28**	**29**	**31**
Plover, Black-bellied	7	405	796	654	√	1	√	606
Lesser Golden-							1	
Semipalmated	350	897	980	994	400	3	150	284
Killdeer		3	6	6	4	2	5	8
Oystercatcher, American		10		2		2		3
Yellowlegs, Greater	20	141	78	106	√	3	182	328
Lesser	10	39	63	18	12	1	14	56
Sandpiper, Solitary								(1)
Willet		1		1		1		2
Sandpiper, Spotted		4	3	2	√		√	1
Whimbrel					(1)			
Godwit, Hudsonian		1			(1)			1
Turnstone, Ruddy	1	26	68	27	√		√	13
Knot, Red		243	495	227	√		√	249
Sanderling	2	2	7	156	√		√	1
Sandpiper, Semipalmated	250	1262	1208	750	700	2	300	451
Western			2	4	6			5
Least	5	18	92	57	√	11	√	25
White-rumped	1	9	12	5	√	1	7	5
Baird's					(1)			(1)
Pectoral		3	3	5	√		√	5
Dunlin		1	1	1	1		2	1
Sandpiper, Curlew								
Stilt	5	5	11	5	27		9	15
Buff-breasted								
Ruff								
Dowitcher, Short-billed	20	154	237	62	√		√	131
Long-billed	2	7	1	7	√		7	5
Woodcock, American								
Phalarope, Wilson's	1			1	(1)			1
No. of Species	13	20	18	21	22	10	18	24
No. of Individuals	N/A	3232	4064	3091	N/A	27	N/A	2198
Areas covered, East Pond	A	A-D	A-C	A-D	B,C		A-C	A-D
West Pond		E		E,F		E		E

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 1. JBWR 1985 Fall Shorebird Census

	September								
Species	**2**	**7**	**8**	**12**	**14**	**15**	**17**	**21**	**25**
Plover, Black-bellied	3	650		147	311	√	485	336	148
Lesser Golden-				1	1	2	1	(1)	2
Semipalmated		350		107	17	√	13	64	39
Killdeer	3	5	1	6	19	√	11	28	11
Oystercatcher, American	55	(62)	1	(52)	17			54	
Yellowlegs, Greater		95	25	116	121	√	143	82	39
Lesser	2	65	13	13	11	√	42	42	10
Sandpiper, Solitary			1						
Willet					(1)			(1)	
Sandpiper, Spotted				1					
Whimbrel								(1)	
Godwit, Hudsonian		3		1		1	1	1	
Turnstone, Ruddy		11		G	1	√	3	2	
Knot, Red		200	17	13	1	45	137	94	5
Sanderling				G	1	2	4	1	2
Sandpiper, Semipalmated	12	800	7	472	118	√	228	188	159
Western		16			1	2	(4)	(1)	4
Least	8	37	3	19	13	√	11	51	11
White-rumped		3		1	1	2	2	4	29
Baird's		1		1	(1)	(1)	1	(1)	
Pectoral		2		1		2	3	9	7
Dunlin		2		12	7	√	17	46	27
Sandpiper, Curlew							1	(1)	1
Stilt		1			1				1
Buff-breasted		(1)							
Ruff									1
Dowitcher, Short-billed		85		57	49	√	31	28	27
Long-billed					1	2	6	1	3
Woodcock, American		2							1
Phalarope, Wilson's									1
No. of Species	6	20	8	19	20	19	20	23	21
No. of Individuals	83	2391	68	1020	693	N/A	1144	1037	528
Areas covered, East Pond		A-D		A-D	B-D	B-D	A-D	A-D	A-D
West Pond	E,F	E	E	(E)	E			E,F	

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 1. JBWR 1985 Fall Shorebird Census

	September			October					
Species	**27**	**29**	**30**	**1**	**7**	**8**	**14**	**19**	**23**
Plover, Black-bellied	4	84	√				31	2	
Lesser Golden-		1	1						
Semipalmated	20	2	√				5		1
Killdeer	3	53	√	√	1	2	1	13	
Oystercatcher, American	3	67	√			67	(50)	125	
Avocet, American	(1)								
Yellowlegs, Greater	19	86	√	2	13	21	394	131	274
Lesser	7	28	√	4	19	7	5	3	2
Sandpiper, Solitary		1	1						
Willet		1	(2)						
Sandpiper, Spotted			(1)						
Godwit, Hudsonian			1		1	1	1		
Marbled									
Turnstone, Ruddy		G	G		G		5		G
Knot, Red	1	6	2		G		1		
Sanderling		G	√		G			G	G
Sandpiper, Semipalmated	38	46	√	√	42	61	31	15	
Western		1	3	1	8	6	5	1	
Least	4	6	√	√	24	2			
White-rumped		6	15	√	12	12	8	3	
Baird's		1	1						
Pectoral	4	5	14	3	19	12	19		1
Dunlin	1	14	√	1	27	67	179	153	117
Sandpiper, Curlew		1	1	1					
Stilt	2	2	6	2	2	1	5		1
Ruff		1	1						
Dowitcher, Short-billed	16	9	√	1	7	5	9	9	4
Long-billed		1	2	3	1		32	1	3
Snipe, Common						1	1	1	
Phalarope, Wilson's			1						
No. of Species	13	24	27	14	16	14	17	13	10
No. of Individuals	N/A	422	N/A	N/A	176	265	782	457	403
Areas covered, East Pond	B-D	A-D	A-D	D	A-D	B-D	A-D	A-D	A-D
West Pond			E						

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 1. JBWR 1985 Fall Shorebird Census

	October	November						
Species	**27**	**3**	**8**	**11**	**16**	**17**	**23**	**30**
Plover, Black-bellied	2	5		49		4		
Lesser Golden-								
Semipalmated		1		1				
Killdeer	2	1		2	10	7		
Oystercatcher, American	96	103		(55)		59	68	
Avocet, American								
Yellowlegs, Greater	223	12		105		42	9	1
Lesser	4	2		3				
Sandpiper, Solitary								
Willet		1						
Sandpiper, Spotted								
Godwit, Hudsonian								
Marbled						(1)	1	(1)
Turnstone, Ruddy	G	G						
Knot, Red	G							
Sanderling	G	G		2				
Sandpiper, Semipalmated	7	4						
Western	2	1						
Least								
White-rumped	4			1				
Baird's								
Pectoral	4	3		2		(2)		
Dunlin	104	133	7	999	65	49	4	14
Sandpiper, Curlew								
Stilt								
Ruff								
Dowitcher, Short-billed	1							
Long-billed	19	8		11		(1)		
Snipe, Common								
Phalarope, Wilson's								
No. of Species	15	14	1	11	2	8	4	3
No. of Individuals	468	274	7	1230	75	165	82	16
Areas covered, East Pond	A-D	A-D	A	A-D		A-D	C	
West Pond	E	E,F		E	E	E	E	E

( ) = reported by others; √ = numbers not counted;
N/A = not applicable; G = present in area G

Table 2. Species Diversity 1981-1985

	Late Jun & E. Jul	Late Jul	Early Aug	Late Aug	Early Sep	Late Sep	Early Oct	Late Oct & Nov
1981	14	25	25	26	26	27	23	21
1982	13	24	25	29	31	30	26	19
1983	12	27	24	26	31	28	22	22
1984	13	25	29	26	28	29	26	21
1985	15	24	25	29	27	30	22	20

(Note – American Woodcock is presumed to be present throughout the season whether observed in a given period or not.)

Table 3. 1985 Arrival Dates of Adults and Juveniles Seven Year Span of Arrival, and Mean Arrival Dates

	1985		Adults			Juveniles		
	First Adult	First Juvenile	Span No. Years		Mean Arrival Date	Span No. Years		Mean Arrival Date
Plover, Black-bellied	late July*	31 Aug	late July*		— —	8/26-9/11	(5)	31 Aug
Lesser Golden	3 Sep	29 Aug	8/14-9/3	(6)	25 Aug	8/29-9/11	(5)	5 Sep
Semipalmated	15 Jul	14 Aug	6/30-7/15	(5)	7 Jul	8/11-22	(6)	18 Aug
Yellowlegs, Greater	29 Jun	24 Aug	6/22-30	(5)	27 Jun	8/7-24	(4)	16 Aug
Lesser	3 Jul	3 Aug	6/24-7/3	(6)	29 Jun	8/1-11	(7)	6 Aug
Turnstone, Ruddy	18 Jul	24 Aug	7/19-23	(5)	20 Jul	8/21-28	(4)	24 Aug
Knot, Red	18 Jul	15 Aug	7/16-22	(5)	18 Jul	8/15-22	(5)	20 Aug
Sanderling	15 Jul	24 Aug	7/15-22	(5)	18 Jul	8/23-28	(4)	26 Aug
Sandpiper, Semipalmated	9 Jul	7 Aug	6/24-7/10	(6)	1 Jul	8/7-15	(5)	12 Aug
Western	19 Jul	12 Aug	7/12-24	(5)	17 Jul	8/12-22	(4)	16 Aug
Least	9 Jul	3 Aug	6/28-7/9	(5)	3 Jul	7/26-8/8	(5)	3 Aug
White-rumped	28 Jul	15 Sep	7/18-31	(5)	25 Jul	9/13-10/2	(6)	21 Sep
Pectoral	20 Jul	31 Aug	7/11-20	(5)	16 Jul	8/22-29	(5)	27 Aug
Dunlin	**	12 Sep	**		— —	9/5-18	(6)	13 Sep
Sandpiper, Stilt	9 Jul	22 Aug	7/9-20	(5)	15 Jul	7/26-8/22	(6)	14 Aug
Dowitcher, Short-billed	3 Jul	9 Aug	6/24-7/3	(6)	29 Jun	8/8-15	(7)	10 Aug
Long-billed	18 Jul	14 Sep	7/18-23	(5)	21 Jul	9/14-10/8	(5)	26 Sep

* difficult to determine; lingering non-breeding birds often present.
** only scattered adults (often injured) present before the 2nd week of Sep.

Note: this table was adapted from Davis, 1984 and includes unpublished juv. arriv. dates from the 1984 season (Morris)

Table 4. Area G Censuses

	July					August		
Species	**15**	**19**	**20**	**22**	**27**	**3**	**11**	**16**
Plover, Black-bellied								
Lesser Golden-								
Semipalmated					7	31		20
Killdeer						2	1	
Yellowlegs, Lesser					2			
Turnstone, Ruddy		4	4		45	2		
Knot, Red		15	35	1	607			5
Sanderling	3	46	60	186	22	9	1	20
Sandpiper, Semipalmated	54	295	180	27	103	13	1	60
Western								
Sandpiper, Least	1	1	1					
White-rumped								
Dunlin								
Dowitcher, Short-billed	3	45	60	2	31			
No. of Species	4	6	6	4	7	5	3	4
No. of Individuals	61	406	340	216	817	57	3	105

	August		September				October	
Species	**24**	**3**	**12**	**21**	**28**	**29**	**30**	**7**
Plover, Black-bellied			550	180	1000	138	17	101
Lesser Golden-			1		2	1		
Semipalmated	11	12		1				
Killdeer								
Yellowlegs, Lesser								
Turnstone, Ruddy	5		3	1		1	1	1
Knot, Red	1		5	36	18			20
Sanderling	78		7	84	27	46		156
Sandpiper, Semipalmated	1	8		13	5	1		1
Western								5
Sandpiper, Least								
White-rumped						1		
Dunlin				63	8	18		352
Dowitcher, Short-billed					13			1
No. of Species	5	2	5	7	7	7	2	8
No. of Individuals	96	20	566	378	1073	206	18	637

Table 4. Area G Censuses

	October				November			
Species	**14**	**18**	**23**	**27**	**3**	**8**	**11**	**17**
Plover, Black-bellied	153		63	24	4	11	2	
Lesser Golden-Semipalmated								
Killdeer								
Yellowlegs, Lesser								
Turnstone, Ruddy	3		4	1	1	1		
Knot, Red	2			1				
Sanderling		7	89	9	8	6		
Sandpiper, Semipalmated								
Western								
Sandpiper, Least								
White-rumped				2				
Dunlin	1	4	97	65	81	481		
Dowitcher, Short-billed								
No. of Species	4	2	4	6	4	4	1	0
No. of Individuals	159	11	253	102	94	499	2	0