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April 3, 1998

Jane Morton Galetto, President
Citizens United to Protect the Maurice River and its Tributaries, Inc. (CU)
c/o 22 Brittany Lane
Millville, NJ 08332

RE: Winter 1997-1998 Raptor and Waterfowl Survey of the Maurice River, Cumberland County, NJ.

Dear Mrs. Galetto,

Enclosed please find five copies of the 1997-98 Raptor and Waterfowl survey conducted by Jim Dowdell and myself as per our agreement dated December 11, 1997.

Due to the extremely mild weather, it was a relatively unremarkable winter on the river, although what constitutes "average" for the Maurice River is certainly exceptional!

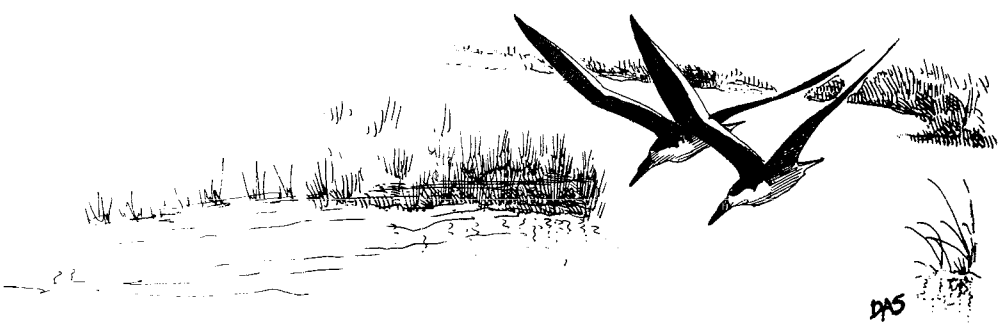
We really enjoyed carrying out this project for CU, and, as usual, we appreciate the support which you and your members have provided to us.

Thank you for the opportunity to work with CU once again. This project remains an important long-term monitoring tool for raptors and waterfowl on the Delaware Bayshore.

Sincerely,

Clay Sutton

cc: Jim Dowdell



Wintering Raptors and Waterfowl on the Maurice River, 1997-1998: The Eleventh Year of a Long-term Study

by Clay Sutton and James Dowdell

INTRODUCTION

The ornithological significance of the Maurice River, in Cumberland County, New Jersey, has long been recognized. The Maurice River rivals the Great Egg Harbor River and the Mullica River for being one of New Jersey's largest river systems (excluding the Hudson and Delaware Rivers). Flowing southward for over 35 miles from near Williamstown, past Vineland, through Millville and emptying into Delaware Bay near Port Norris, the Maurice River is by far the largest river on the Delaware Bay.

The river is freshwater to below Millville, brackish until near Dorchester, and salt water through the remainder of its length. The low salinity section from near Millville to Bricksboro is characterized by extensive acreage of wild rice, in fact one of the largest stands in New Jersey. The lower river below Mauricetown is extensive salt marsh. Maurice River Cove, near East Point, is extensive tidal shallow open water, an integral part of the Delaware Estuary. Hence, a variety of habitats are available to wildlife along the length of the Maurice River.

The birds of the Maurice River have been fairly extensively reported over the years in *Records of New Jersey Birds*, *American Birds*, and *Audubon Field Notes*. In 1988, in *Records of New Jersey Birds*, Sutton reported on "Wintering Raptors and Waterfowl on the Maurice River." That study reported on the results of an extensive season-long survey of the remarkable avian resources found on the Maurice River.

Responding to the conservation need for consistent census data, that pilot study has been continued over ten subsequent winter seasons. Here we report the results of the eleventh year of monitoring winter raptor and waterfowl populations on the Maurice River. Observed status in wintering hawks, eagles, ducks and geese are reported and discussed. This long-term study represents one of very few systematic ornithological surveys being conducted on New Jersey's Delaware Bayshore.

METHODS

Wintering raptors and waterfowl were sampled along the tidal portions of the Maurice River on ten dates between December 2, 1997, and March 17, 1998. All surveys were conducted between 08:00 and 16:00 EST.

The methodology was the same as the previous ten years of surveys, and as outlined in "Status and Trends in Wintering Raptors and Waterfowl on the Maurice River: A Ten Year Study," which was presented to CU in 1997.

The Maurice River survey route consisted of seven observation stations beginning at a location downstream of Millville, and continuing 22.4 km (14 miles) downstream to the river mouth at East Point. At each location site, all flying and perched raptors and waterfowl within view were counted for 50 minutes. If birds were observed to fly into the adjacent sampling area they were not counted if resighted in that area. Raptors seen perched along the route between sampling sites were included in the nearest sampling site if an individual of that species was not sighted from the adjacent stations. Ten power binoculars and a 40 power spotting scope were used. Two observers were present. In as much as possible, counts were conducted in good weather, primarily during sunny conditions.

RESULTS

A total of ten surveys were carried out over the winter of 1997-1998. Raptors recorded on the Maurice River are shown in Table 1. Eleven species of raptors were seen. Waterfowl recorded on the river during winter 1997-1998 are shown in Table 2. Twenty-six species of waterfowl were tallied.

SPECIES ACCOUNTS - RAPTORS

Black Vulture: Black Vultures averaged 16.6 birds per survey. This is higher than the previous two years and above the 10 year average of 10.1, yet below the peak year (1993-1994) of 25.0 (all data taken from the 10 year summary presented to CU in 1997). There were many more Black Vultures using the river than the "average" indicates. An all time daily high count was achieved on January 26, when 76 birds were seen -- 70 in a single flock, all in sight at once, from the Peek property.

Turkey Vulture: At 59.5 birds per survey, Turkey Vultures were below the 10 year average of 72.2. This lower average is partially due to scattered regional roosts this past season. Historically, higher counts have been obtained near the Laurel Lake roost; while this roost was active this winter, many Turkey Vultures seemed to be dispersed in other roosts.

Bald Eagle: Because of the mild winter, Bald Eagle totals were down this winter, with many northern birds not coming this far south. At 6.6 birds per survey, Bald Eagles were above the 10 year average (6.1), but below recent highs such as the 10.1 in 1995-1996. A daily peak of 11 Bald Eagles was recorded on January 26; at least 15 individual Bald Eagles are

known to have used the river during winter 1997-1998. A single Golden Eagle was seen on December 28.

Northern Harrier: The 21.6 birds per survey was slightly above the 10 year average of 19.5. Aerial courtship was observed at Heislerville WMA near the end of the survey period; a breeding pair is thought to be present there.

Sharp-shinned Hawk: The ten year average for Sharp-shinned Hawk is 2.6 birds per survey. This year was right on average, at 2.6.

Cooper's Hawk: At 3.0 birds per survey, Cooper's Hawk was well above the 10 year average of 1.4. The 3.0 Cooper's are the highest average ever, continuing the ten year trend. Two pairs were seen courting during the final surveys, probably preparatory to nesting along the river.

Red-tailed Hawk: Red-tailed Hawks averaged 42.1 birds per survey, slightly above the 10 year average of 38.3. They remain the most common hawk seen on the winter surveys.

American Kestrel: Last year we reported on the disturbing downward trend seen for American Kestrel. Sadly it continued this season. The average of only 0.5 birds per survey was the worst ever, far below the 1.9 ten year average. Up to 2.9 birds were seen each survey in the early years of the study. The American Kestrel is clearly in trouble as a wintering bird in southern New Jersey -- on the Maurice River and elsewhere.

Other Raptors: At least three Red-shouldered Hawks spent the winter along the river. For the first time in 10 years no Rough-legged Hawks were tallied, no doubt due, in part, to the mild winter. Rough-legged Hawks were virtually absent throughout New Jersey in 1997-1998. For the seventh time in eleven years no Northern Goshawks were recorded. For the sixth time in eleven years, no Merlin were sighted along the river. Two Peregrine Falcons were counted, an adult male on January 17 and an immature female on March 11; this is judged about average for the winter season on the Maurice River.

SPECIES ACCOUNTS - WATERFOWL

Snow Goose: Snow Geese are always variable due to weather and the daily movements of local flocks. This year they averaged 3,212 birds per survey, with a peak of 8,500 on January 17. This is well above the 10 year average of 2,125. The peak is the fourth highest in eleven years for this increasing species.

Canada Goose: At 337 birds per survey, Canada Geese showed at substantial increase over the 10 year average of 119. Canada numbers are continuing to grow; the 337 average is the highest in eleven years of counting.

American Black Duck: Black Ducks continue their downward trend. While the average of 1,465 is the best in five years, it is below the 10 year average of 1,932, and well below the numbers recorded during the first six years of the study.

Mallard: Likewise, Mallard, with a 1997-1998 average of 906 birds per survey, was below the 10 year average of 1,013. It was the best season in five years, but well below historical numbers. The peak flight, however, of 2,868 on January 26 was the fourth highest in eleven years, indicating that good numbers of birds were present in the region but that they moved through quickly during this winter season.

Northern Pintail: Similarly, the Pintail peak of 1,012 (January 26) was comparatively good (sixth highest in eleven years), but the average of 410 was below the ten year average of 542. Pintails were briefly abundant, but moved through the region quickly this season, no doubt rapidly moving farther north -- which the mild weather allowed -- during their early spring northbound migration.

DISCUSSION

The mild weather of winter 1997-1998, reported as the second warmest ever recorded for southern New Jersey, played a direct roll in limiting the overall number of wintering raptors and waterfowl on the Maurice River. While raptor populations in general were good, average or slightly above, wintering eagle numbers were down as a result of the warm winter. The best numbers of Bald Eagles occur during the coldest winters, when freeze-ups farther north send eagles south to the Delaware Bayshore.

Waterfowl numbers, in general, were below average. Snow Goose and Canada Goose numbers were good, but "puddle duck" populations were down. Black Duck, Mallard and Pintail numbers, while generally better than recent years, still never reached their potential on the river. Peak flights were good, but low numbers in late winter/early spring meant for low averages for the full season. In short, the mild winter resulted in low numbers of waterfowl lingering. Maurice river peak numbers usually occur in late February or early March as spring migrant Pintails and Mallards (and to a lesser degree, Black Ducks) flock to the river. This year, peak puddle duck numbers occurred on January 26, at least a full month earlier than normal. Most then rapidly left the region heading farther north, with few lingering. While duck numbers showed a good seasonal curve, the peak occurred far earlier this winter than ever before.

Of interest is that the mild winter weather made it difficult to find good days on which to conduct the surveys! Normally we try to census during blustery northwest winds -- conditions which are conducive to raptor soaring and hunting. This year, as daily data sheets attest, many surveys were of necessity carried out on surging south or southwest winds. Basically, winter conditions were hard to find in winter 1997-1998.

One factor clearly effecting regional waterfowl distribution is the emergence of the Bivalve PSE&G Salt Marsh Restoration Site as a waterfowl use area. This newly flooded area attracted thousands of waterfowl this past winter, and will continue to do so until mudflats eventually become covered with *Spartina alterniflora*. Because we felt that the Bivalve site was holding waterfowl which would otherwise be distributed elsewhere along the river, we added it as a waterfowl census site. (Accordingly, this year's methodology then differed slightly from previous years.) While numbers of key species were relatively unaffected, note

however, that this newly flooded area did produce new records for a few species. The peak of 130 Northern Shoveler is by far a new record, likewise the 130 Gadwall and 147 American Wigeon are new records for the river. Also, the 1,495 Green-winged Teal, counted on March 17, bests our old record of 1,378 (1987-1988). Many of these teal were at the Bivalve site. We will continue to census this site as long as we feel it is attracting and concentrating Maurice River Region waterfowl.

Also this year, we censused the northernmost section of the river from the Natural Lands Trust Inc. site known as the Peek Property. See Table 3. This new preserve allows for quality censusing of the upper river. In the early years of this survey, the upper river was censused on private lands which were subsequently posted. By using the Peek Property site, we can now again be sure that these upper sections are being well counted. We do not feel, however, that the use of the Peek Property is skewing data or making current censuses less comparable to previous years. Instead, it mainly makes the upper river much easier to census, and counting efforts can be carried out more efficiently.

In summary, while it was a somewhat "average" winter for raptors and waterfowl on the Maurice River, the numbers were easily and clearly attributable to the warm winter. Indeed, it is significant that such a mild winter, the second warmest ever on record, still produced raptor and waterfowl numbers which are about average compared to the previous ten years of data. Basically we had average numbers on a "below average" winter!

It is important to remember that what constitutes average numbers for the Maurice River are numbers that are still very much regionally significant. In this regard, 1997-1998 studies confirm and corroborate the previous ten years of data for the Maurice River, showing that both raptor and waterfowl numbers found there are exceptional for both New Jersey and for the entire Delaware Bayshore.

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Table 1

Raptors Recorded on the Maurice River
Winter of 1997-1998

SPECIES	**DATE**	**12/2**	**12/17**	**12/28**	**1/10**	**1/17**	**1/26**	**2/7**	**2/19**	**3/11**	**3/17**
Black Vuture		10	12	12	14	4	76	13	16	3	6
Turkey Vulture		60	55	59	84	40	51	38	89	38	81
Bald Eagle		5	7	6	8	6	11	6	6	6	5
N. Harrier		21	24	25	21	22	24	20	24	12	23
Sharp-shinned Hawk		6	3	7	2		3		1	2	2
Cooper's Hawk		5	2	3	4	2	4	1	3	5	1
Red-shouldered Hawk						1	1		1		
Red-tailed Hawk		32	30	41	31	45	47	48	56	46	45
Golden Eagle				1							
American Kestrel		1	1		1						2
Peregrine Falcon						1				1	
Total Raptors		140	134	154	165	121	217	126	196	113	165

Table 2
Waterfowl Recorded on the Maurice River
Winter of 1997-1998

SPECIES	DATE	12/2	12/17	12/28	1/10	1/17	1/26	2/7	2/19	3/11	3/17
Tundra Swan		10									
Mute Swan			5	9	14	12	20	32	22	40	45
Snow Goose		4	700	80	3,500	8,500	4,000	4,500	5,050	1,785	4,000
Brant						9					
Canada Goose		33	480	427	709	342	418	416	143	247	157
Wood Duck		1								1	
Green-winged Teal		20	4	220	6	180	142	300	275	555	1,495
American Black Duck		858	875	1,152	1,866	1,728	2,660	2,049	1,334	727	1,397
Mallard		300	285	586	980	1,225	2,868	1,580	587	379	274
N. Pintail		10	9	231	272	663	1,012	845	654	224	183
Blue-winged Teal							1			2	3
N. Shoveler				79		80	60		83	130	90
Gadwall			2	1		130	51		132	115	46
American Wigeon						2	6			147	46
Canvasback				2	1	3	7	13	20	15	13
Ring-necked Duck			1			10		1			
Greater Scaup		70	60	140	1		1				
Lesser Scaup				30					1	4	2
Scaup (spp.)				41	60	61	60				
Oldsquaw					4	4					
Surf Scoter		1		1							
Scoter (spp.)				3							
Common Goldeneye		1		4	10	11	8	6	8	1	1
Bufflehead		55	67	88	70	60	71	58	72	110	147
Hooded Merganser		1	4	13	2	8		14	4	30	12
Common Merganser						1				4	
Red-breasted Merg.			20	16	12	41	17	17	25	63	38
Ruddy Duck		53	53	19	20	15				6	
Total Waterfowl		1,417	2,565	3,142	7,528	13,085	11,402	9,831	8,410	4,585	7,970

Table 3

Winter Raptors & Waterfowl
Peek Property, Winter of 1997-1998

SPECIES	DATE	12/17	1/26	2/7	2/19	3/11	3/17
Black Vuture			76	2			
Turkey Vulture		4	15	3	5	6	1
Bald Eagle		3	2				
N. Harrier			1				
Sharp-shinned Hawk		1					
Cooper's Hawk			1				
Red-tailed Hawk		4	2	8	2		
Canada Goose		250			10		
Wood Duck						1	
Green-winged Teal					5		100
American Black Duck		91	150	210	100	75	70
Mallard		180	1,200	700	300	125	100
N. Pintail			300	310	40	40	
Red-breasted Merg.						1	