

RAPTORS AND WATERBIRDS

ON THE MAURICE RIVER

CUMBERLAND COUNTY, NJ

*The EIGHTEENTH YEAR
of an Ongoing and Long-term Study*

**Seasonal Summary: July, 2004 through June, 2005
including WINTER, 2004-2005**

Research sponsored by
Citizens United to Protect the Maurice River and its Tributaries, Inc.

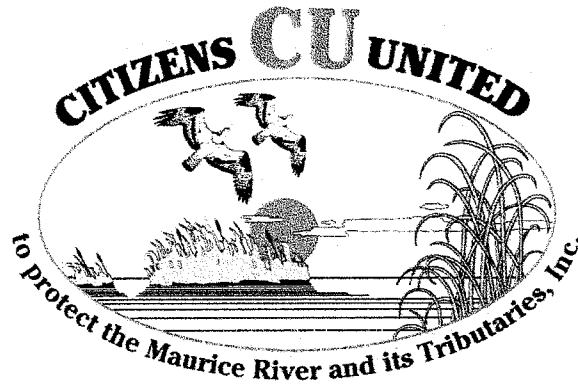


Adult Cooper's Hawk -- an *increasing species* on the Maurice River in all seasons. Digital image by Doyle Dowdell

By Clay Sutton and James Dowdell

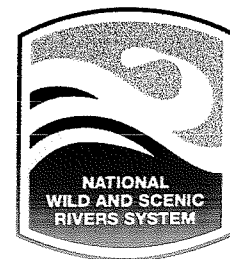
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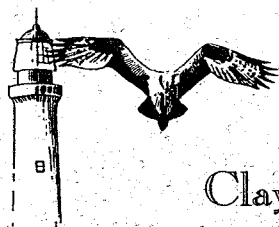


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Cumberland County, NJ

The Eighteenth Year of an Ongoing and Long-term Study

**Seasonal Summary: July, 2004 through June, 2005
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INTRODUCTION AND OVERVIEW:

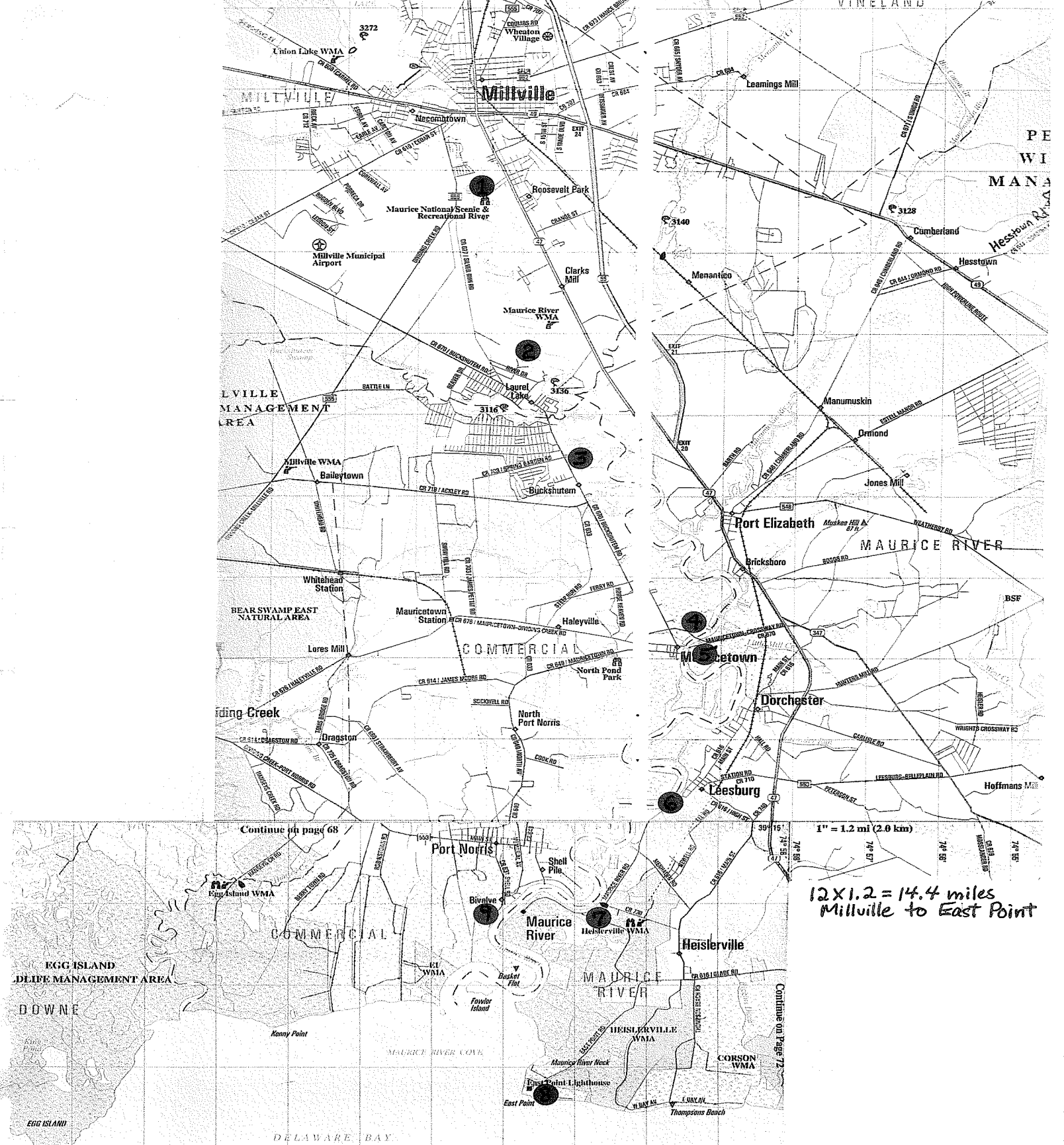
The winter of 2004-2005 marked the eighteenth consecutive season for the Citizens United-sponsored raptor and waterfowl project on the Maurice River. As in previous years, Clay Sutton and Jim Dowdell conducted all counts. Methodology was the same as used during the previous seventeen years of the survey: eight points on the fourteen mile long tidal stretch of the Maurice River between Millville and East Point were sampled (observed) for approximately 45 minutes each. As we have done since 1998, Bivalve waterfowl and waterbirds are also now counted and are shown in overall totals. A map of the Maurice River study area, showing the eight observation point, is included below.

A core program of eight full winter surveys was carried out between December 8, 2004 and March 24, 2005 - a rate of approximately one sampling every two weeks. These dates span the full winter season as it relates to winter bird-use of the Maurice River. As in the past two years, full waterbird and shorebird counts were carried out in conjunction with the targeted winter raptor and waterfowl studies. In addition to the core winter surveys, this report details additional survey work carried out in autumn, 2004 and spring, 2005. For the second time, the winter studies were expanded to include counts done in the all-important "shoulder seasons" of peak waterfowl and raptor-use. Beginning in 2003-2004, the Maurice River avian surveys became a true year-round effort - and this was continued in 2004-2005.

For a number of significant reasons, including declining winter duck populations, the recent emergence of Bivalve as a major waterbird/shorebird use area, and both known findings and suspected wildlife values in the pre and post seasons of the core winter survey (i.e., spring and fall), we felt there was real value in stretching the survey efforts over the entire year. A more protracted study allowed us to better assess fall shorebird use of the Maurice (July through October), fall raptor migration, late spring duck numbers (teal, Wood Ducks, etc.), and spring/early summer shorebird nesting raptors, such as Cooper's Hawk, Northern Harrier, Bald Eagle and American Kestrel.

Because fall migration season dynamics and numbers have a known impact on winter bird populations, and because both spring and fall migrations are so protracted, the assessment of Maurice River bird populations throughout the seasons brings important new elements and aspects to our understanding of avian ecovalues of the Maurice. Simply put, a better understanding of spring, summer, and fall bird use can only complement our extensive database of winter birds use. The Maurice River and its tributaries are exceptional at all seasons, and 2004-2005 studies made a major step in documenting such key bird-use, status, and distribution.

Because a full analysis and extensive discussion of status and trends were offered in the recent fifteen year summary (2002), this year's report is comparatively a short-form summary of observed avian-use of the Maurice River, broken into separate analyses for fall, winter, and spring. A major report and paper regarding twenty years of avian ecovalues studies on the Maurice River is planned at the conclusion of our twentieth year of studies, in spring 2007.



MAP OF THE MAURICE RIVER STUDY AREA

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Contour interval 100 feet

39° 10'

75° 00' 75° 05' 75° 10' 75° 15' 75° 20' 75° 25' 75° 30' 75° 35' 75° 40' 75° 45' 75° 50' 75° 55' 76° 00'

FINDINGS: 2004 Fall Migration Studies

Migratory staging and resultant concentrations of shorebirds, waterfowl, and raptors on the Maurice River were studied on seven dates between July 29, 2004 and November 26, 2004. These dates capture post-breeding waterbird dispersal (herons and egrets), autumn shorebird migration (which begins very early - in July), and the comparatively late migration of most raptor species.

Maurice River Raptor and Waterbird Survey results for fall, 2004, are shown in **TABLE 1**. Peak counts are **bold-faced** for each species. High numbers of late summer wading birds - herons, egrets, and ibis - were found during early fall dates, mostly concentrated at the Bivalve impoundments. Fall migrant waterfowl were abundant late in the season; 626 **American Black Ducks** were recorded on November 23, 125 **Mallards** on October 17, and an excellent 1,204 **Northern Pintails** were found on October 17. Numbers of fall waterfowl in some cases rival spring numbers - and were a surprising finding of the survey.

As expected, and confirming and collaborating previous efforts, shorebird numbers were high in early fall. As Table 1 attests, large numbers of shorebirds use Maurice River habitats during southbound migration. Among others, the 252 **Black-bellied Plover**, 510 **Semipalmated Plover**, 4,020 **Semipalmated Sandpiper** and 1,401 **Short-billed Dowitcher** represent highly significant numbers for the Delaware Bayshore. Most shorebirds were found at the Bivalve EEP impoundments, but the Heislerville WMA mudflats remain a key use-area as well.

Finally, fall raptor numbers also confirm previous findings on the Maurice. The lower Maurice River, and particularly East Point continue to be a major migratory pathway in autumn. Fall vulture numbers were high - and similar to winter numbers. The 20 **Bald Eagles** recorded on October 17 is by far our highest total for fall - at least half the individuals were deemed to be migrants. Six migrant **Peregrines** were seen on October 11, and a migrant adult **Golden Eagle** was noted on November 26. While no "big flights" were recorded (due to timing of surveys), raptor numbers on the Maurice in fall were high and consistent.

Fall "shoulder season" avian studies continue to prove that the Maurice River is not only highly important to birds in winter, but also that significant migration and use occurs prior to the commencement of core winter study efforts. Autumn 2004 counts marked the second full season of autumn (and spring) studies designed to complement core winter efforts - and as in 2003 have clearly shown that the Maurice is important year round for many species - not just winter raptors and waterfowl.

Uncommon species found in autumn, 2004 include a Yellow-bellied Flycatcher seen on August 7, a "Western" Willet on October 1, and 4 Cave Swallows at Robbinstown on November 26. A notable woodpecker movement was observed on October 1 when 60 Northern Flicker and an amazing 48 Red-bellied Woodpeckers were counted over East Point. (Red-bellies are not usually considered a classic migrant - yet they disperse and indeed "erupt" as these 48 birds aptly prove!)

TABLE 1
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
FALL 2004

	7/29/04	8/7/04	8/26/04	10/1/04	10/11/04	10/17/04	11/26/04
Red-throated Loon							1
Common Loon							
Pied-billed Grebe							1
Horned Grebe							
N. Gannet							1
Brown Pelican				7			
Double-cr Cormorant	37	245	103	606	✓	193	12
Great Cormorant							
Great Blue Heron	17	12	9	17	✓	15	12
Great Egret	59	93	71	44	✓	42	
Snowy Egret	310	297	253	93	✓	24	
Little Blue Heron		4					
Green Heron	12	1	1				
Black-cr. Nt.-Heron	10		5	1	✓	1	
Glossy Ibis	575	195	79				
Black Vulture	2	7	5	20	✓	42	47
Turkey Vulture	58	32	79	100	✓	131	168
Snow Goose							1,650
Canada Goose	151	57	98	45	✓	930	935
Brant							
Mute Swan	19	15	5	25	✓	28	26
Tundra Swan							
Wood Duck							
Gadwall						11	8
American Wigeon							
American Black Duck	159	108	25	497	✓	519	626
Mallard	12	12	1	2	✓	125	54
Blue-winged Teal			12	6			
Northern Shoveler				7	✓	18	
Northern Pintail				205	✓	1,204	337
Green-winged Teal				40	✓	482	260
Canvasback							1
Ring-necked Duck							350
Greater Scaup							
Lesser Scaup							19
scaup spp.							
Surf Scoter							
Black Scoter							
scoter spp.							
Long-tailed Duck							
Bufflehead							168
Common Goldeneye							
Hooded Merganser							10
Common Merganser							
Red-br Merganser							20
Ruddy Duck						7	45

TABLE 1 (cont.)
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
FALL 2004

	7/29/04	8/7/04	8/26/04	10/1/04	10/11/04	10/17/04	11/26/04
Osprey	68	29	37	10	10	7	
Bald Eagle	8	3	8	11	6	20	14
Northern Harrier	3	2	2	14	18	23	27
Sharp-shinned Hawk				7	50	22	8
Cooper's Hawk	3	2		11	15	10	4
Northern Goshawk							
Red-shouldered Hawk							6
Red-tailed Hawk	5	10	12	28	15	46	65
Rough-legged Hawk							1
Golden Eagle							1
American Kestrel			1	7	15	10	
Merlin				2		4	1
Peregrine Falcon	1	1	1	2	6		
Ring-necked Pheasant							
Wild Turkey	22						
Northern Bobwhite	2						
Clapper Rail	37	18	9	2	✓	3	2
American Coot							8
Black-bellied Plover	2	90	79	2	✓	252	121
Am Golden-Plover					1		
Semipalmated Plover	4	510	323			4	
Killdeer	3		2	2	✓	2	33
Am Oystercatcher							
Greater Yellowlegs	12	64	20	27	✓	24	44
Lesser Yellowlegs	56	72	27	9	✓	24	8
Willet	14	1		1			
Spotted Sandpiper	1	1					
Ruddy Turnstone	3	4	8		✓		
Sanderling	32	22					
Semipalmated Sdp.	2,747	4,020	3,061		✓	6	
Western Sandpiper		6	59		✓	8	
Least Sandpiper	82	87	47		✓	34	
White-rumped Sdp.		1	1				
Pectoral Sandpiper					✓	7	
Dunlin				28	✓	3,420	690
Stilt Sandpiper	1		1				
Sh-billed Dowitcher	1,303	1,401	337		✓	6	
Lg-billed Dowitcher						2	
Wilson's Snipe							2
peep spp.	2,000						
American Woodcock							
Laughing Gull	515	350	800	1,000	✓	700	
Bonaparte's Gull							
Ring-billed Gull	15	45	60	100	✓	150	✓
Herring Gull	261	150	300	200	✓	500	✓
Lesser Bl-Bk Gull	1						
Great Bl-Bk Gull	73	35	45	75	✓	50	✓

TABLE 1 (cont.)
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
FALL 2004

	7/29/04	8/7/04	8/26/04	10/1/04	10/11/04	10/17/04	11/26/04
Gull-billed Tern		1					
Caspian Tern						2	
Royal Tern	2						
Forster's Tern	320	106	134	322	✓	122	
Least Tern	3	1					
Black Skimmer		22					
E. Screech-Owl				1			
Great Horned Owl				1			
Belted Kingfisher	1	1	2	12	✓	5	7
NOTES:							
8/7 - Lower River only (south of Maurice River Bridge)							
10/11 - Lower River only - raptors only counted (all or most were migrants)							
10/1 - waterbird / shorebird count drastically impacted by extremely high tides							

FINDINGS: Core Studies -- Winter Raptors

For the eighteenth consecutive winter season, raptors and waterfowl (and all waterbirds) were counted during winter 2004-2005. Maurice River winter raptors were counted on eight dates between December 8, 2004 and March 24, 2005. Survey results are shown here in **TABLE 2**. Peak counts are **bold-faced** and averages are shown for all species. Highlights for each species follow below.

Black Vulture

Interestingly, Black Vultures were a “hit or miss” proposition. They disperse far and wide from river region roosts, and numbers varied greatly depending on whether the morning “exodus” was observed. The peak 68 on December 8 far more clearly reflects the regional population than the modest average of 18.75.

Turkey Vulture

Turkey Vulture numbers are more consistent than those of Black Vulture. A peak of 154 was seen on December 8, and an average of 95 was accrued - exactly the average recorded the previous winter season (2003-2004).

Bald Eagle

Consistent counts of Bald Eagles, buoyed by a sizable mid-winter incursion, led to an all-time high average of 15.13, besting 2002-2003's average of 14.2. A peak of 25 Balds was seen on February 5, just shy of our all time daily record of 28. Eagle counts include both resident nesting birds and wintering individuals from the north. The Maurice River continues to be an eagle stronghold for both the Delaware Bayshore and all of New Jersey.

Northern Harrier

Bucking a reported and supposed region-wide trend, Harrier numbers were excellent on the Maurice in 2004-2005. A peak 39 on January 24 was just shy of the all-time peak of 40 (in 2003-2004) and the average of 25.6 per survey is an excellent average. Harriers continue to be one of the hallmarks of the Maurice in winter.

Sharp-shinned Hawk

A peak of 8 was counted on December 8. The average of 2.88 means that it was just that - an “average” winter for Sharp-shins along the river.

Cooper's Hawk

Cooper's peaked at 5 on January 9, and averaged 2.75 per survey for the winter season. In eighteen years of surveys, 2.75 is our highest-ever average for this increasing species.

Northern Goshawk

No Goshawks were recorded during our winter survey efforts. Goshawks are only seen, on average, about once every two winters on the Maurice River. Region-wide, it was clearly *not* a Goshawk invasion year.

Red-shouldered Hawk

With a peak of 3 on January 9 and an average of only 0.63 per survey, it was a below average winter for this secretive buteo. Probably five individual Red-shoulders wintered along the river however.

Red-tailed Hawk

Red-tails, a cornerstone species of winter counts, peaked at a high 63 individuals tallied on February 5 (and on this date, none were migrants -- all are clearly wintering birds). The average of 43 is "average" and a bit modest compared to recent trends for this increasing raptor.

Rough-legged Hawk

Only three individual Rough-legs were recorded in 2004-2005, continuing the recent trend of very low numbers for this migrant from the high Arctic. The average of 0.38 is quite low. One additional Rough-legged Hawk was reported to us - one seen at East Point by Sandra Keller on December 14. (She also recorded a Short-eared Owl there on that date - a species not recorded by our survey in 2004-2005.)

Golden Eagle

Only one Golden Eagle was seen, a sub-adult at Bivalve on March 10, leading to a low average of 0.13. The Golden was watched hunting high over the marshes, and then was seen to stoop and kill a Snow Goose - a dramatic encounter indeed!

American Kestrel

Only one individual Kestrel wintered on the entire Maurice River in 2004-2005, and was recorded only twice (near Robbinstown Road). The resultant average, at 0.25 is our lowest average ever in eighteen years - dipping below 2003-2004's record low of .3 per survey. American Kestrel is virtually extirpated as both a wintering bird and a breeding species in southern New Jersey. **The American Kestrel is in dire need of immediate endangered species status and protection.**

Merlin

With three sightings, and an average of 0.38, Merlin were present in above average numbers along the Maurice in 2004-2005. A Merlin was observed catching and killing a European Starling. Astoundingly, Merlin were more common than American Kestrel on the river in 2004-2005.

Peregrines

Six Peregrine sightings were accrued along the river during winter 2004-2005, an above average year. At an average of 0.75, they too were more common than our "native" American Kestrel. A Peregrine was seen to catch and eat a Green-winged Teal at Bivalve.

TABLE 2
MAURICE RIVER
RAPTOR and WATERBIRD SURVEY
WINTER 2004-2005

	12/8/04	12/26/04	1/9/05	1/24/05	2/5/05	2/26/05	3/10/05	3/24/05	Avg.
Red-throated Loon	3	1	5				1	1	
Common Loon		1							
Pied-billed Grebe								1	
Horned Grebe								2	
Double-cr Cormorant			3					42	
Great Cormorant					2	1	1		
White Pelican	1								
Great Blue Heron	25	14	26	3	9	11	8	4	
Great Egret									
Snowy Egret									
Little Blue Heron								1	
Black-cr. Nt.-Heron	2					1			
Glossy Ibis									
Black Vulture	68	5	16	14	29	10	6	2	18.75
Turkey Vulture	154	81	110	92	116	66	78	66	95.38
Snow Goose	370	1,788	2,675	1	182	5,350	4,730	2,990	2,261
Canada Goose	345	1,111	525	1,094	286	379	207	238	523
Brant									
Mute Swan	17	16	28	20	8	26	21	34	
Tundra Swan					1		3		
Wood Duck						2	8	1	
Gadwall		5		4		18	1	23	
American Wigeon	1						3	2	
American Black Duck	1,006	499	983	588	496	1,005	1,937	2,432	1,118
Mallard	676	793	273	213	361	724	406	201	456
Northern Shoveler									
Northern Pintail	796	282	309	3	145	508	643	225	364
Green-winged Teal	110	45	50	1	4	287	1,043	1,358	362
Canvasback	3		8			28	44	26	
Ring-necked Duck	105	375		1		6		29	
Greater Scaup	8	3	110		3		25	4	
Lesser Scaup	20	3				14	32	87	
scaup spp.	5	4					187	80	
Surf Scoter	1		3						
Black Scoter			2				1		
scoter spp.		7							
Long-tailed Duck	1	28	3	1	2				
Bufflehead	105	225	320	76	244	205	130	195	188
Common Goldeneye	1	100	165	271	169		36		124
Hooded Merganser	11	10	4	10		4	12	10	
Common Merganser	2		5	96	3	13	5	11	
Red-br Merganser	19	111	84	42	10	53	107	72	62
Ruddy Duck	102	3							

NOTE:
Peak Winter Counts are bold faced.

TABLE 2 (cont.)
MAURICE RIVER
RAPTOR and WATERBIRD SURVEY
WINTER 2004-2005

	12/8/04	12/26/04	1/9/05	1/24/05	2/5/05	2/26/05	3/10/05	3/24/05	Avg.
Osprey								18	
Bald Eagle	10	5	8	19	25	15	23	16	15.13
Northern Harrier	23	23	29	39	24	29	30	8	25.63
Sharp-shinned Hawk	8	3	1	1	5	1	2	2	2.88
Cooper's Hawk	4		5	2	4	3	2	2	2.75
Northern Goshawk									
Red-shouldered Hawk			3	1		1			0.63
Red-tailed Hawk	55	17	49	39	63	49	45	27	43
Rough-legged Hawk			1	2					0.38
Golden Eagle							1		0.13
American Kestrel			1			1			0.25
Merlin	1	1		1					0.38
Peregrine Falcon			1	1	2	1	1		0.75
Ring-necked Pheasant	1								
Wild Turkey		17	30	1	85			10	
Northern Bobwhite									
American Coot			4						
Black-bellied Plover	15		2						
Killdeer	47			1		6	86	5	
Am Oystercatcher								3	
Greater Yellowlegs	21	7	26				6	37	
Lesser Yellowlegs	8	2	2				3	1	
Red Knot		1							
Western Sandpiper		4							
Dunlin	870	173	345	6			14	620	
Wilson's Snipe		3		4	1		11	14	
American Woodcock		1		1					
Laughing Gull									
Bonaparte's Gull		1	17				1	256	
Ring-billed Gull	✓	214	✓	✓	✓	✓	✓	✓	
Herring Gull	✓	860	✓	✓	✓	✓	✓	✓	
Lesser Bl-Bk. Gull							1		
Great Bl-Bk. Gull	✓	79	✓	✓	✓	✓	✓	✓	
Forster's Tern								2	
E. Screech-Owl	1								
Great Horned Owl			2						
Belted Kingfisher	4	8	11	3	1	4	2	3	

NOTE:
Peak Winter Counts are bold faced.

FINDINGS: Core Studies -- Winter Waterfowl & Waterbirds

Maurice River waterfowl and all other “waterbirds” for winter 2004-2005 are also shown in **TABLE 2**. Peak counts are **bold-faced** and averages are shown for key species. While it was not a particularly cold winter on average, a strong freeze-up in late January did send many regional waterfowl farther south, with Snow Geese completely leaving the region. This exodus in part hurt waterfowl averages, and overall numbers of ducks and geese were deemed just average in 2004-2005 when compared to recent standards.

Snow Goose

Snow Geese numbers always vary from date to date as “nomadic” flocks move around the region. Snows peaked at a fairly modest 5,350 on January 26, and averaged a below-average 2,261 for the season.

Canada Goose

Once again, wintering Canadas set a record on the Maurice. The average of 523 per survey bests last year’s record high of 497, and the peak of 1,111, is quite high, although not a record. It is not known what percentage of Maurice winter Canadas are true migrants from the far north and how many are resident year-round geese.

As in past years, Bayside State Prison Canada Goose populations were counted in 2003-2004. Numbers estimated are as follows. There is thought to be little overlap/double-counting with daily goose numbers counted on the mainstem river; Canadas are counted at Bayside Prison though because it is believed that virtually all of them use the Maurice either daily or seasonally.

Bayside State Prison - Canada Geese 2004-2005

7/29/04	8/26/04	10/1/04	10/17/04	11/26/04	12/8/04	1/9/05
450	175	500	825	450	800	650
1/24/05	2/5/05	2/26/05	3/10/05	3/24/05	4/12/05	5/25/05
325	525	800	550	390	50	46

+15 Snow Geese

American Black Duck

The peak of 2,432 Blacks is a fair total, accrued on the late date of March 24. The average of 1,118 is quite low when compared to the most recent five-year segment of the long-term study.

Mallard

Mallard continue their significant low numbers trend. The peak of 793 is very low, and the average of 456 is abysmal when compared to the early years of Maurice River Studies. Mallard seem to be the greatest victim of the loss of wild rice marshes.

Northern Pintail

The peak of 796 was attained early on December 8, rather than in the more expected period of late winter/early spring. Spring Pintail staging never really occurred - and the peak and average of 364 are very low - well below previous segments of the Maurice River Study.

Green-winged Teal

Green-wings are more a fall and spring species than a classic wintering species on the Maurice River. A "spring" peak of 1,358 occurred on March 24 - leading to a modest average of 362. As spring survey results will show (below), Green-wings continued to build beyond the cut-off date of the classic "winter" period.

Other Waterfowl

"Other" species of ducks were present in good numbers, yet numbers were judged as below average compared to many recent seasons. Northern Shoveler were again inexplicably totally absent, and **Gadwall** and **American Wigeon** were low. Divers did better - the Heislerville "regular" **Canvasback** flock peaked at 44 on March 10, and a healthy 375 **Ring-necked Ducks** were on a Mauricetown sand plant pond on December 26. East Point diving ducks were mixed; few **Scoter** or **Scaup** were present, but **Long-tailed Duck** set a new record at 28 on December 26. 320 **Bufflehead** were present on December 9, and a respectable 271 **Common Goldeneye** were concentrated by ice at East Point on January 24. Both **Common and Red-breasted Merganser** were found in good numbers, and a respectable 102 **Ruddy Ducks** were counted on December 8.

Two good records for ducks were attained by others in winter 2004-2005 (not as part of this study). A female **Harlequin Duck** was seen at East Point by Tom Reed and Dylan Kosten during the Belleplain Christmas Bird Count on December 26, 2004 - a first record for Cumberland County. A female **Barrow's Goldeneye** was reported, also at East Point, by Steve Glynn, on January 22, 2005 (reported to CMBO). This would be only the second record for Cumberland County. As more birders come to Cumberland County, more discoveries are being made.

Our winter survey recorded an unseasonably late (and rare at any season) **American White Pelican**, soaring over the Heislerville WMA on December 8. An unusual 256 **Bonaparte's Gulls** by far a record for the survey, were at Heislerville and East Point on March 24. Finally, a Common Yellowthroat, an uncommon wintering species, was found near the Maurice River Bridge on January 24, and an unseasonably early migrant Louisiana Waterthrush was recorded at East Point on March 24. At any season, there is always something interesting to see along the Maurice River.

To summarize the core studies, the Winter Raptor, Waterfowl, and Waterbird Survey of the Maurice River, it seemed as if winter 2004-2005 saw just average, or below average, numbers of most species. The reasons can vary, and certainly overlap. On the Maurice River itself, it appears that the loss of wild rice acreage continues to impact waterfowl numbers. Canada Goose numbers continue to rise, and herbivory of wild rice no doubt continues despite control efforts. Rising sea level and ascending salt concentrations no doubt play a role too.

Beyond the Maurice, all indications and reports were that the 2004 breeding season in northern Canada, from James Bay and Hudson Bay to the high Arctic, was an extremely poor one. The spring and early summer there was exceptionally cold, wet, and windy, and breeding success for many or most shorebird species, and for most geese and ducks as well was judged by numerous researchers to be very low or in many cases virtually nil. In short, it appears that many fewer than normal waterfowl and shorebirds came south in fall 2004, and that this may well be a key factor in low local Maurice River numbers (and not only in winter core studies, but also in Fall 2004 counts and Spring 2005 counts as well).

Only time will tell what is causing recent low counts - whether it is a localized phenomenon or one with causes beyond our boundaries. It is, in part, why we have continued these studies over an eighteen year span, and why we will continue until we have accrued twenty years of valuable data for the all-important avian resources of the Maurice River.

FINDINGS: 2005 Spring Migration Studies

For the second season, core winter studies were supplemented by both fall "pre-season" studies and a spring "post-season" survey effort. Maurice River raptors and waterbirds were counted on four dates between April 12, and June 17, 2005, lending valuable data on spring migration and migration staging through the Maurice River region. In addition, several key sightings were made of breeding species along the Maurice River during this period.

Maurice River Spring Raptor and Waterbird results for Spring, 2005 are found in **TABLE 3**. Peak counts are shown for each species. (Because of the high turnover rate for northbound migrants, averages are relatively meaningless and were not computed or shown.) Waterbirds were found in good numbers in Spring, 2005. The 142 **Glossy Ibis** seen on April 12 is a good count, and the 135 **Northern Gannet** seen feeding off East Point on April 12 is a record.

Spring migrant waterfowl numbers held well into April - the 1,668 **Green-winged Teal** on April 12 in fact bests the highest "winter" total recorded in 2004-2005. A **Mute Swan** at Heislerville on April 12 had a white neck collar, with EA 84 on it. (This has not yet been followed up to learn the bird's origin.) Raptors too remained in good numbers, the excellent 14 **Bald Eagles** on April 12 represents a mix of resident breeders and migrants.

Shorebirds were the stars of the spring survey, with amazing totals found at both Heislerville WMA and the Bivalve EEP site. Nearly 25,000 shorebirds were carefully counted on May 25, 2005, an exceptional number for the bayshore and anywhere in New Jersey. 625 **Red Knot** were among that total. Peak counts of 19 **Least Tern** (endangered) and 96 **Black Skimmer** (endangered) were accrued in Spring, 2005.

Birds seen by other observers in spring, 2005 included an **Arctic Tern** found at Heislerville WMA on May 27 by Chris Vogel - a first record for Cumberland County and one of a number found in the region in late May. A **Wilson's Phalarope**, always rare in Cumberland County or anywhere in New Jersey, was seen at Bivalve on May 10 (and subsequently) by Tom Reed, Sandra Keller and others - a good find for the Maurice River region.

Finally, spring studies yielded several interesting breeding bird observations. **Cooper's Hawk** courtship activity was noted at the "Galletto Dock" observation site on both February 26 and March 24, indicating local breeding (a nest was subsequently found by local residents - fide Jane Galletto). A pair of **Northern Harrier** (adult male and female) was repeatedly seen at Heislerville WMA during the spring which exhibited nesting behavior. These birds were still present as late as May 23, 2005, long after the spring migration period for this species. In "fall" studies (summer 2004) a food drop or "food pass" by a male Northern Harrier confirmed breeding in summer 2004 as well. Northern Harriers (endangered) are extremely uncommon as breeding species in New Jersey, their stronghold is on the Delaware Bayshore.

Despite two years of spring data for the Maurice, it remains unknown what constitutes average numbers for bird species present. While good counts were obtained in Spring, 2005, it is known that much of the migration was "late" by normal standards. Spring 2005 was chilly - May 2005 was the 5th coldest May on record in southern New Jersey according to the National Weather Service, with the average temperature 5° colder than usual due to a stubborn cold air mass or "trough" which persisted over New Jersey. It is known to have had an impact on migration, particularly that of shorebirds. Most shorebird species were deemed "late" by most observers. It is unknown what impacts this weather had on Maurice River shorebirds and waterbirds. It will take several more seasons to determine what constitutes "average" spring counts.

TABLE 3
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
SPRING 2005

SPECIES	4/12/05	5/11/05	5/25/05	6/17/05
Red-throated Loon				
Common Loon				
Pied-billed Grebe				
Horned Grebe				
N. Gannet	135	108	1	
Brown Pelican				
Double-cr Cormorant	303	133	85	33
Great Cormorant				
Great Blue Heron	1	8	1	1
Great Egret	43	77	25	19
Snowy Egret	82	91	28	174
Little Blue Heron		1		
Green Heron		3	6	3
Black-cr. Nt.-Heron	4	18	15	3
Glossy Ibis	142	38	47	113
Black Vulture	10	7		7
Turkey Vulture	92	41	8	58
Snow Goose	30			
Canada Goose	156	143	11	159
Brant				
Mute Swan	32	22	24	40
Tundra Swan				
Wood Duck				
Gadwall	2			
American Wigeon		1		
American Black Duck	568	167	33	39
Mallard	14	25		7
Blue-winged Teal		7	1	
Northern Shoveler		1		
Northern Pintail	40	1		
Green-winged Teal	1,668	4		
Canvasback				
Ring-necked Duck	1			
Greater Scaup				
Lesser Scaup				
scaup spp.				
Surf Scoter				
Black Scoter				
scoter spp.				
Long-tailed Duck				
Bufflehead	39			
Common Goldeneye				
Hooded Merganser				
Common Merganser	4			
Red-br Merganser	8		1	
Ruddy Duck				

TABLE 3 (cont.)
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
SPRING 2005

SPECIES	4/12/05	5/11/05	5/25/05	6/17/05
Osprey	74	76	16	47
Bald Eagle	14	11	3	6
Northern Harrier	12	1		1
Sharp-shinned Hawk	1			
Cooper's Hawk	1	1		
Northern Goshawk				
Red-shouldered Hawk				
Broad-winged Hawk	1	1		
Red-tailed Hawk	33	21	1	16
Rough-legged Hawk				
Golden Eagle				
American Kestrel	1			
Merlin	1			
Peregrine Falcon	1			
Ring-necked Pheasant				
Wild Turkey	3+	2	5	
Northern Bobwhite				
Clapper Rail		24	14	18
American Coot				
Black-bellied Plover	37	580	386	
Am Golden-Plover				
Semipalmated Plover		1,903	3,494	
Killdeer	3	6	5	
Am Oystercatcher			1	
Greater Yellowlegs	157	335	12	
Lesser Yellowlegs	132	194	1	
Willet	1	26	53	50
Spotted Sandpiper		3	1	
Whimbrel		1		
Ruddy Turnstone		1	59	
Red Knot		190	625	
Sanderling		13	125	
Semipalmated Sdp.		2,600	17,965	
Western Sandpiper				
Least Sandpiper	13	795	94	
White-rumped Sdp.		1	7	
Dunlin	4,053	2,666	792	
Stilt Sandpiper	2			
Sh-billed Dowitcher	2	1,619	573	
Lg-billed Dowitcher	1			
Wilson's Snipe	1			
peep spp.				
shorebird spp.			775	
American Woodcock				

TABLE 3 (cont.)
MAURICE RIVER
RAPTOR AND WATERBIRD SURVEY
SPRING 2005

SPECIES	4/12/05	5/11/05	5/25/05	6/17/05
Laughing Gull	100+	✓	✓	1,000+
Bonaparte's Gull	3			
Ring-billed Gull	✓	✓	✓	
Herring Gull	✓	✓	✓	500+
Lesser BI-Bk. Gull		1		
Great BI-Bk. Gull	✓	✓	✓	250+
Gull-billed Tern		2		
Caspian Tern				
Common Tern			3	2
Royal Tern				
Forster's Tern	94	223	110	18
Least Tern		19	6	
Black Skimmer		27	96	1
E. Screech-Owl				
Great Horned Owl				
Belted Kingfisher	2			
NOTE:				
Lower River only covered: 5/25/05, 6/17/05				

COHANSEY RIVER AND SALEM RIVER RAPTOR AND WATERBIRD SURVEYS:

As in past years, in a effort to gain regional perspective on Maurice River avian ecovalues, several surveys were conducted on Cumberland County's Cohansey River in winter 2004-2005. Three surveys were run on the "similar" Cohansey in order to compare and contrast raptor and waterbird use of these two prime Cumberland County tributaries to Delaware Bay. Methodology used on the Cohansey was the same as that employed on the Maurice River.

TABLE 4 shows raptor and waterbird findings for the Cohansey River, along with averages for key species. Just three surveys do not allow an in-depth comparison, yet the Cohansey, in general, shows similar important wildlife usage. Vulture numbers were identical and on the Cohansey, most raptor species are found in similar concentrations. For the second time ever, the Cohansey's Bald Eagle average was higher than the Maurice, with numbers strongly augmented by the eight to ten breeding pairs now located on the Cohansey (versus five on the Maurice).

Also, as seen in past comparisons, goose concentrations along the Cohansey are far greater than on the Maurice. 11,600 Snow Geese were estimated in the Cohansey region on January 2 and 2,307 Canada Geese were also found on January 2. On the other hand (as in the past), Black Duck, Mallard and N. Pintail numbers were far fewer on the Cohansey. The Cohansey River, important in its own right, remains an excellent barometer by which to measure Maurice River significance, and offers additional insight in regards to regional trends.

For the first time, an exploratory survey was carried out on the Salem River as an additional comparison to the Maurice and Cohansey River findings. While the February 20 survey was a "preliminary", fact-finding (and survey station-finding) survey, with numbers in part roughly estimated, future surveys are planned for the Salem River/Mannington Marsh area as a no-cost adjunct to Maurice River studies. **TABLE 5** shows Salem River raptors and waterbirds counted on February 20, 2005. Ward Dasey, Pat Sutton, and Clay Sutton conducted this investigative survey on the interesting, significant, and comparatively unknown Salem River.

TABLE 4
COHANSEY RIVER
RAPTOR AND WATERBIRD SURVEY
WINTER 2004 - 2005

	1/2/05	1/9/05	3/12/05	Avg.
Red-throated Loon				
Common Loon				
Pied-billed Grebe	3			
Horned Grebe				
Double-cr Cormorant	1			
Great Cormorant	1			
White Pelican				
Great Blue Heron	21	7	2	
Great Egret				
Snowy Egret				
Little Blue Heron				
Black-cr. Nt.-Heron	1			
Glossy Ibis				
Black Vulture	20	2	37	19.7
Turkey Vulture	125	58	102	95
Snow Goose	11,600	6,900	300	6,267
Canada Goose	2,307	1,170	666	1,381
Brant				
Mute Swan	29	34	2	
Tundra Swan		15		
Wood Duck			3	
Gadwall				
American Wigeon				
American Black Duck	465	149	105	240
Mallard	979	88	60	376
Northern Shoveler				
Northern Pintail		10	15	8
Green-winged Teal	2		50	17
Canvasback			320	
Ring-necked Duck	8			
Lesser Scaup	1			
scaup spp.	10			
Surf Scoter				
Black Scoter	4			
scoter spp.				
Long-tailed Duck				
Bufflehead	7		10	6
Common Goldeneye				
Hooded Merganser	1		2	
Common Merganser	5		1	
Red-br Merganser	10		2	4
Ruddy Duck				

NOTE:
Peak Winter Counts are bold faced

TABLE 4 (CONT.)
COHANSEY RIVER
RAPTOR AND WATERBIRD SURVEY
WINTER 2004 - 2005

	1/2/05	1/9/05	3/12/05	Avg.
Osprey				
Bald Eagle	20	20	33	24.3
Northern Harrier	23	17	19	19.7
Sharp-shinned Hawk	13	3	3	6.3
Cooper's Hawk	7	3	2	4
Northern Goshawk				
Red-shouldered Hawk	2	2		1.3
Red-tailed Hawk	40	25	41	35.3
Rough-legged Hawk	1	1		0.7
American Kestrel	4	1	1	0.3
Merlin	1			0.3
Peregrine Falcon		1		0.3
Ring-necked Pheasant	3	1		
Wild Turkey	205	10	65	
Clapper Rail	1			
American Coot	1			
Crane spp.	9			
Black-bellied Plover				
Killdeer	1		2	
Am Oystercatcher				
Greater Yellowlegs	1			
Lesser Yellowlegs				
Red Knot				
Western Sandpiper				
Dunlin	8			
Wilson's Snipe				
American Woodcock	1		1	
Laughing Gull				
Bonaparte's Gull				
Ring-billed Gull	228	✓	✓	
Herring Gull	401	✓	✓	
Lesser BI-Bk. Gull				
Great BI-Bk. Gull	49	✓	✓	
Forster's Tern				
E. Screech-Owl				
Great Horned Owl			6	
Belted Kingfisher	4	4		
NOTES:				
3/12 - all 6 Great Horned Owls were seen on nests				

**TABLE 5
SALEM RIVER
RAPTOR AND WATERBIRD SURVEY
WINTER 2004 - 2005**

	2/20/05	
Great Blue Heron	30	
Great Egret		
Snowy Egret		
Little Blue Heron		
Black-cr. Nt.-Heron		
Glossy Ibis		
Black Vulture	30	
Turkey Vulture	150	
Snow Goose	1,500	
Canada Goose	5,000	
Cackling Goose	2	
Brant		
Mute Swan	75	
Tundra Swan	73	
Wood Duck		
Gadwall	75	
American Wigeon	40	
American Black Duck	150	
Mallard	50	
Northern Shoveler	6	
Northern Pintail	300	
Green-winged Teal	100	
Canvasback		
Ring-necked Duck		
Lesser Scaup		
scaup spp.		
Surf Scoter		
Black Scoter		
scoter spp.		
Long-tailed Duck		
Bufflehead		
Common Goldeneye		
Hooded Merganser	40	
Common Merganser	575	
Red-br Merganser	25	
Ruddy Duck		

TABLE 5 (cont.)
SALEM RIVER
RAPTOR AND WATERBIRD SURVEY
WINTER 2004 - 2005

	2/20/05
Osprey	
Bald Eagle	18
Northern Harrier	15
Sharp-shinned Hawk	2
Cooper's Hawk	1
Northern Goshawk	
Red-shouldered Hawk	1
Red-tailed Hawk	25
Rough-legged Hawk	
American Kestrel	
Merlin	
Peregrine Falcon	
Ring-necked Pheasant	
Wild Turkey	
Clapper Rail	
American Coot	2
Crane spp.	
Black-bellied Plover	
Killdeer	2
Am Oystercatcher	
Greater Yellowlegs	
Lesser Yellowlegs	
Red Knot	
Western Sandpiper	
Dunlin	
Wilson's Snipe	
American Woodcock	
Laughing Gull	
Bonaparte's Gull	
Ring-billed Gull	✓
Herring Gull	✓
Lesser Bl-Bk. Gull	
Great Bl-Bk. Gull	✓
Forster's Tern	
E. Screech-Owl	
Great Horned Owl	1 on nest
Belted Kingfisher	
NOTE:	
Gyrfalcon: present 2/13 (Mannington Marsh)	
seen by others	

DELAWARE BAY SURVEY:

MAURICE RIVER TO THE COHANSEY RIVER ON DECEMBER 10, 2004

To maintain and complete the ongoing ornithological record for the Maurice River Region, the following is the trip report written by Clay Sutton for Citizens United following the "oil spill response" boat tour on December 10, 2004. It is included in its entirety below, and speaks for itself regarding avian ecovalues (and avian ecorisks) in the Maurice River Cove and Egg Island Point areas.

Happily, the December oil spill's effects largely did not reach the Maurice River Cove area, and numbers detailed below were the highest number of oiled birds observed on the river. We can only hope that the December 10 tour led to a better and full understanding of the logistics of oil spill response in the Maurice River and Cohansey River regions by responsible officials and agencies.

TRIP REPORT: COOPERATIVE NJ MARINE POLICE BOAT TOUR OF POTENTIAL KEY AREAS FOR PROTECTION ON DECEMBER 10, 2004

Thank you for including me on this networking tour on the Delaware Bay. I was proud to represent CU and our 18 years of long-term data on Maurice River (and Cohansey) Raptor and Waterfowl Studies. Should the effects of the spill reach our area, such data may prove to be of inestimable value.

The following is the list of birds seen on today's trip (December 10, 2004) – along a transect beginning at the barge / breakwater at the mouth of the Maurice River, proceeding to about two miles off East Point, southwest to about one mile off Egg Island Point, and ultimately west to the entrance of the Nantuxent Creek. As you know, the trip continued on to the Cohansey River, yet interestingly very few birds were encountered on this final segment. Numbers are estimates.

80	Red-throated Loons	30	scoter sp.
4	Common Loons	850	Long-tailed Ducks
18	N. Gannet	100	Bufflehead
4	Double-crested Cormorant	60	Common Goldeneye
1	Great Cormorant	100	Red-breasted Merganser
4	Great Blue Heron	1	Sanderling
300	Snow Geese	150	Dunlin
10	Canada Geese	1	Black-headed Gull
150	Am Black Duck	6	Bonaparte's Gull
4	Mallard	50	Ring-billed Gull
1	Canvasback	500	Herring Gull
40	scaup sp.	100	Great Black-backed Gull
2	Common Eider	2	Forster's Tern

The above numbers are indicative of those birds which may be effected by oil should it reach our region. The numbers, of course, apply to those birds in the inshore zone, inclusive of those birds visible in binoculars in the area about one mile each side of the transect – roughly from the beach/shoreline to two to three miles out. These totals are far from representative of all of the birds present in Delaware Bay; they are only a sample.

Nonetheless, these bird numbers encountered are highly significant. The 80 **Red-throated Loons** is a very high number for so far up the Delaware Bay; loon numbers will decrease as water temperatures fall. Conversely, numbers of geese will grow rapidly over the next few weeks.

The 850 **Long-tailed Ducks** (Oldsquaw) were unexpected and highly significant. Away from the mouth of the bay, this is easily the known all-time maxima for Delaware Bay. Normally Long-tailed Ducks are rather uncommon this far up in the Delaware Bay. This was an exceptional find. Of great interest, about 90% of the Long-tails were drakes. Also the two **Common Eider** near Nantuxent were unusual for the Delaware Bay (and the first I have ever seen in Cumberland County). These birds are all judged significant in light of 18 years of Maurice River data, and over 50 years of Christmas Bird Count data for the area.

Finally, one **Bald Eagle** was seen at Nantuxent Creek and four on the lower Cohansey River (2 adults and 2 immatures). Also noted on the fog-bound Cohansey were a notable 20 plus Northern Harriers. Two **Peregrine Falcons** were seen – one sitting on a navigation marker near Egg Island Point, and one on the navigational tower at the entrance to the Cohansey River. Also a probable Harbor Seal was seen near the mouth of the Maurice River.

During this trip, six oiled gulls were seen at the Bivalve docks/packing plant. Noting individuals, this brings the total of oiled gulls seen on December 8 and December 10 to at least 12 (10 Herring Gulls and 2 Ring-billed Gulls). At least four would be judged to be heavily oiled and unlikely to survive. As we discussed, it is far more likely that these gulls were oiled well upriver and subsequently migrated to the Maurice River. Noticeable gull migration was observed on the morning of December 8. Also, none of the Long-tailed Ducks close enough to be checked showed any evidence of oil; the white belly of a flying Long-tailed Duck should clearly show oil if present). Keep a sharp eye out for any evidence of oil in the Maurice River region.

Finally, I checked East Point briefly (about 15 minutes) on my way home on December 10, and saw absolutely no evidence of oil on the beaches or rip-rap at this time (as had been rumored).

Thank you again for the opportunity to participate, and please let me know how else I can be of assistance.

-- Clay Sutton

MAURICE RIVER BUTTERFLY SURVEYS:

As yet another adjunct to core, key wintering raptor and waterbird status and trend studies in 2003, we began compiling daily butterfly sightings made in conjunction with targeted spring and fall ornithological efforts.

The addition of spring and fall survey dates, and particularly the “summer” calendar dates chosen for the purpose of counting southbound shorebirds, allowed for butterfly studies to be added as an additional no-cost adjunct. These ancillary sightings should not in any way be considered full survey efforts – but merely those Lepidoptera noted while carrying out bird-work.

Nonetheless, a significant butterfly list was accrued between July 2003 and October 1, 2004. Maurice River butterfly sightings for this period are shown as **TABLE 6**. A total of 57 species were recorded on nine dates between July 2003 and October 2004, a very good total considering that we were not targeting butterflies and only recording sightings ancillary to bird observations. Significant were the **White-M Hairstreak** (always uncommon to rare) recorded on October 1, 2004; the very high number of 23 **Hayhurst’s Scallopwings** seen on July 29, 2004; the single (and appropriately-named) **Rare Skipper** seen on July 29, 2004; and the **Sleepy Orange** (a rare southern emigrant) seen on April 20, 2004. It may be possible that the 23 Hayhurst’s Scallopwings represent a state maxima for this generally uncommon and low density species; more discovery is needed and planned regarding this possibility.

Butterfly findings 2003-2004, while largely anecdotal, help to additionally confirm the Maurice River as an important place for biodiversity and for all wildlife. 57 species is a significant number of butterflies for random and non-targeted observations, confirming in part that the wild and scenic Maurice River supports important populations of many groups of animals. Butterfly survey efforts will be continued in 2005-2006.

TABLE 6
MAURICE RIVER
BUTTERFLY SIGHTINGS
2003 - 2004

Species	7/25 2003	9/24 2003	4/20 2004	5/5 2004	5/27 2004	6/3 2004	7/29 2004	8/26 2004	10/1 2004
Black Swallowtail	✓	✓			10	15	14	20	
E. Tiger Swallowtail	✓	✓		3	6	8	2	1	
Spicebush Swallowtail	✓	✓			4	20+	12	7	
Cabbage White	✓	✓	200	15	500	100	60	20	50
Falcate Orangetip			1	4					
Clouded Sulphur	✓	✓		1		2	3	2	1
Orange Sulphur	✓	✓	50	6	100	25	25	15	40
Cloudless Sulphur		8/15/03 (1)					1	20+	35
Little Yellow		✓							1
Sleepy Orange			1						
American Copper						100	15		
Henry's Elfin			10	3					
Eastern Pine Elfin				1					
'Olive' Juniper Hairstreak	✓								
White M Hairstreak									1
Gray Hairstreak							4		1
Red-banded Hairstreak						1	1		10
Eastern Tailed Blue	✓					1	18	5	4
Spring Azure (Blueberry)			5						
Spring Azure (Holly)			1	1					
Summer Azure	✓			1		8	1	3	
Variegated Fritillary	✓								
Pearl Crescent	✓	✓		3	1	2	7	25	4
Question Mark	✓		15		1	2	1		
"anglewing" spp.		✓							
Mourning Cloak		✓				1			1
American Lady	✓	✓	6	3	1	12	8		2
Painted Lady	✓								
Red Admiral	✓	✓			1				
Common Buckeye	✓	✓				5	15	10	100
Red-spotted Purple	✓	✓				4	45	2	2
Hackberry Emperor							1		
Tawny Emperor	✓							1	
Common Wood Nymph	✓						2		
Monarch	✓	15					1	6	20

TABLE 6 (cont.)
MAURICE RIVER
BUTTERFLY SIGHTINGS
2003 - 2004

Species	7/25 2003	9/24 2003	4/20 2004	5/5 2004	5/27 2004	6/3 2004	7/29 2004	8/26 2004	10/1 2004
Silver-spotted Skipper	✓					10	15	5	3
Southern Cloudywing						1			
Hayhurst's Scallopwing					1		23		1
Juvenal's Duskywing			2	15					
Horace's Duskywing	✓						4		
Wild Indigo Duskywing								2	
Common Sootywing							8		
Swarthy Skipper						6			
Least Skipper	✓					1	10	9	1
European Skipper						2			
Peck's Skipper							1		
Tawny-edged Skipper						1			
Crossline Skipper							1		
Northern Broken Dash							10		
Sachem	✓	✓					2	35	20
Delaware Skipper						8	15		
Rare Skipper							1		
Zabulon Skipper						6	12	3	
Aaron's Skipper					1	150	14	4	
Broad-winged Skipper	✓						100	2	
Dun Skipper	✓					1	3		
Salt Marsh Skipper	✓								
Ocola Skipper									3
NOTE:									
4/20/04 - Sleepy Orange - Robbinstown Road - following strong SW winds/very warm spell.									
TOTAL: 57 species									

DISCUSSION:

In summary, the second extended season of Maurice River Studies, in which the core winter raptor and waterbird studies were expanded into a full-time, year-round effort, was highly successful. The protracted study period yielded notable findings for spring, the summer breeding period (which for local breeders coincides with both spring *and* fall shorebird migration), and the all-important fall migration.

Spring and fall data for the Maurice River study area supplements the substantial and significant existing winter bird-use data, and expands our knowledge of the avian resources of the Maurice River into the other seasons of the year. Most importantly, these 2004-2005 findings importantly append core winter studies in confirming that significant bird use of the Maurice occurs at all seasons. This second year of spring and fall data augments and reinforces our existing eighteen years of winter data, and both supplements and complements known wildlife values with important new information regarding status, seasonal distribution, and numbers of birds using the Maurice River.

Such adjunct studies on raptors and all waterbirds continue to cement the Maurice River region's status and reputation as one of the most important bird habitats in New Jersey and on the entire Delaware Bayshore. New seasonal studies confirm and corroborate previous survey efforts, and show that for both bird use and the enjoyment of birds, the Maurice is a place for all seasons.

Such documentation and information should be carefully evaluated and considered by land use planners and regulators as crucial decisions are made regarding the Maurice River watershed and the surrounding rural regions. The land use of the region could see rapid changes and habitat loss and degradation if and when several large scale projects currently in the planning stages come to fruition. These include the ill-conceived (from an avian ecovalues standpoint) "Millville Racetrack" proposal currently being considered for the watershed, a project with considerable potential to adversely impact a number of rare, threatened, and endangered avian species found in the region. Certainly the secondary impacts of such a major project could have far-reaching impacts on the avian resources of the Maurice River and its tributaries. It is strongly hoped and advised that officials, regulators, and planners give strong consideration to the eighteen years of documented avian ecovalues that have resulted from these ongoing and long-term bird studies.

FOR FURTHER REFERENCE:

All Maurice River ornithological studies have been directed and co-authored by Clay Sutton, either as an independent contractor or formerly as staff ornithologist of Herpetological Associates, Inc., Plant and Wildlife Consultants. **Principal publications** resulting (either wholly or in part) from the above studies (either funded or co-funded by CU) are as follows:

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As Citizens United members have aptly and eloquently expressed, "the river is not wild or scenic by accident or neglect, but only through the dedicated and tireless efforts of special people." It is an honor and a privilege to work with all of you, and a continued thrill, even after eighteen years, to "head out" for the counts, and to carry out these exciting long-term bird studies on the unrivaled "Mighty Maurice."

— Clay Sutton

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