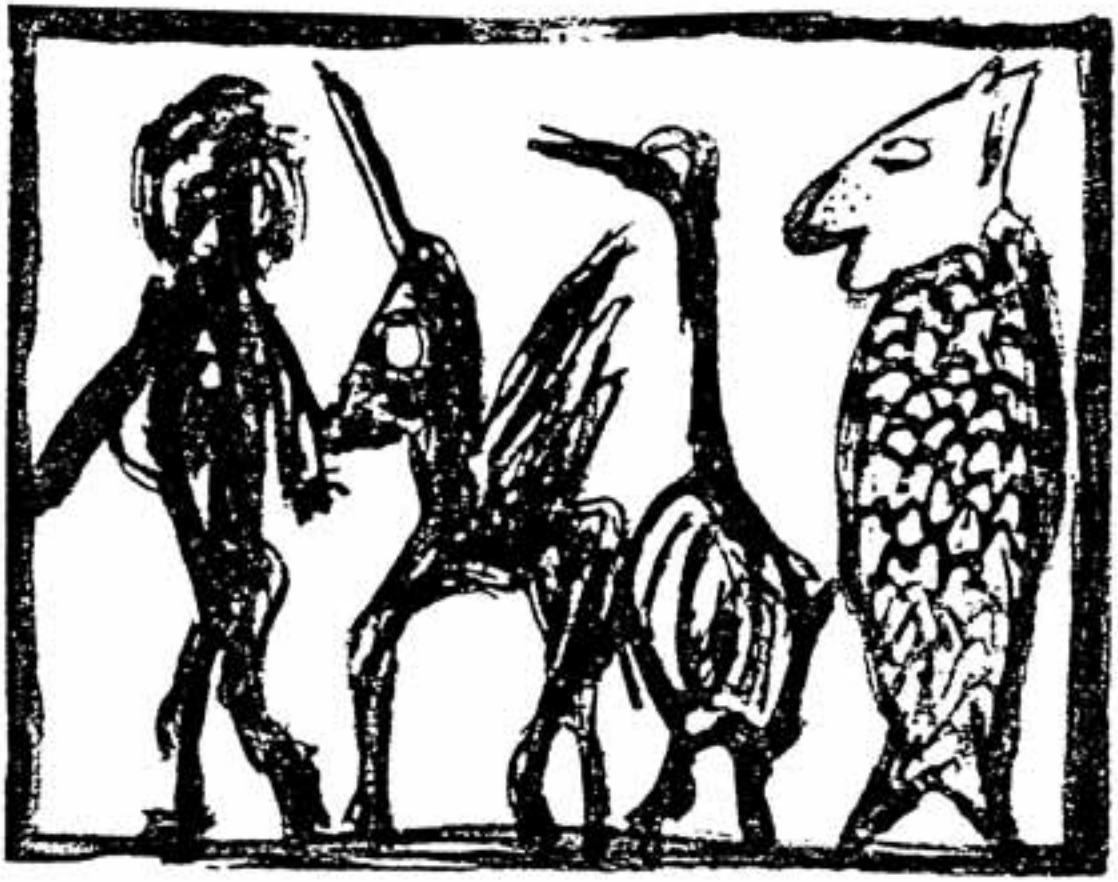


Pelham Bay Park Hawkwatch

Bronx, New York
1990

January, 1991

Robert DeCandido
Biology Department
Fordham University
Bronx, New York 10458

Greetings,

It is with great pleasure that I present to you the final report of the Pelham Bay Park Hawkwatch for the 1990 fall season. Contained herein is a summary of the migration of eagles, hawks, falcons and their allies through Pelham Bay Park, the Bronx, New York.

The enclosed report details both the number and species of hawks seen in migration in 1990, with a brief analysis of how to interpret these data. In addition, other material relevant to hawkwatching in Pelham Bay has been included such as the results of the study on ospreys foraging in migration, and three brief accounts about raptors in the park.

Three years ago, the idea of having a fall hawkwatch in the Bronx was met with a great deal of skepticism. Sadly, the Bronx is almost universally regarded as a place unfit for people, much less for hawks. To put it more bluntly, if you were evil in a previous lifetime, you automatically became eligible for reincarnation somewhere between Yankee stadium and the Bronx-Westchester County borderline. (The Bronx Zoo seems to have been created as an island for lost souls.) However, our results during this time constitute a sort of redemption for all of you who have come out and visited the hawkwatch. For those who have not yet seen the light, or who we see too infrequently, be advised that the Bronx is not quite the hot spot where one gets sent for doing the nasty. Rather, for better or for worse, the Bronx is a place that the rest of the world resembles more each passing day.

However, where the world ends and the Bronx begins is an artificial distinction, especially if you are a hawk. Indeed, the diversity and number of raptors seen in migration at Pelham Bay Park since 1988 should put such doubts to rest. For example, we now know that bald eagles and golden eagles can still be seen migrating through the Bronx and New York City, as well as a variety of other uncommon species such as peregrine falcons and rough-legged hawks. In all, seventeen different species of raptors have been observed in migration through this urban park. Significantly, Pelham Bay ranks third of all the hawkwatches in North America for the number of ospreys counted in migration in the fall. The park is also an important foraging habitat for these raptors. Since 1987, more migrating ospreys have been observed diving into the water and catching fish in Pelham Bay Park than anywhere else in North America.

In just these first three years of operation the Pelham Bay Hawkwatch has also been recognized as a bona fide scientific endeavor by our peers: the results of the 1988 hawkwatch were summarized in **American Birds**, the journal of the National Audubon Society. In 1989, the hawkwatch was awarded research grants from the New York City Audubon Society and from the Hawk Migration Association of North America (H.M.A.N.A.). The award from H.M.A.N.A. was one of only four such grants presented to a North American hawkwatch in 1989. During 1990, the first article on the migration of hawks at Pelham Bay was published in the **Kingbird**, the journal of the New York state federation of bird clubs. Already in 1991 four articles have been submitted for publication to the appropriate ornithological journals, and I hope to complete several more by year's end. If you are interested in receiving a copy of any of these articles, a check-list of the birds of the park, or a list of the wildflowers and related flora of Pelham Bay, send me a note at the above address.

In the long run perhaps the finest achievement to result from the hawkwatch thus far is the building of a coalition of people from many different backgrounds. Amongst our ranks are doctors, musicians, lawyers, university professors, police officers, independent businessmen, corporate presidents, photographers and unemployed students. All of us are interested not only in the hawks, but in the ecology of the park and the entire Long Island Sound. Most of all, we believe that the time has come for Pelham Bay Park to have an environmental center open on a year round basis. There is no other park in the tri-state region comparable to Pelham Bay which features a variety of habitats (salt marsh, rocky shore, sandy beach, upland woods, meadows, and an estuary) in such close proximity to schools and communities of people of all ages and backgrounds. A top notch environmental center would be a feather in the cap of the Parks Department and the people of this boro.

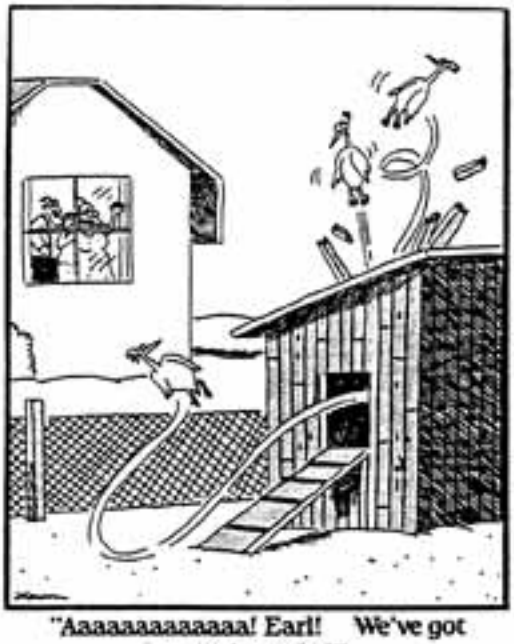
Finally, the Pelham Bay Hawkwatch continued as a voice in the wilderness championing the importance of urban parks for both raptors and people. Many people have asked me exactly just what is a hawkwatch? I can only say in response that watching the hawks migrating at Pelham Bay is much like cheering on the runners in the New York City Marathon or viewing the St. Patrick's Day Parade on Fifth Avenue. When an adult bald eagle lazily circles overhead, or an osprey plunges into the water and emerges with a fish, hawkwatchers at Pelham Bay have been heard cheering. When there are no hawks migrating, hawkwatchers can be heard talking, and here is where I wish that their thoughts would take wing: although during the lulls we all have wished for skies darkened with raptors, these are temporal pleasures. As winds calm and conversations start humming along, I have heard voices of hope; and though the words themselves are often faint, much

like the sound of a distant flock of approaching geese, the ideas are incessant. Perhaps next fall we will see you in the Bronx.

There are many individuals who collectively have made the Pelham Bay hawkwatch possible (and fun) in 1990. In the Bronx, my father, Robert DeCandido Sr. provided computer expertise; my friend, Norman Reyes, helped design the title page of the report; Dr. David Burney and Dr. Martin Hegyi, S.J., of Fordham University rendered guidance. Laurese Davis of the Urban Park Rangers contributed kindness. For the hawkwatch, Anne Arrowsmith, Lenny Abramson, Steve Allen, Debe Becker, Howard Becker, Paul Berizzi, Dave Burg and family, Tom Burke, Lida Burney, Mike Culhane, Tony Emmerich and the Pel Bay Crew, Pat Falzone, Saul and Dolores Frank, Else and Wayne Greenstone, Carl Jaslowitz, Dr. Paul Kerlinger, Dave Kuntsler, Joe Leon, Deborah Lev, Hugh Martin, Mark Matsil, Dr. Ulrich Naff, Howard Nugent, Drew Panko, Bob Ruckh, Jorge Santiago, Randy Schutz and family, Sylvia and Philip Stein, Steve Walter, Sgt. Artie Winters, as well as John and Ellen Caspers, were all indefatigable; we were often fueled by the many muffins supplied by Virginia and Joe Sbano. To each of you who transformed the hawkwatch into an ersatz Mardi Gras, a smile and my sincere thanks.

Cheers,

Robert DeCandido



"Aaaaaaaaaaaaa! Earl! We've got a poultrygeist!"

I. Pelham Bay Hawkwatch Results, 1990

Rather than dwell on the 22,951 hawks counted in migration in the fall of 1990, (15,459 of which were recorded on September 17th), a word on the weather conditions which promote the best flights at Pelham Bay is in order. For if one can recognize a pattern between the peak flights of hawks and certain kinds of weather, then the data has served its purpose well. Indeed, one might then begin to ponder why it is that hawks migrate at all.

As far back as 1895 an ardent hawkwatcher in nearby New Haven, Connecticut was reporting large hawk flights coinciding with days of northwest winds. In the 1920's observers at Fisher's Island in the Long Island Sound also noted the same correlation of northwest winds and the best hawk flights. In 1967, Helmut Mueller and Daniel Berger published a paper in which they concluded migrating hawks often drift with the prevailing wind until encountering topographical features such as mountain ridges and coastlines. Once the hawks find this type of north to south "leading line", the raptors track south with it.

Mueller and Berger's ideas are especially relevant to Pelham Bay since our best flights occur on days of northwest winds with scattered clouds. Indeed at this site, an absolutely dull day with southwest winds will almost instantly become exciting if the winds switch to northwest. Why? In our area many hawks migrating inland along the north to south aligned ridges on southwest winds, will for some unknown reason, leave the ridge when the winds shift to the northwest. Ultimately this course brings the hawks to the western shore of the Long Island Sound. Here rather than crossing the sound, most hawks follow the coastline south which puts them over Pelham Bay and the hawkwatch. Therefore as you scan the data, take especial note of the wind, sky and weather conditions for the day in question. Not only are the highest total of hawks counted at Pelham Bay on days of northwest winds, but species diversity is greatest as well. In addition, the amount of cloud cover in the sky above the hawkwatch effects the visibility of the hawks: the more overcast the skies, the easier it is to see those hawks flying at a great height (i.e., the hawks "in the pins").

Perhaps the best time of the fall season to visit Pelham Bay is in mid-September. With the proper weather conditions, it is possible to see a procession of ospreys, broad-winged hawks, and bald eagles, as well as other species of birds such as loons and hummingbirds. In addition, one may also see ospreys diving into the nearby waters and catching fish. This latter phenomenon, namely the amount of predation by raptors migrating through the park is discussed in the second and third sections of this report.

PELHAM BAY HAWKWATCH

Bronx, New York

"Dura est ovictrum era"

Robert DeCandido, *Biologist*

DATE	TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU	TOTALS	WEATHER CONDITIONS	HR
Sep 1		1				1											2	Clear; SW 1-4 mph	2.0
Sep 2																	0	Hazy; SW 1-4 mph	2.5
Sep 3	1	73			2	2				12	3		5				98	Pt.Cldy; NNW/NNE 5-15 mph	10.0
Sep 4		10								1							11	Clear; ENE 8-12 mph	6.0
Sep 5		13			2	1				6	1		3				26	Pt.Cldy; SW 5-12 mph	6.0
Sep 6		3				2							2				7	Overcast; East 2-7 mph	7.5
Sep 7		27								3							30	M.Cldy; W/WSW 8-18 mph	8.0
Sep 8		21	1		1	5				5			3				36	Clear; NE/ENE 8-18 mph	6.5
Sep 9		26				6				3			1				36	Pt.Cldy; NE 5-10 mph	6.5
Sep 10	1	13								1							15	Overcast; SE 1-4 mph	6.0
Sep 11		24				3							3				27	Pt.Cldy; Var/E 1-4 mph	8.0
Sep 12		6				1							2				9	Overcast; SE 1-4 mph	6.0
Sep 13		4			2	4				2			1		1		14	M.Cldy; VAR 1-4 mph	6.0
Sep 14		7											1	1			9	Pt.Cldy; SE 2-7 mph	6.5
Sep 15		81			2	40				12			9			1	145	Pt.Cldy; WNW 8-16 mph	8.5
Sep 16		171			1	41			1	32			15	1	1	2	265	M.Cldy; W/NE 2-8 mph	10.5
Sep 17		61	5		5	69				15459			26				15625	M.Cldy; NNW 10-20 mph	11.5
Sep 18	3	34	1		7	37				2391	2		11				2486	Clear; WNW 8-12 mph	9.0
Sep 19		4				5				3							12	Pt.Cldy; NE 1-5 mph	5.0
Sep 20		69	1		7	93	2			583	2		4		2	2	765	Pt.Cldy; WNW 8-12 mph	10.0
Sep 21		4				6				2							12	Clear; NW 1-5 mph	5.0
Sep 22																	0	Rain; SSW 4-7 mph	1.0
Sep 23	1	77			1	10				1	3						93	Clear; West 8-1 mph	9.0
Sep 24		77			1	51	4			201	3		4	1	1		343	M.Cldy; WNW/NW 8-20 mph	8.5
Sep 25		15			3	3				1							22	Clear; West 8-12 mph	4.0
Sep 26		6															6	Pt.Cldy; SW 2-5 mph	3.0
Sep 27																	0	Fog/Clear; Var. 0-2 mph	5.0
Sep 28		2			1	4											7	Clear; Var. 0-2 mph	4.0
Sep 29		7			3	1							2	2	1		16	Clear; SE 1-4 mph	3.5
Sep 30		4															2	Overcast; SSE 1-4 mph	3.0
Sep.Tota	6	840	8	0	38	385	6	0	1	18718	14	0	92	5	6	5	20122	September 90	188.0
Aug.Tota	0	17	1	0	0	0	0	0	0	2	0	0	1	0	0	0	21	August 90	12.0
YTD	6	857	9	0	38	385	6	0	1	18720	14	0	93	5	6	5	20143	YEAR TO DATE	200.0
HIGH	3	171	5	0	7	93	4	0	1	15459	3	0	26	2	2	2	15625	DAILY HIGH	11.5
	TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU			

Turkey Vulture
Osprey
Bald Eagle
Golden Eagle
Northern Harrier
Sharp-Shinned Hawk
Cooper's Hawk
Northern Goshawk

Unidentified Raptor
Peregrine Falcon
Merlin
American Kestrel
Rough - Legged Hawk
Red - Tailed Hawk
Broad - Winged Hawk
Red - Shouldered Hawk

September, 1990

PELHAM BAY HAWKWATCH

Bronx, New York

"Dura est ovictrum era"

Robert DeCandido, ***Biologist***

DATE	TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU	TOTALS	WEATHER CONDITIONS	HR
Oct 1	2	53			2	105	4			5	1		13	2	2	10	199	Pt.Cldy/Clear; NW 4-12 mph	6.0
Oct 2	1	40			8	46	3		1	6	2		11	3		3	124	Clear; NW 8-20 mph	5.5
Oct 3		14			4	4				1							23	Clear; WSW 0-4 mph	3.5
Oct 4		5			1								4				10	Overcast; SW 8-12 mph	4.5
Oct 5		26			3	2							2		1		34	Clear; W/WSW 8-12 mph	4.5
Oct 6		10			3	10	1				4		1	3	1		33	Clear; SW 8-12 mph	4.0
Oct 7		12			1	4							1				18	Clear; SW 2-6 mph	2.5
Oct 8		32				3							2				37	Fog/Overcast; SE 1-3 mph	4.0
Oct 9						2							1				3	Overcast; SE 1-3 mph	3.0
Oct 10		1			1	2	1			1							6	Pt. Cldy; Var 1-3 mph	5.0
Oct 11		51			2	4	1						10	1	1	1	71	M.Cldy; SE 8-12 mph	8.0
Oct 12		20			1	15	1				1		4				42	Pt.Cldy/Fog; NE 4-7 mph	7.0
Oct 13																	0	Rain; SE 4-7 mph	1.5
Oct 14	4	62	3		1	48	10				7		23	4	8	4	174	Pt.Cldy; NW 4-10 mph	9.5
Oct 15	2	47			4	92	7			2	2		54	4	2	3	219	Clear; W/WNW 8-14 mph	9.0
Oct 16		43			6	28	2			3	1		9			1	93	Clear; NW 2-10 mph	7.5
Oct 17		7			6	8											21	Clear; SW 2-10 mph	5.0
Oct 18		13			5	1									1		20	M.Cldy; SW 10-20 mph	3.0
Oct 19	6	83	1		6	70	3		1		4		40	9	2	2	227	M.Cldy;W/WNW 12-24 mph	10.0
Oct 20		3	1			9	1		1	1	3			1		4	24	Clear; NNW 4-8 mph	4.0
Oct 21		1				3											4	M.Cldy; VAR 1-4 mph	2.5
Oct 22																	0	Fog; Calm	3.0
Oct 23																	—	Rain; No Coverage	0.0
Oct 24		17			2	72	2	1	1		21		10			2	128	Pt.Cldy; WNW 8-12 mph	8.5
Oct 25		6				9					1						16	Overcast; NE 4-7 mph	5.5
Oct 26	1	19		1	10	37	4		1		28		3	1			105	Overcast; N 12-30 mph	8.0
Oct 27		3			2	10			2		20		1				38	Clear; NNW 8-12 mph	3.0
Oct 28						1					3			1	1		6	Overcast; SSW/ESE 8-12 mph	3.0
Oct 29		3			2	22	4	2	3		19		4			1	60	Clear; NW 12-22 mph	6.5
Oct 30		3			2	1	1		1		1						9	Clear; NW 4-7 mph	6.0
Oct 31		1				1					3						5	Clear; NNE 8-12 mph	2.0
Oct.Total	16	575	5	1	72	609	45	3	11	19	121	0	193	29	19	31	1749	October 90	155.0
Sep.Total	6	840	9	0	38	385	6	0	1	18720	14	0	92	5	6	5	20122	September 90	188.0
YTD	22	1432	14	1	110	994	51	3	12	18739	135	0	286	34	25	36	21892	YEAR TO DATE	355.0
HIGH	6	171	5	1	10	105	10	2	3	15459	28	0	54	9	6	10	15625	DAILY HIGH	11.5

TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU

Turkey Vulture
Osprey
Bald Eagle
Golden Eagle
Northern Harrier
Sharp-Shinned Hawk
Cooper's Hawk
Northern Goshawk

Unidentified Raptor
Peregrine Falcon
Merlin
American Kestrel
Rough - Legged Hawk
Red - Tailed Hawk
Broad - Winged Hawk
Red - Shouldered Hawk

October, 1990

PELHAM BAY HAWKWATCH

Bronx, New York

"Dura est ovictrum era"

Robert DeCandido, *Biologist*

DATE	TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU	TOTALS	WEATHER CONDITIONS	HR
Nov 1		2	1		2										1		6	Unknown	3.0
Nov 2																	—	No Coverage	—
Nov 3																	—	No Coverage	—
Nov 4																	—	No Coverage	—
Nov 5														1			1	M.Cldy; ENE 8-12 mph	1.0
Nov 6		3			2	1					8						14	Clear; NW 12-24 mph	5.5
Nov 7																	—	No Coverage	—
Nov 8					3	2	1		1		7		2		1	1	18	M.Cldy; NW 10-20 mph	4.0
Nov 9																	—	No Coverage	—
Nov 10																	—	No Coverage	—
Nov 11						2			2		4						8	Pt.Cldy; WNW 18-23 mph	3.0
Nov 12					1	1			1		5					1	9	Pt.Cldy; NW 12-16 mph	2.5
Nov 13					1						2						3	M.Cldy; WNW 12-24 mph	2.0
Nov 14																			
Nov 15																			
Nov 16																			
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Nov 23																			
Nov 24																			
Nov 25																			
Nov 26																			
Nov 27																			
Nov 28																			
Nov 29																			
Nov 30																			
Nov.Total	0	5	1	0	9	6	1	0	4	0	26	0	2	1	2	2	59	November 90	21.0
Oct.Total	16	575	5	1	72	609	45	3	11	19	121	0	193	29	19	31	1744	October 90	155.0
YTD	22	1437	15	1	119	1000	52	3	10	18739	161	0	288	30	27	38	21951	YEAR TO DATE	379.0
HIGH	6	171	5	1	10	105	10	2	3	15459	28	0	54	9	8	10	15625	DAILY HIGH	11.5
	TV	OS	BE	GE	NH	SS	CH	NG	RS	BW	RT	RL	AK	ML	PG	UU			

Turkey Vulture
Osprey
Bald Eagle
Golden Eagle
Northern Harrier
Sharp-Shinned Hawk
Cooper's Hawk
Northern Goshawk
Red - Shouldered Hawk
Broad - Winged Hawk
Red - Tailed Hawk
Rough - Legged Hawk
American Kestrel
Merlin
Peregrine Falcon
Unidentified Raptor

November, 1990

Big Day at Pelham Bay

"Many that are first shall be last and
the last shall be first"
Matthew 19:30

I vaguely remember arriving at the hawkwatch on that Monday morning, September 17th, 1990: it was 5:25am, still dark. Someone had once told me that at Fire Island, the falcons moved in the twilight. So on this day I did not want to miss a merlin, much less be accused of favoring the ridge hawks over those of the beach.

At 6:02am, ring-billed and herring gulls began flying from their offshore roosts toward the feeding grounds of the west Bronx. At 6:06am a nighthawk emerged from oak/sassafras woods and 6:10am brought the first signs of flying insects. Crows began making short flights at 6:16am, while a lone osprey passed about 35 feet overhead at 6:35am. Sunrise was partially obscured by low clouds at 6:38am. Winds were north-northwest at 10 mph. Nothing much happened in terms of migration for the next two hours or so, save a loon at 7:15am heading west.

Local ospreys began hunting for fish ay 7:15am and they returned carrying 8-12 inch fish from other areas of the park at 7:22am, 8:00am, 8:20am and 8:34am. (During the previous two weeks ospreys had been observed hitting the water 222 times in the area of the hawkwatch and catching 70 fish, about a 32% success rate.) Joe and Virginia Sbano arrived at 8:30am. Mike Culhane drifted in at 9:15am. By 10:00am we had only counted 11 osprey, 1 harrier, 4 sharp-shinned hawks and 6 kestrels. We passed the time watching model airplanes zoom overhead and a flock of Canada geese walking in procession to pools of fresh water in the parking lot. A police department helicopter practiced landings and takeoffs with dobermans until 9:45am. Joe Sbano spotted a small kettle of 46 broad-winged hawks at 10:30am, but it remained quiet.

The flight hit between 11:00am and noon in the strong 12-20 mph north-northwest winds. Kettles of broad-wings would come in low over Hunter's Island from the New Rochelle/ David's Island area and proceed to thermal up over Orchard beach and the parking lot. Two bald eagles, one an adult, arrived at the fore of 1,080 streaming broad-wings. Another immature eagle, being dived at by broad-wings came through. Tom Renner, Bob Ruckh and Ernie arrived. A fourth eagle passed low overhead also being bombarded by broad-wings. I decided to ask Mike Culhane to count the hawks for a few minutes, so that I could take some photographs of what we were seeing. I figured I'd better get some evidence because no one would believe what was happening. Invariably Mike would start out counting fine: "One, two, five, ten"; then

there would be a pause and the numbers would get more spaced out: "twenty-five, one hundred, a lot! too many!" Holy bleep, bleep-bleep; Bob! There are at least bleeping bleep bleep hundred; no wait, maybe bleeping, bleep-bleep-bleep thousand hawks;" I finally finished taking the bleeping photographs and got back to counting the chaos in the skies above. There were indeed a lot of hawks at all heights over us, more birds than any of the people who stood there had ever seen before in their collective lives. Huge masses of birds were swirling up and streaming away, and we could still see funnels of hawks to the north on their way. Later I would happen to look over again at Mike; he had the most delightful expression of joy and pain in his eyes. In essence he was right, trying to put a number on what we were witnessing did seem beside the point...

In the 12-1:00pm hour the cloud cover increased and the kettles became easier to see. From 12 noon till 4:00pm we tallied a conservative 10,210 broad-wings. Interestingly, as the broad-wings gained altitude over Hunter's Island and the parking lot, they were pushed by the wind to the southeast (toward the Long Island Sound). Although some kettles continued along the shore of the sound which may ultimately have put these birds on the upper east side of Manhattan, the majority of the broad-wings streamed out to the west/northwest (i.e., almost directly into the wind). It is my guess that these broad-wings chose a route following Pelham Parkway/Fordham Road and crossed the Hudson River somewhere in the area of Inwood Hill Park or Riverdale. Indeed, on the following day Paul Rodewald from Wildlife Conservation International at the Bronx Zoo told us that on his Monday lunch hour, he had counted over 1,500 broad-wings going west over the Zoo and Botanical Gardens.

At 4:30pm, Pete Gustas spotted a lone immature bald eagle soaring overhead, our fifth eagle of the day. At 4:35pm Hugh Martin pulled in, and we followed this eagle for another several minutes before it also went west. Pete then began watching some broad-wings going west directly over us at 4:44pm: the beginning of a streaming kettle. At 5:05 we counted the last of this group, roughly 2,575 in all. After another kettle of 350 broad-wings passed at 5:15pm, the action slowed. After a lone osprey passed at 5:25pm, the hawks stopped coming. At 5:40pm we packed up and left.

September 17th, 1990

Osprey - 61; Bald Eagle - 5 (2 adults, 3 immatures); Northern Harrier - 5; Sharp-shinned hawk - 69; Broad-winged Hawk - 15,459; American Kestrel - 26; Total - 15,625 ; Nighthawk -1; Loon - 5; Ospreys made two dives for fish and were unsuccessful both times; Ospreys returned to the hawkwatch area with 9 fish caught in other sections of the park.

II. Raptor Predation at Pelham Bay, 1990

Throughout the fall a variety of raptors are observed at Pelham Bay foraging (hunting) and capturing prey. For example, on a windy day in October several red-tailed hawks and kestrels (and occasionally rough-legged hawks) can be seen windhovering over the landfill in search of food. On October 14th of this year, visitors to the hawkwatch watched as an immature red-tail folded its wings and dove through the open canopy to capture a pigeon on the ground approximately 30 meters from the count area. In previous years we have also seen a peregrine falcon steal prey in mid-air from another peregrine, merlins chase flocks of semi-palmated sandpipers, Cooper's hawks pursue a variety of birds in and around the parking lot area, kestrels seize dragonflies in flight, and an immature bald eagle circle low over a flock of Canada geese. In addition, from the hawkwatch we regularly see ospreys diving into the water and catching fish.

Each of these examples point to the fact that for all of this raptor foraging activity to occur, there must be a sufficient amount of food in the park for raptors to catch. Urban parks and especially Pelham Bay are ideal places for prey species such as mice, voles, shrews, rats, rabbits, squirrels, pigeons and pheasants. There are a variety of habitats in the park containing an abundance of food for these prey species from native sources (seeds, tubers, berries, shoots and nuts), and from the many people who visit the park. In addition during the summer at Pelham Bay, there are few predators to keep prey species populations in check. Predators such as foxes have been extirpated, while others such as hawks and feral cats are mostly absent. Finally, during the late summer and fall, other prey species that are migrating south such as dragonflies, small birds and schooling fish are attracted to the park, since it is one of the few relatively pristine habitats remaining in a highly developed region.

To sum up, it seems that the number of raptors we see each fall foraging and capturing prey at Pelham Bay is due to the variety of habitats in the park (salt marsh, meadows, successional and mature woods) combined with an abundant, diverse and vulnerable prey base. Further, as has already been discussed, Pelham Bay is situated along the fall migration route, so that the full array of raptor species migrating through the region also passes through this park and will likely encounter prey of the proper size and type.

III. Ospreys Foraging in Migration, 1990

During the fall of 1990 at Pelham Bay, more ospreys were observed diving into the water and capturing fish than in any previous year of the hawkwatch. These foraging attempts are not only exciting to watch, but constitute a significant area for research. We know very little about the foraging ecology of ospreys in migration, and only a handful of studies have addressed the larger field of predation by raptors in migration.

Some general conclusions can be made from the data collected since 1987 on osprey foraging activity at Pelham Bay Park. First, September is the peak month of both osprey migration and foraging activity. September is also the month of greatest abundance for the mossbunker (**Brevoortia tyrannus**) which is the main prey of the osprey and the bluefish (**Pomatomus saltatrix**). In 1989 osprey foraging activity was minimal due to the paucity of mossbunker in the park and in the region. During the course of this study, most of the fish captured ranged in size from 5 to 10 inches, and were taken from waters illuminated by full sunshine at mid to high tide. Further information is contained in the article on migration and predation beginning on page ten of this report, and in a detailed article I have submitted for publication to the fall issue of the **H.M.A.N.A.** journal.

Perhaps the most important result of all this osprey foraging activity is the effect that watching these events has had on any number of people including fishermen, Parks Department employees, urban birders and persons unfamiliar with nature. Indeed watching the drama of a series of ospreys diving into the water, often not more than fifty feet from shore, makes an impression that is not soon forgotten.

Since 74% of the population of the United States lives in an urban area, I would venture to say that outdoor recreation for many people involves at least an occasional walk in their local park. I cannot guarantee that any of these people will ever see an osprey or even a raptor, but a similar number will never visit the Grand Canyon, Yellowstone or Ngorongoro Crater in Africa. At this local hawkwatch, the great challenge has been getting people to see the link between urban parks and national parks, between appreciating what is in one's own backyard and preserving the rainforest. Hawks have made it possible for me at times to bridge this gap. The goal for 1991 will be to find appropriate metaphors for global warming, ozone depletion and conservation: And I will say from this small patch of green in the Bronx, things are looking up.

Osprey Foraging Activity

Key to Tables 1 to 3

* - Number of hours of observations made.

^ - The number of ospreys observed returning to the hawkwatch area with fish caught in other sections of the park.

- The cumulative total of ospreys counted in migration over the four years for that month. The monthly total is then expressed as a percentage of the grand total for all months in all four years.

Table 1. Osprey Foraging Activity, 1989

1989	*HRS.	ATT.	SUCS.	PCT.	^RET.
August	92	14	6	43%	5
September	170	5	1	20%	33
October	148	5	4	80%	26
1989	410	24	11	46%	64

Table 2. Osprey Foraging Activity, 1990

1990	*HRS.	ATT.	SUCS.	PCT.	^RET.
August	12	17	7	41%	4
September	188	307	124	40%	283
October	155	41	9	24%	79
November	21	7	2	28%	0
1990	376	372	142	38%	366

(Continued on the following page)

Table 3. Summary of Osprey Foraging Activity, 1987-90

1987-1990	*HRS.	ATT.	SUCCESS	PCT.	#Ospreys in Migration
August	153	70	35	50%	130 (3%)
September	428	448	183	41%	3094 (66%)
October	364	78	24	31%	1451 (31%)
November	126	7	2	29%	12 (0%)
4 yr total	1071	603	244	40%	4687 (100%)

A Note on Migration and Predation

"Blind men! let the birds live in the
woods and build and feed and sing
and roam. Sluggards! spread the wings
of your mind to the sky, and rise
from the earth. Seek not to catch
but to become birds!"

Petrarch

Those persons who have visited the Pelham Bay Park hawkwatch in the Bronx since 1988 are well aware of the correlation between the best hawk flights and northwest winds. Not only are the highest number of migrants seen on these winds but species diversity is greatest as well. Overall, during the last three fall seasons we have counted a total of approximately 40,000 hawks of 17 species in migration. Pelham Bay ranks third of all fall hawkwatches in North America behind Cape May and Lighthouse Point in the number of ospreys counted in migration each year, with a one day high of 231 seen on September 12th, 1989. Other significant flight days have been: September 11th, 1988 when 1,169 broad-winged hawks and 4 bald eagles were counted; September 17th, 1990 with 15,459 broad-wings and 5 bald eagles; and October 22nd, 1989 with 373 sharp-shinned hawks, 24 merlins, and 2 golden eagles. However, it is my belief that the significance of Pelham Bay resides not so much in the hawks we count passing overhead, but the diversity of raptors seen in the fall throughout the park hunting and capturing prey. The osprey, our most familiar migrant, is the best case in point.

Ospreys first arrive in migration at Pelham Bay in late August and become temporary residents in the park. From the hawkwatch we regularly see these birds soaring and windhovering over park waters, actively hunting for fish. This fall alone we observed them dive into the water 372 times and catch 142 fish (38%). On our best day, September 18th, 1990, Ospreys hit the water 31 times and captured 18 fish. In addition throughout this season, Ospreys have returned to the hawkwatch area with 366 other fish caught in remote sections of the park. In all, at least 508 fish were taken from the waters of Pelham Bay, with many (perhaps 100-200) more fish captured that went undetected. The size of the fish taken most often ranged from 7-14 inches, although on several occasions 2-3 inch fish were captured. If we assign an average weight of 8 ounces per fish to the season's catch, Pelham Bay then contributed quite a lot of fuel to the survival of a species during an important part of the life cycle. So far as I can determine from the available literature, Pelham Bay Park is the only place in North America where ospreys are foraging in migration in such number.

On its annual migration an osprey encounters a variety of habitats; not only coastal marshes and bays such as at this site, but inland lakes, ponds and rivers as well. To survive, an osprey must be able to exploit these habitats and the different prey items at each site. The osprey, one could argue then, is the consummate generalist. Again, as I search the literature, virtually nothing is published on the foraging activities of raptors in migration. Pelham Bay can be regarded not only as an important foraging habitat but a place where significant ecological questions can be addressed.

To a foraging osprey, Pelham Bay presents several habitats within a fairly restricted area: an array of salt marshes and coves, an estuary, sheltered beach and the Long Island Sound proper. In addition, Pelham Bay is one of the few parks in the region where human disturbance is minimal and habitat is optimal. (Although ospreys can co-exist wonderfully with people fishing in boats or sculling, water-skiers and jet-skiers drive hunting ospreys away.) Ospreys will utilize these different habitats within the park depending on the weather. For example, on very windy days open stretches of water become choppy and murky, making prey detection difficult. However, the sheltered channels that course through salt marshes will remain relatively calm and clear under these same conditions. In addition, the shallow water of the marsh areas keeps fish closer to the surface, making them easier to see and prohibiting a vertical escape. Further, salt marshes (and the parking lot) which surround one of the best foraging locations for ospreys in the park, are prime areas for thermal development. These thermals allow a hunting bird to conserve energy while following its

target, or to easily regain altitude after a dive. Finally, areas such as at Turtle Cove which are bordered by the Hutchinson River, Long Island Sound and landfill are veritable gardens of phytoplankton. As a result, fish such as the mossbunker (**Brevoortia tyrannus**), a plankton feeding member of the herring family, collect to feed in these areas.

The mossbunker or menhaden is present in the park in greatest numbers from late August through October, with mid to late September being the peak time frame. En route to the North Carolina coast where they spend the winter in deeper (warmer) water, bunker fall prey to a variety of predators including whales, porpoises, sharks, and swordfish. In our area, double-crested cormorants and the bluefish (**Pomatomus saltatrix**) exact the heaviest toll. It is no wonder why: bunker are slow-moving, range in size from 4-16 inches in length, lack teeth, and form dense schools which remain close to the surface in order to filter feed upon the best concentrations of plankton. Bluefish will often drive the big schools into the coves and shallow water of the marsh, where the bunker are extremely vulnerable. In some of these situations, available oxygen can become depleted and vast numbers of fish perish. This latter phenomenon is not unusual, as Dutch colonists of the 17th century also noted such events.

In ecological terms my study of ospreys foraging in migration at Pelham Bay reaffirms the tenet that predators are a function of their prey. Although ospreys prefer certain conditions while foraging (a moderate headwind and full sunshine), if bunker are present somewhere in the park, ospreys will locate and capture them in any kind of weather. Even late in the season when schools of bunker are scattered and contain few individuals, ospreys can still locate prey by picking up cues from one another, much like a network of vultures across the African plains. For example, a distant osprey circling or diving will cause others to come over and investigate. Similarly, as a lone osprey returns with a schooling fish toward a group of perched ospreys, one or two individuals will head off in that direction. This social aspect of osprey behavior, seen both in migration and on the breeding grounds, promotes the success of the species.

Along with competition and disturbance, predation is a major force that affects populations of organisms. As prey species become locally abundant and/or vulnerable, raptors have a knack of quickly locating a concentration of prey and exploiting it. During the fall at the farms of eastern Pennsylvania near the Hawk Mountain Sanctuary, migrating kestrels gather en masse above the newly plowed fields to have an easy meal of voles and mice. Similarly at Fire Island and the Cape May, merlins make hay of the flocks of passerines exposed along the dunes. Back at Pelham Bay on October 19th of this year, Steve Allen and I watched as an

immature bald eagle pursued and forced an osprey to drop a fish which was then caught by the eagle in mid-air. The upshot of all this is that where there is food some predator is lurking; and this science we call ecology, it can happen in cities just like on the TV or even real nature.

Across our region hawkwatches form a network of information, much like a string of tiny islands. We are surrounded not by the ocean, but rather people and buildings. Although we collect a significant amount of data which can be used to assess gross trends in raptor populations, in many instances we are just beginning to understand what raptors do locally in response to changing weather conditions or concentrations of prey. We also have the good fortune of being field biologists with a captive audience; even those who regard birdwatching as a loon's cry will stop dead in their tracks when I point out a soaring hawk to them. However, this is only the beginning: hawkwatches provide information not only about the patterns of raptor migration and the activities of the local hawks, but keep people aware of what is going on in their home parks and environment.

There are many hawkwatches that will record great totals of migrating hawks and note rare species of birds (indeed, someone at Raccoon Ridge once reported seeing Elvis). Hawks will come and go; people and habitats remain. How we strike a balance between the two will determine what happens to the hawks, and ultimately to the quality of life for us. Although sometimes I wish it were not the case, my feet are still firmly ensconced on the ground. I will continue to think globally, sing locally.

"Predation... is a regulatory force continually operating to lower prey increase in proportion to prey density and to do this before more drastic and steadily functioning forces become effective. These other forces seldom, if ever, affect the total prey population simultaneously, but are confined to specific prey only, Disease may strike one prey, while food shortage may regulate another. In contrast, predation strikes all components of the collective prey simultaneously and continually."

Hawks, Owls, and Wildlife
Craighead and Craighead, 1956

"It is the species that depend largely on cold-blooded prey that withdraw most completely from Canada and the United States in autumn, namely the osprey, Mississippi kite, broad-winged hawk, and the Swainson's hawk. In any one breeding area, the species that depend on cold-blooded prey are normally resident for a shorter period each year than are those that depend on warm-blooded prey."

Population Ecology of Raptors
Ian Newton, 1979

"A number of studies and observations in the laboratory as well as in the wild show that predator-prey populations do not oscillate steadily and predictably. Instead, they either fluctuate wildly and unpredictably, or the prey species is eliminated and the predator species dies of starvation. In one famous experiment, paramecium microbes increased rapidly. When predator microbes were introduced, they increased too. But in the end, the paramecia were exterminated and the predators died of starvation.... Ecologists now see nature as actually in a continuing state of disturbance and fluctuation. Change and turmoil, rather than constancy and balance is the rule."

New Eye on Nature: The Real Constant is Eternal Turmoil
New York Times, July 31st, 1990

Eureka + 1

"You'll die a ling jerker" was a line I once heard an old Bronx fisherman yell to a novice; My guess is that the phrase had something to do with his technique with the reel, but the phrase has remained with me since it applies to many of the qualities we try to capture and possess: wisdom, love, wonder and fascination are a few that come to mind. I suppose the pursuit of such things in a place once referred to as Fort Apache may seem misguided or even trivial to those who desire only to catch the whopper of their dreams. Yet from my little house on the prairie, I have tried to look closely and deep. For here and there in scattered potholes of pocket parks, I have found the discarded ideas that make their way into the heart of these meager tales.

Hugh Martin and I were out at Pelham Bay Park on November 16th, 1990 because we had heard via the rare bird alert that a fulvous whistling duck (Dendrocygna bicolor) had been seen in the park. Apparently, Paul Rodewald from Wildlife Conservation International was the person who originally found the bird simply by scanning through the black ducks and buffleheads so often taken for granted. Anyway, we looked high and low with no luck, and as we were

about to abandon the search, we decided to check the Bartow-Pell Pond. Although this is a great shorebird foraging area in July and August with Wilson's phalarope and pectoral sandpiper among the 24 species of Charadriformes having been recorded here, said duck was not to be found. I then asked Hugh to get out his field guide so we could stare at the picture and maybe imagine what a fulvous might look like if it did somehow fortuitously stumble into the park. We noted the rich tawny underparts, and legs set well forward on the body enabling the duck to walk easily on land, much like a goose. Turning to the species' description, we read how small flocks of these ducks are apt to wander widely and turn up on any suitable marsh in North America, indeed almost anywhere in the world. A truly cosmopolitan species, the fulvous breeds from the southern U.S. through the American tropics as well as in Africa and southern Asia. Right about this point while we were again studying the illustration, I happened to turn quickly to my left and saw an immature female red-tailed hawk fly up from the edge of the pond. Thinking that it was odd to see a red-tail on the ground ostensibly taking a drink, I wandered over to investigate. Arriving at the appropriate spot, I was a bit startled by what I found on the ground. The following long distance conversation then ensued between Hugh and myself:

Me: 'Hugh, in the field guide does a teal have a sub-terminal white band across its tail?'
Hugh: 'No.'
Me: 'Hugh, does a teal have a white stripe across its flank?'
Hugh: 'No.'
Me: 'Hugh, does a teal have long grey legs with a spur just above the webbed feet?'
Hugh: 'No.'
Me: 'Hugh, the red-tail just killed the rarest duck in the state.'

Hugh and I thereupon shook hands, had a good laugh, and collected the specimen for the American Museum of Natural History, where the fulvous now resides in the permanent collection. Some days later as Hugh was reflecting upon the circumstances that led to the demise of this duck, he matter of factly said, 'Man, sometimes it can be a jungle out there.' Anyway, we have come to regard the entire matter as the story of the duck that didn't.

Over at the Bronx Zoo in early December, I was wandering about in search of the goshawk that has been wintering here for three of the last four years. Alas on this day I would only find a Cooper's hawk sitting atop a pigeon near the Ethiopian highlands (the accipiter had the audacity to mantle over its prey as I approached it). Continuing on my zoo prowl, I paused at each of the freshwater ponds to study the waterfowl that would be spending the winter here before

returning north in spring. There were hooded mergansers, green-winged teal and shovelers to name but a few species. Most notable were the courting wood ducks who would soon be raising broods in tree cavities along the Bronx River. I finally arrived at the infamous Agassiz lake, the precise spot on a 1920's Christmas Bird Count where a young Roger Tory Peterson then of the Bronx County Bird Club (whose members also included Joseph Hickey and Allan Cruickshank), identified the odd bird bobbing in the midst of the lake as a dovekie (Alle alle). In reality it was a carving made by a rival Bronx Bird Club specifically as a trick. The ploy worked and the tale still elicits a smile to the few members of the former BCBC that are living today.

As I was leaving the zoo late in the afternoon on that cold December day, I stopped into the elephant house to warm up a bit. I stood for several minutes, watching the Indian rhino quietly munching away on some coarse pieces of straw. Turning to leave, I noticed a handsome young couple near the elephants, an adult female standing watch over a sleeping youngster. Up above us from the copper dome, rays of sunlight were streaming down through Italianate windows. A passage from Shakespeare came to mind:

"If we shadows have offended,
Think but this, and all is mended,
That you have but slumber'd here
While these visions did appear.
And this weak and idle theme,
No more yielding but a dream.
Gentles, do not reprehend:
If you pardon, we will mend.
And, as I'm an honest Puck,
If we have unearned luck
Now to 'scape the serpent's tongue,
We will make amends ere long;
Else the Puck a liar call:
So, good night unto you all.
Give me your hands if we be friends,
And Robin shall restore amends."

A Midsummer Night's Dream

Merry Christmas World
Merry Christmas from the Bronx

"A child is born with no state of mind
Blind to the ways of mankind;
God's smilin' on you but he's frownin' too
'Cos only God knows what you gonna do."

Grand Master Flash and the Furious Five