

JOHN HEINZ NATIONAL WILDLIFE REFUGE
AT TINICUM

PHILADELPHIA, PENNSYLVANIA

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1993

U.S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

REVIEW AND APPROVALS

JOHN HEINZ NATIONAL WILDLIFE REFUGE
AT TINICUM COMPLEX

- SUPAWNA NATIONAL WILDLIFE REFUGE
ANNUAL NARRATIVE REPORT UNDER
SEPARATE COVER

Philadelphia, Pennsylvania


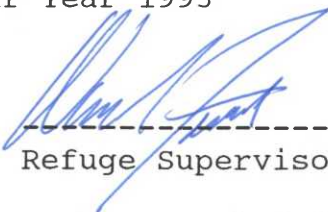
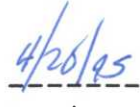
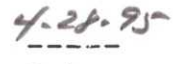


"Tinicum July"

Artist: Anne Boysen

ANNUAL NARRATIVE REPORT

Calendar Year 1993

 ----- Refuge Manager	 ----- Refuge Supervisor	 ----- Review Date
 ----- Regional Office Approval	 ----- Date	

INTRODUCTION

Public Law 92-326 (1972), as amended by Public Laws 94-548 (1976) and 95-152 (1977), (86 Stat. 392) created the Tinicum National Environmental Center as a unit of the National Wildlife Refuge System. Public Law 102-154 (1991) changed the name of the Tinicum National Environmental Center to the John Heinz National Wildlife Refuge at Tinicum. In 1991, the Refuge encompassed approximately 900 acres of Service-owned land within the urbanized Philadelphia Metropolitan Region. The approved acquisition boundary encompasses 1,154 acres.

The history of Tinicum Marsh, the largest remaining freshwater tidal wetland in the Commonwealth of Pennsylvania, goes back to the first settlements in the region. In the mid 17th century early Swedes, Dutch and English diked and drained parts of the marsh for grazing. At that time the tidal marshes encompassed over 5,700 acres and extended along the Delaware River from the Walt Whitman Bridge (I-676) to below Eddystone, and more than five miles upstream from the mouth of the Schuylkill River.

Following World War I and through the 1950's, however, over 5,000 acres of tidal wetlands in the vicinity were filled to construct railroads, highways, boat yards, the Philadelphia International Airport, to create residential and industrial sites, and for trash disposal. In 1969, the remaining tidal marsh was threatened by plans to route Interstate Highway I-95 through it and by a growing sanitary landfill, which had already covered part of it. These activities started a long series of injunctions, public hearings and extraordinary efforts by private and public groups to secure rerouting of the highway and termination of the landfill operation. Both efforts were eventually successful and culminated in the Refuge's authorization in 1972. By this time, the tidal marsh had been reduced to approximately 200 acres, located approximately one mile north of the Philadelphia International Airport. This wetland and an additional 145-acre diked, non-tidal impoundment, which had been administered by the City of Philadelphia as the Tinicum Wildlife Preserve since 1955, formed the heart of the Center.

The Refuge's objectives, as stated in the authorizing legislation, are:

To acquire lands necessary for the purpose of preserving, restoring and developing the natural area known as Tinicum Marsh. Also to construct, administer and maintain a wildlife interpretive center for the purpose of promoting environmental education and to afford visitors an opportunity for the study of wildlife in its natural habitat.

A. COMPLEX HIGHLIGHTS	1
B. CLIMATIC CONDITIONS	2
C. LAND ACQUISITION	7
1. Fee Title	7
D. PLANNING	23
2. Management Plan	23
4. Compliance with Environmental and Cultural Mandates	23
5. Research and Investigations	23
6. Other	24
E. Administration	40
1. Personnel	40
3. Other Manpower Programs	47
4. Volunteer Program	47
5. Funding	57
6. Safety	68
7. Technical Assistance	69
8. Other	69
F. HABITAT MANAGEMENT	71
2. Wetlands	71
5. Grasslands	86
9. Fire Management	86
10. Pest Control	86
G. WILDLIFE	91
1. Wildlife Diversity	91
2. Endangered and/or Threatened Species	93
3. Waterfowl	93
4. Marsh and Water Birds	103
5. Shorebirds, Gulls, Terns and Allied Species	103
6. Raptors	104
7. Other Migratory Birds	104
8. Game Mammals	110
10. Other Resident Wildlife	110
11. Fisheries Resources	111
14. Scientific Collections	111
16. Marking and Banding	112
18. Resource Contamination Assessment	114
H. PUBLIC USE	161
1. General	161
2. Outdoor Classrooms-Students	165
3. Outdoor Classrooms-Teachers	167
4. Interpretive Foot Trails	178
5. Interpretive Tour Routes	182
7. Other Interpretive Programs	182
9. Fishing	184
11. Wildlife Observation	187

16.	Other Non-Wildlife Oriented Recreation	189
17.	Law Enforcement	190
I.	EQUIPMENT AND FACILITIES	209
1.	New Construction	209
2.	Rehabilitation	209
3.	Major Maintenance	210
4.	Equipment Utilization and Replacement	211
5.	Communications Systems	214
6.	Computer Systems	215
8.	Other	216
J.	OTHER ITEMS	220
1.	Cooperative Programs	220
3.	Item of Interest	221
4.	Credits	249
K.	FEEDBACK	250

A. COMPLEX HIGHLIGHTS

- o Politics, condemnation, encroachments and site assessments continue to liven up the acquisition process for the Darby Realty Co., Inc. in-holding tracts. (Section C. 1.)
- o Monitoring continues on PADOT's 17.7 acre mitigation site; a 27-min. video tape is produced: "Turning the Tide at Tinicum". (Section D. 6.)
- o A \$2.47 million bequest is bestowed upon the refuge. (Section E. 5.)
- o Botulism strikes as the 145-acre impoundment is drained (Section F. 2.)
- o Surveillance of the USX's oil lagoons continues. (Section G. 18.)
- o Prophylactic treatment is performed on portions of two exposed oil pipelines that traverse a tidal portion of the Refuge. (Section G. 18.)
- o The Refuge is the recipient of a \$10,000. share of a "damage assessment" levied against the owners of a tanker that spilled 14,000 gallons of cumene in the Delaware River. (Section G. 18.)
- o Student use of Refuge increases dramatically. (Section H. 1.)
- o An Environmental Education Initiative Committee is started. (Section H. 3.)
- o Two accidental drownings and a search for a missing youth impact Refuge. (Section H. 17.)
- o Maintenance Building savings and Special Environmental Education Initiative funding continue to provide the wherewithal to "flesh out" furnishings and accoutrements (Section I. 4., 8.)

B. CLIMATIC CONDITIONS

Table 1: Weather conditions recorded for 1993 at the Philadelphia International Airport. (Precipitation and snow are shown in inches. Temperatures are shown in degree Fahrenheit.)

	<u>Precipitation</u>		<u>Snow</u>		<u>Temperature</u>			
	1993	Mean*	1993	Mean*	Max	Min	1993 Avg.	1961-1991 Avg.
Jan	1.97	3.18	1.0	6.5	65	22	38.2	30.4
Feb	3.03	2.81	10.9	6.3	55	9	31.9	33.0
Mar	6.61	3.86	12.4	3.6	68	11	39.8	42.4
Apr	4.2	3.47	T	0.3	77	36	54.2	52.4
May	2.42	3.18	0	T	89	46	66.4	62.9
Jun	1.52	3.92	0	0	96	51	74.4	71.8
Jul	1.98	3.88	0	0	101	66	81.4	76.7
Aug	5.18	4.10	0	0	97	62	78.9	75.3
Sep	6.66	3.42	0	0	95	47	69.7	68.2
Oct	2.69	2.83	0	T	80	40	58.0	56.4
Nov	2.23	3.32	T	0.7	81	26	49.0	46.4
Dec	<u>3.69</u>	<u>3.45</u>	<u>0.9</u>	<u>3.5</u>	61	17	38.4	35.8
	42.18	41.42	25.2	20.9				

* Means for precipitation are from 1961 through 1991 and for snowfall from 1961 through 1991.

The Blizzard of '93

(Photo: Nugent)

A "Currier and Ives", not!

March 13 & 14: The epic winter storm that shattered snowfall records was blamed for killing at least 11 people in the Philadelphia area and left the region encased in a rock-hard mass of snow and ice. The storm generated extraordinarily cold weather, with temperatures dropping into the single digits. The twelve inch snowfall caused the Philadelphia International Airport to be closed for two days. It was that kind of storm: heavy, wet snow, hurricane-force wind gusts, coastal flooding, roofs blown off and more than 100,000 power outages. The snowfall was the most of any 24-hour period in March. The old record, 10 1/2" was set during the great blizzard of 1888. The Refuge remained closed due to a snow-covered entrance road until March 16th. The old CJ-7's gear box was locked into 4th gear making plowing impossible. All returned to normal by week's end.



(Photo: Nugent)

Rampant ramp!

November 28: A series of unusually intense down pours flooded the general Tri-state area. Precipitation ranged from 1.08" in Philadelphia to 4.5" in the headwaters of the Schuylkill River. Swollen by heavy rain, the refuge experienced minor flooding from Darby Creek. The impoundment's dike was overtopped at the observation tower. Water levels quickly rose some 3.6"... attaining the Annual Water Management Plans recommended water level for this time of year. The recently restored marsh mitigation project flooded some 8" over the 150' wide, low spot on the dike separating it from Long hook Creek. It is speculated that if repairs had not been done, Tinicum Township would have again experienced localized flooding. No structural damage was evidenced at either overtopped site. The tides remained extreme due to the full moon; the lunar eclipse of November 29th was not a factor according to the National Weather Service.



(Photo: Nugent)

Submerged fishing pier, only
accessible to the denizens of the deep.



(Photo: Nugent)

A poorman's houseboat.

December 4-5: The refuge received 2.68" of rainfall during this 48 hour period. Coupled with high tides, the storms resulted in submersion of the fishing pier. Darby Creek remained within its banks on the refuge and did not overflow into the impoundment. As a result of this rainfall, the impoundment level rose 2.4 inches.

C. LAND ACQUISITION

1. Fee Title

Henderson's Holding (Tract #15)

February 1-4: Mike Butler, R.O. Appraiser, was detailed to the Refuge to begin appraisal work on the 42.7 acre in-holding. Butler's week was spent being briefed by Nugent on the past involvement of the Nature Conservancy with the Henderson Group, Inc.; reviewing refuge tract files; taking pictures on-site; researching and reviewing court records at the Media Courthouse and meeting with Henderson representatives:

On February 3, Butler and Nugent met with David Henderson, CEO; John Carpenter, President of Henderson Group, Inc. and Norman _____, Legal Council, to discuss various aspects of Tract #15. A few interesting items were discussed:

- o The Henderson folks seemed unaware of the fact that the tract had been the subject of a Penn Dot "severance claim" in 1978, by its previous owner Tinicum Real Estate Corp., when I-95 cut through the Tract.

In a partial taking which severed a portion of the remainder, Tinicum was awarded damages of \$1,144,000 including \$244,000 for severance damages by the board of review. Both sides appealed and a trial court subsequently awarded Tinicum only \$384,300 (\$759,700 less than the board of view). Tinicum's motion for a new trial was granted by the trial court because of the disparity between the board's award and that of the jury and because of the wide disparity between the valuation opinions of Tinicum's and the condemnor's witnesses. Although the condemnor appealed the granting of a new trial, the Commonwealth Court agreed that Tinicum should be granted a new trail. When the condemnor again appealed, the Supreme Court Held: Reversed.

- o In June, 1992, Henderson hired the engineering services of Lippincott, Inc. (New Jersey) for the delineation of wetlands within the Tract; a "50%" wetland figure was bantered about.
- o Ownership of Tract 15-1 was questioned: Henderson Group is of the opinion that it owns the 13-acre, wedged-shaped tract, contiguous to Tract 15. The piece was originally slated to be a part of I-95 until the highway was re-routed somewhat southeast, thusly, sparing the freshwater tidal marsh of Darby Creek from

filling. Butler believes that PA Dot has fee title to the tract. (The tract, incidentally, contains much of the dredged material from the marsh mitigation site. It is referred to as "Disposal Zone I". When Henderson personnel saw the filling taking place last year, a letter of protest was sent to PA Dot; the letter was never answered.)

- o Henderson Group will actively pursue the development of the 43-acre, Keystone, refuge in-holding if the Service's fairmarket value appraisal does not approximate its perceived "highest and best use" of the tract. The price disparity could be extreme, i.e., from \$3,000+/ac. to \$85,000+/ac. dependent upon the wetland designation and its accessibility.

Darby Realty co. (Tracts 24,a,I,35)- Condemnation Updates:

February 28: Congressman Curt Weldon's Legislative Assistant, Eunice Groak, provided seven interested parties the following update:

MEMORANDUM

TO: Mike Kulis, Senator Specter
 Karen Sugarman, Senator Wofford
 Kevin Brennan, Congressman Foglietta
 Doug Ritter, Congressman Weldon
 Dick Nugent, Refuge Manager, John Heinz National Wildlife
 Refuge at Tinicum
 Cary Nicholas, Nature Conservancy
 Barry Dozer, Dozer and Auslander

FROM: Eunice Groark, Congressman Weldon

RE: Declaration of Taking to acquire 51.35 acres of land to be incorporated in the John Heinz National Wildlife Refuge at Tinicum.

 Public Law 92-326, approved June 30, 1972, authorized the acquisition of properties that fall within the general geographical limits of the John Heinz National Wildlife Refuge. Included within the definition were tracts (24, 1-I) and (35), otherwise known as the Darby Tract, which contain 51.35 acres located in Delaware County and owned by the Darby Realty Company.

Because of its diversity in wildlife and the presence of tidal marshlands (which are the last remaining in Pennsylvania), the

Darby track has been priority for acquisition for the John Heinz National Wildlife Refuge. Thousands of shorebirds and waterfowl use the area for feeding and resting during the spring and fall migrations and many remain throughout the winter.

Since 1978, both the Fish and Wildlife Service and the Nature Conservancy have been involved in negotiations to purchase these tracks of land. However, they have not been successful. Two well documented, Service-approved land appraisals have been prepared by an independent appraiser from which agreements for the purchase of the land have been presented to the owners. However, the owners have stated that they will not accept less than \$2,100,000 for the land. The land appraisals have placed the real value of the property at \$240,000.

In the meantime, the landowner has filed a challenge to local zoning ordinance in order to proceed with building an industrial park and buildings and a 200-slip marina, restaurant and marine supply store. For these reasons, it is in the best interest of the refuge and the government to allow the courts to resolve the value difference. This will ensure that the land remains protected and within the boundaries of Tinicum.

The Norwood Borough Council and the Tinicum township board Commissioners have requested that Department of Interior exercise its power of eminent domain and proceed with acquisition. In response to this request and the need to proceed with negotiations, the Interior Department has recognized that the court should resolve the value difference. In December, John E. Schrote, Assistant Secretary for Policy Management and Budget, sent a letter to Congressman Yates and Senator Byrd outlining the history of the Darby Tract and the need to proceed with condemnation. The letters required each Member to respond with any concerns within 30 days.

Both Congressman Ralph Regula and Congressman Sidney Yates, of the Interior Appropriations Committee, have stated that they have no objection to initiating a condemnation with a declaration of taking of this property.

However, as you know, Senator Byrd and Senator Nickles have not agreed to this action. It is my understanding that both Senators do not feel comfortable with "taking" matters and are therefore hesitant to agree to this particular case. In my discussions with Senator Byrd's staff person, Rusty, if Senator Specter and Senator Wofford were to discuss this matter with Senator Byrd and Senator Nickles, the situation may be easily resolved.

As a result of my discussion with Rusty of Senator Byrd's office, I would suggest that Mike Kulis of Senator Specter's office, contact Sherry Cooper with Senator Wofford's office

contact Rusty at 244-7240. It is my belief that these informal discussion may prove useful in outlining in greater detail the specifics of the Darby Tract case and also in addressing any additional concerns that each Member may have with this particular matter.

If you have questions, please feel free to contact me at 202-226-3552. I appreciate you efforts and will continue to keep you update on this matter as it proceeds.

March 17: Congressman Curt Weldon's Legislative Assistant, Eunice Groak, called the refuge to say that Weldon had received a letter from Robert Jackson, attorney for landowner Geisinger, expressing frustration with the delays in the condemnation proceedings. The letter states that if things don't proceed in the near future, they will proceed with their plans for development of the tracts.

April 30: This date was the original deadline given by Geisinger's lawyer to Congressman Curt Weldon. If condemnation proceedings had not been initiated by that time, papers in connection with a challenge to Norwood Borough's zoning would be initiated.

As previously stated, a problem seems to have arisen in Senator Byrds' office. He does not feel comfortable with a "Declaration of Taking" and is therefore hesitant to agree to this particular case. It was suggested that his colleague Senator Wofford discuss the merits of this condemnation request. Congressman Weldon's office has tried in vain to reach Senator Wofford but had not been successful during the past two months. By month's end, certain loose ends to this frayed situation were being tied together.

- o A call was placed to Tom Melchiorre, former president of the Defenders of Tinicum, to advise him of the impasse with the condemnation proceedings. The "Defenders" had formed as a single-issue group a couple of years ago to thwart the development of the Darby Realty Tract. Melchiorre, in turn, called Senator Spector's office to inquire as to the specifics in the condemnation delay.
- o A Tri-State delegation letter supporting condemnation was directed to Senator Byrd requesting his support by saying that... "While we recognize your concern with issues of "taking", we assure you "friendly condemnation is appropriate." Signed by Senators Harris Wofford and Arlen Spector; and Congressmen Tom Foglietta and Curt Weldon.
- o Another letter favoring condemnation was sent to

Senator Byrd from Geisingers' lawyer Robert Jackson.

"At the outset, on behalf of my client, I have been endeavoring to move this matter off dead center for many years and have been frustrated in my efforts in this regard by the awareness by all concerned that the property might ultimately be taken for the Wildlife Refuge.

"My client fully intends to dispose of the property either through the Taking for the Wildlife Refuge or by development and the marketing of same. Accordingly, my client will not object to the Taking of its property for the Wildlife Refuge and is content to allow the Courts to determine just compensation to which my client is entitled by virtue of the Take.

"For the sake of my client, who has effectively been deprived of the use of its property as the wheels of the decision-making process turn slowly, I would urge that you lend your support to the Taking of this property and undertake to do whatever it is you can do to expedite the proceedings to the end that my client might realize the value of its property at the earliest possible date."

During the month of May, the condemnation proceedings moved one step closer to approval when Senator Robert Byrd (D.-W. Va.) chairman of the Appropriations Committee approved the condemnation request. On May 14th Byrd sent a letter of support to Senator Don Nickles (R.-Okla.) minority leader of the Appropriations Interior Subcommittee, supporting the transfer. Nickles' approval is necessary for funds to be released. Byrd had originally expressed concern for the violation of private property rights, believing it to be a hostile government takeover. Once he was made aware of the facts that **both** parties agreed and that this was a friendly condemnation, he supported it. Nickles must now support the plan to pass it through the subcommittee. According to a recent news article, a Nickles staff member did not commit to a position or timetable on the senator's decision on whether to authorize money. But a staff member of Senator Harris Wofford (D.-Pa.) believed Nickles' approval is "just a formality".

In anticipation of the acquisition, a field check was made to assess the status of corner markers (for boundary posting) and encroachments by neighbors. No corner markers were found on any of the parcels. Several possible encroachments of tools sheds, wood piles, etc., were noted. A re-survey request will be made by the Division of Realty once it receives the filing of declaration package from the Washington Office.

On May 24th, Bob Miller and Walt Quist, Realty, R.O., made an on-site visit and tour of the various parcels of the Darby Realty Co. inholdings. While in the field, Bill Buchanan, freelance writer/photographer/refuge volunteer interviewed Miller, Quist and Nugent for an article to appear in the weekly News of Delaware County. Although a current and hot topic, the actual receivership of the property by the Service (when the filing of declaration of taking occurs) may not happen for another year. The land will have to be re-appraised, re-surveyed and the Dept. of Justice will have to review the entire condemnation package before it formally files the declaration of taking in Federal court.

May 13: A letter of condemnation approval was sent to Interior's Secretary Bruce Babbitt from Senators Robert Byrd and Don Nickles. It said in part:

"As I am sure you are aware, we are not inclined to approve the Federal Government's use of the power of eminent domain for the purpose of acquiring lands. Based on the information provided, however, and given the significant local support from the Norwood Borough council, the Tinicum Township Board of Commissioners, and the Pennsylvania delegation in Congress, we do not object to the Department's request for approval to initiate a complaint in condemnation with a declaration of taking for 51.35 acres located within the boundaries of the John Heinz National Wildlife Refuge."

June 23: A news article written by Bill Buchanan appeared in the local weekly Town Talk which gave an update on the acquisition of the tract. It is offered in its entirety:

A 50-acre parcel of land known as the Darby Realty in Norwood is a step closer to becoming part of the John Heinz National Wildlife Refuge at Tinicum.

Originally included in the refuges 1200 acre boundary it has been in private ownership for over 20 years. After an announcement by the owner about 4 years ago that he was going to develop the tract as first a marina/condo then marina/industrial complex opposition grew within the community. They wanted to see it become part of the refuge.

Out of that action a local grassroots effort called Defenders of Tinicum was created through the guidance of the Defenders of Wildlife in Washington, D.C.

Rep. Curt Weldon had procured \$875,000 for purchase of the land through Interior Department appropriations.

The Nature Conservancy was tasked with setting up the appraisals on the site and after 2 tries the owner felt the value was too low.

Now after those 4 years the owner and the U.S. Fish and Wildlife Service which administers the refuge has agreed upon a "friendly taking" of the site.

According to FWS Regional Realty Department Officer, **Robert Miller**, with all in agreement to the taking and the fact that it was approved by **Sen. Robert Byrd**, who heads up the Senate Subcommittee on Interior, the inclusion of the tract is on its way to being included in the refuge's official holdings.

According to Miller, "The Justice Department now is involved and it will be up to the federal court to decide on how much the tract will be worth."

Attorney **Robert Jackson** represents the owner, **Richard Geisinger**, who resides in Florida. He acknowledged that the land was appraised at \$240,000 but his client was seeking \$2.1 million.

When asked if he would stick to that asking price he said, "Yes. Until I see something better on the table."

Another appraisal will probably take place for the court case and both Jackson and all other parties agree they'd like to see the issue resolved in quick fashion. But it could go on for months or even years.

Refuge manager, **Dick Nugent** said he was encouraged and anxious to have the property included in the refuge. He acknowledged all those who supported this end and especially wanted to thank **Reps. Weldon and Foglietta, Sens. Specter and Wofford** and both Defenders of Tinicum and Defenders of Wildlife.

As in the past, he also expressed thanks to The Nature Conservancy for all the work they put into seeing the tract as part of the refuge.

June 24 and 25: Cindy Rice and Robin Burr, ES biologists from State College and Philadelphia, respectively, visited the Darby Realty Tract with Nugent and Walker. Their mission was to perform a Level I Pre-acquisition Survey. Although no red flags were apparent in that particular department, much concern has arisen regarding obvious encroachments within tract 35. Until that site visit, no refuge personnel had penetrated the weed-choked northern neck section of the tract. It was quite a shock to see an 8' high stockade fence encroaching some 50' x 50' and

several fenced lawns intruding some 30'. Other portions of the small neck evidenced recent filling, i.e., adjoining neighbors on ground 8' higher had extended their backyards by blatantly pushing brickbat and sundry fill onto tract 35. Several photos were taken for documentation.

June 25: Nugent advised Bob Miller, Realty Office, of his field visit and asked whether it would be prudent and reasonable to request that the current owner of the property (Richard Geisinger) officially notify the encroachers and to try to resolve the matter prior to the Fish and Wildlife Service acquiring the property. Miller suggested that Nugent discuss the matter with Geisinger's attorney. Nugent called Robert Jackson, Esquire, Geisinger's attorney, to inform him of his client's encroachers. Needless to say, Jackson was upset and expressed an interest in including all encroachers in a de facto condemnation filing that he is contemplating against the Fish and Wildlife Service (not knowing the Fish and Wildlife Service's time schedule for filing its own condemnation request). Nugent suggested that Jackson and he make an on-site visit prior to any legal action. Perhaps the entire matter could be handled in a less formal manner via a form letter to the encroachers of Tract 35 and the suspected encroachers of the other Tracts (24, a, I). The letter would state a deadline for removal of the various fixtures and elimination of various activities. If any of the encroachers contested ownership of the property then legal action would be initiated. Jackson was sent copies of the Tract maps and was also asked to set up an on-site visit at his earliest convenience.

Also on that day, Walker assisted Rice with the Level I Pre-acquisition Survey of Tract 24. Lou Vitelli, Norwood Borough Maintenance Foreman of 28 years and George Foracre, long-time resident and adjacent property owner, were interviewed regarding past land use practices on the tract.



(Photo: Nugent)

A 50' X 50' incursion
with fortification?!

July 8: In response to Nugent's concern over the many encroachments observed during a June 25 on-site inspection, Peter Barrows, Landowner Geisinger's real estate broker, met with Nugent to verify and document the many encumbrances on his client's property. The tracts' land perimeter was walked; encroachments were photographed and otherwise noted. Contact was made, coincidentally, with several of the neighbors who expressed some anxiety as to the future uses of their usurped lands. Barrows was to develop the prints and show them to Geisinger's attorney, Robert Jackson, Esquire. Barrows speculated that Geisinger would want to put any offending neighbors on notice to remove their encroachments.

July 27: Cindy Rice, ES biologist from State College, revisited the sites that she and co-biologist Robin Burr had initially visited on June 24 & 25 to perform a Level I Pre-acquisition Contaminant Survey. Certain concerns surfaced during that visit when a meeting was held with the Norwood Borough Maintenance Foreman, Lou Vitelli; and long-time resident and adjacent

property owner of Folcroft, George Foracre. Both men talked about the Norwood residential garbage dumped on Tracts 24, 35 during the early and mid 60's. Cindy was able to reference several aerial photographs of the general area that covered the years 1953-90. A gap in the years of the photos seemed to coincide with the active dumping years. Prior to writing up a final statement for the Level I summary; Rice wanted to "ground truth" the area once again. Vitelli was re-contacted. He reviewed the aerial photos and verified the areas that Norwood Borough had disposed of its resident's household trash. To add confusion to the situation, it was learned that the "overburden" (marsh top/layer) from area dredged in the late 60's had been hydraulically pumped on top of subject tracts. The contractors for segments of I-95 had mined good quality sand and gravel from that area and two other adjacent areas; thusly, creating three deepwater lagoons. The overburden had in effect covered up the previously active dump site. Over a short period of time, native marsh and upland plants grew concealing the past misuse of the marsh. Hints of trash are evidenced throughout Tract 35, i.e., broken glass, sneakers, bicycle parts, etc. are scattered about the maze of trails and pathways. No such evidence is discernible within Tract 24 where neighbors' backyards end and where the marsh seems to begin. A 50' wide easement traverses lengths of both tracts. The 5' diameter Delcora Pipeline was buried in the easement area back in the late 1970's. It was thought that its construction must have unearthed much of the suspected trash. Contact was made with the Delcora Pipeline Authority to inquire if records or on-site inspector's memories could shed any light on the querisome subject. The informal request was met with a bureaucratic response of making a formal written request to the pipeline's Executive Director. For expedience sake, that option was not pursued. Rice, Vitelli, Nugent and Walker made an on-site visit. While on Tract 24, a long time resident, Mrs. Billings, who lives on Martin Lane confirmed Vitelli's account of Norwood Borough trash dumping within that Tract; it was she and her husband (deceased) that complained back then to have the dumping stopped.

All the aforementioned particulars are offered for posterity sake and documentation. The seemingly benign past use of the Darby Realty Tract may have far reaching ramifications. A probable recommendation for a Level II Pre-acquisition Contaminant Survey will concern not only the landowner but will stop the forward motion of the condemnation package. It can be speculated that when Geisinger learns of the elevated concern for what his land contains, he might approach the Norwood Borough Solicitor for a land use variance... requesting "Industrial Zoning" for Tract 35. Chances are good that he would be granted such a request since the Borough's General Land Use Plan allows for a certain amount of Industrial Zoning; no such zoning currently exists... thus, Geisinger could not be denied his request. If that is accomplished then it would

affect the property's fair market value. If and when condemnation is finally filed, the value of the property would be "frozen" as of the date of the declaration of taking. Time is on Geisinger's side not on the U.S. Government's. Another concern to the upgrading to a Level II would be the reaction of the local citizens and their elected officials to this latest "fly in the ointment". The Service's creditability might be challenged; current news articles are telling the folks that condemnation is imminent and Geisinger's lawyer Jackson, has been quoted as saying that another appraisal will be completed by the U.S. Fish and Wildlife Service during the next few weeks. To stave off any negative political backlash, Nugent has informed the offices of both Congressman Foglietta and Weldon. Both Representatives have backed the Service in its efforts to acquire this important in-holding. They now know that doo-doo may soon be hitting the fan. There will be enough flying to hit most parties involved: The Service might be questioned as to why this Pre-Acquisition Contaminant Survey had not been done before the eleventh hour; Norwood Borough might be questioned as to why it permitted this dumping to occur; should Geisinger have known about the property's past use? Etc., etc.

What will the results of a "Level II" show? It's quite speculative at this time but at least water and soil sampling/analysis will probably be involved. Even though no conclusive evidence of contamination may be found, the seller and buyer will be put on notice as to what the property may contain and what the worse case scenario's remedial costs might be. Does that mean that the seller might owe Uncle Sam anything over whatever the evidential fair market value might be? Go figure!

By August, no official update regarding the recommendation for a Level II Contaminant Survey had been received. The last "official word" was that Denver Engineering was to develop a scope of work for the Level II effort by late August. A few unconfirmed updates have been learned, however. Some circles are recommending that a Level III be initiated to determine the actual threat to the area that any buried contaminants may pose. Geisinger's attorney, Robert Jackson is discussing possible legal action against the Borough of Norwood for the dumping of any contaminants on his client's property. It was also learned that Jackson may deny the Service access onto his client's property for the collection of samples for contaminant assessment. Jackson has contacted Congressman Weldon's office to express his concern on the entire matter. Richard Russell, Weldon's Legislative Aid, contacted Nugent for updates. Russell may make an on-site visit in early September.

In September, a letter was drafted that was to be sent to Nicholas Catania, Executive Director of the Delaware County Regional Water Quality Control Authority (Delcora) from the

Division of Realty. It states the interest of the Fish and Wildlife Service in purchasing the Darby Realty Tract. It mentions that portions of the property were used as a municipal landfill by the Borough of Norwood in the late 1960's. Portions of the property were later excavated by Delcora for placement of the 60" diameter sewage and waste water force main. The draft further states that prior to purchasing the land, the Service must determine the extent and type of landfill material present. The Service is interested in any records Delcora may have that would indicate whether landfill materials or other wastes were encountered during excavation for the force main. It is believed that the engineering firm of Betts, Converse and Murdock of Plymouth Meeting, PA, was the firm responsible for the section of the force main that traverses subject property. Confirmation of that speculation was requested.

September 16: A meeting was held at Congressman Curt Weldon's District Office in Upper Darby, PA. The Congressman's Legislative Assistant Rich Russell gathered together individuals involved with the upcoming Level III Contaminant Assessment of the Darby Realty Tract(s). In attendance were: Bob Jackson, landowner's attorney; Peter Barrow's, landowner's realtor; Axel Larsen, R.O. Realty Office; Dick Nugent, Refuge Manager; Cindy Rice, ES biologist was not present but available via phone. Jackson stated from the outset that he wanted to maintain control over any contractual Contaminant Assessment even though Federally-funded. He initially wanted to issue the contract with an environmental consultant versus the Service. The Service representatives could not agree to that arrangement due to its potential conflict of interest. Nonetheless, Jackson demanded that his client maintain control over the Contaminant Assessment. He also wanted the analysis to be accomplished in a timely fashion. Jackson suggested that the Service and he maintain a strict confidentiality over any and all findings of the Contaminant Assessment. No other party (including the EPA) would be privy to the findings unless approved by Jackson. He further stated that if the results proved to be negative the Service would assume the responsibility for remediation. If the Service declined that responsibility then it could walk away from it and leave the corrective action for the landowner to perform. Once that was accomplished to the satisfaction of any lending institution, then the property could be sold to another party.

Larsen and Nugent were in "unfamiliar waters" regarding the legality and public perception of Jackson's proposal. It was suggested that this matter be considered by the Regional Solicitor's Office. Larsen promised Jackson a response by the following week.

September 22: Jackson phoned Nugent to say that his "client was climbing the wall" awaiting a response from the Regional Office.

Nugent spoke with Larsen who had conferred with Mark Barash, Reg. Solicitor's Office. The gist of the conversation was that it would be alright for the confidentiality of such an arrangement between Jackson and the Service but the findings of the Level III Contaminant Survey would not be exempt from the Freedom of Information Act. The cost of a Level III study has been estimated between \$25,000 and \$250,000. It is hoped that any contaminant survey will be contracted for and administered within Region 5. Certain concerns have been expressed by individuals about the Denver Engineering Center handling this matter. It was learned that the Regional engineers do have the wherewithal and contractual engineering consultants available for a Level III survey.

How all the above concerns and divergent interests will gel is yet to be determined.

November 10: A meeting between the Service and landowner Geisinger's attorney was held to attempt to flesh out the specifics on a requisite Level III Contaminant Assessment for the 50+ acre in-holding property. Before going into the nuts and bolts of the meeting, a little editorializing, is offered on the lack of direction in this endeavor and its general disarray. It has been nearly two months since the last tete-a-tete transpired with the major players of this drawn out acquisition. At that time, certain key questions were unanswerable by the Service representatives but timely answers were promised by the Regional Officer representative Axel Larsen to Bob Jackson (Geisinger's attorney) and updates would be given to Congressman Weldon's Legislative Assistant, Rich Russell. Neither promise was carried out in a timely or in an accurate fashion. Nugent was contacted by Jackson and Russell for information not forthcoming from Larsen.

A key question to be answered was that of "confidentiality of any negative findings" that the contaminant assessment might bring to light. Larsen told Nugent that his conversation with Mark Barash, Regional Solicitors Office, was that it would be alright for the confidentiality of such an arrangement between Jackson and the Service but the findings of the Level III Contaminant Assessment would not be exempt from the Freedom of Information Act. That update was passed on to Congressman Weldon's office by Nugent. That crucial opinion was also adhered to by Nugent at a pre-conference meeting amongst Service personnel and its BEM contractor prior to meeting with Geisinger's representatives on November 10th. However, BEM's ecologist Ted Toskos disagreed with that opinion and said that any and all negative findings would have to be passed on to the proper PADER and EPA environmental monitoring agencies. Nugent requested Larsen to call Barash again to clarify that key issue. It was found out that Barash did not advise the "confidentiality" route.

Another example of the Service shooting itself in the foot surfaced early during November 10ths meeting when Jackson was under the impression that the Service was prepared to answer the questions posed by him in a letter to the Regional Solicitor's office. (The letter had been sent soon after the previous September 16th meeting in Congressman Weldon's Upper Darby, PA office.) Wrong! Not only had the letter not been responded to but none of the Service representatives knew anything about its existence.

If the Regional Director is looking for examples of where TQM is sorely needed, he need not look further than his Realty Section. The impression received regarding this specific land acquisition transaction is that most folks are only reacting to it when forced to. The unofficial consensus seems to be that the Service should back off from acquiring this tainted tract. Everyone seems to be assessing it from a different angle, i.e., possible pollutants, politics, legalize, fair market value, inherent liabilities and/or ecological value. All those aspects are valid but not germane at this time; most of those concerns have already been addressed by Service staffers prior to submitting the condemnation package to the Secretary of the Interior for signature and later to various Senators and Congressmen for passage. These 50± acres may not be the pristine acres that a utopian refuge might wish for but they are integral and irreplaceable acres for this urban refuge. Do we walk away from such possibly tainted areas to have them contaminated further or to have minimal clean up performed prior to selling them off to land developers? Or do we look the problem square in the eye; acknowledge it (if there is one) and attempt to reverse it? We should be past this point but you'd question that if you were at Nov. 10ths pre-conference meeting.

Needless to say, the November 10th on-site conference meeting was nearly a non-event. Expectations of Attorney Jackson and Realtor Peter Barrows were not met. Service attendees were Axel Larsen and Dunkin Creaser, Realty Division; Cindy Rice, Ecological Services; Ted Toskos, BEM; Dick Nugent and Tom Walker (at preconference meeting), Refuge Managers.

Jackson argued over the "confidentiality" aspect of the Level III Contamination Assessment and then wondered if Geisinger could hire Ted Toskos to perform a closed-loop assessment whereby all findings would be privileged information. Toskos quickly dismissed that offer as a conflict-of-interest with his company's relationship with the Service. Jackson wondered if it would make any difference to the confidentiality aspect if his client paid for the Service-contracted assessment if the results were bad... thusly, trying to buy control of disclosure. Still no deal. As a last ditch effort to keep the ball rolling, Jackson alluded to the possibility of his client filing a de facto declaration of taking in order to be awarded some just

compensation for his inholdings. That's probably a ploy since it's thought that the Service's liability as a "potential responsible party" for any future remediation might cease if that particular scenario were played out. The meeting ended with the promise by Larsen that a conference call amongst all Service and Solicitor Office folks involved in this fiasco would take place on November 15th. Larsen also stated that Jackson would have an answer to his letter to the Regional Solicitor the following week. By month's end, neither conference call nor a response from the Regional Solicitors Office to Jackson have occurred. Meanwhile Congressman Weldon's office has called for updates; things will come to a head shortly! By the way, although Congressman Weldon's district was redefined, he still represents a 50-acre portion of the refuge. Guess which 50 acres. That's right... Geisinger's 50 acres!! Calls by Nugent and Rice to Larsen have gone unanswered for the past two weeks!

December 10: The Service's long-awaited response to the landowner's attorney, Robert Jackson's October 18th letter was sent. It stated, in part:

"...As discussed at our site meeting on November 10, 1993' a Level I survey of the property, which included interviews with local Borough officials and residents as well as on-site observations, leads us to conclude that much of Tracts 24 and 35 have been utilized for municipal landfiling purposes. As a result (and as you are aware), an environmental assessment of the Darby Realty Tract is required prior to purchase.

"The alternatives that you present in your letter in this regard are unacceptable to the Service. First, all information and all discourse in this matter will be viewed as public. We will comply with all Federal, State and local requirements should results indicate that the site is contaminated. Secondly, we will not and cannot provide you with the assurances you request limiting any future liability to your client should the property prove contaminated. The purpose of an environmental assessment is to protect the interests of the Government.

"In an effort to resolve an apparent impasse on this issue, we would recommend the following course of action:

"Darby Realty Trust would retain the services of a consultant (selected by your client) to perform an environmental assessment of the Darby Realty Tract (the property). Based on your client's review of the site assessment, Darby Realty Trust will then have the options of declining to pursue further negotiations with the U.S. Fish and Wildlife Service (FWS), authorizing the FWS to enter the property and conduct an environmental assessment of the site and/or sharing the site assessment prepared for your client with the FWS. In the event of the latter, FWS would independently review the Darby Realty

Trust site assessment, and request access to the property to perform additional work only if it is the opinion of our consultant that a further evaluation of the site is necessary. The Service could then proceed with the purchase of the property after being fully satisfied that the potential for contamination or the extent of any contamination had been fully explored and identified, and that an appropriate determination had been made that such purchase was in the best interest of the Government.

"As an alternative to this scenario, the Service would be prepared to perform an environmental assessment of the site immediately upon receiving permission from your client to access the property..."

A follow-up phone conversation between Axel Larson Realty Division, and Robert Jackson found that Jackson was in the process of retaining the services of a consultant selected by Jackson to perform an environmental assessment.

December 15: Another long overdue correspondence was finally issued from the Division of Realty to the Delaware County Regional Water Quality Control Authority. This letter had been drafted by Ecological Service and refuge personnel on Sept. 8th! It read in part:

"...The U.S. Fish and Wildlife Service (Service) is considering purchasing land in Norwood Borough in Delaware County, currently owned by Darby Realty Company, Inc. and G.G.G. Corporation. The land is designated as Tracts (24) and (35) of the John Heinz National Wildlife Refuge at Tinicum, and is located near Creek Lane, and S. Martin Lane.

We have recently learned that Tracts (24) and (35) were used as a municipal landfill by the Borough of Norwood in the late 1960's. Portions of these tracts were later excavated by Delcora for placement of a sewage and waste water force main.

Before purchasing these properties, the Service must find out the extent and type of landfill material present. Consequently, we are interested in any records Delcora may have that would show whether landfill materials, or other wastes were encountered during excavation for the force main. We would also appreciate it if you could supply us with the names and phone numbers of any site foremen, contractors, excavators, or other persons who may have been present during construction of the force main, and may recall specific details..."

Philadelphia Redevelopment Authority (Tract 13, a)

July 15: Ed Ciolko, Project Manager, called Nugent to update him on the City's "progress" in donating its 18.3 acre parcel, located on the east side of Bartram Ave., to the F&WS. This

parcel is a 1/3 portion (Stage C) of the Urban Renewal Land Use Plan. The Planning Commission had finally approved Stage C's land use change on June 28, 1993. The other 2/3 portion of Stage C had been even more controversial than the 18.3 acre portion; it dealt with the expansion of the airport parking facilities at the expense of a community garden, fire house and a local "greasy spoon". When City Council reconvenes in September it is expected to rubber stamp the land use change and then the F&WS should, shortly, become the proud (?) owner of the 7-year-in-the-making transfer of the much-debated, hotly-contested, piece of asphalt-surrounded, land, water and fill.

December 17: Philadelphia's City Council passed the Eastwick Urban Renewal Area, Stage C proposed resolution that authorizes the Redevelopment Authority to convey 17.8 acres of wetland property, adjacent the Bartram Ave., to the U.S. Fish and Wildlife Service. A seven-and-one-half-year-long story accompanies this anti-climatic, stroke-of-the-pen approval. All that remains to be done for the transfer to be final is for the City Solicitor to coordinate with the Service's Regional Solicitor to determine the proper method for the property's dedication. Soon the real work will begin, i.e., posting and protecting the misused microcosm of a refuge that's surrounded by highways and a high-speed train overpass.

JOHN HEINZ NATIONAL WILDLIFE REFUGE AT TINICUM PHILADELPHIA AND DELAWARE COUNTIES, PENNSYLVANIA

UNITED STATES
DEPARTMENT OF THE INTERIOR

UNITED STATES
FISH AND WILDLIFE SERVICE

21

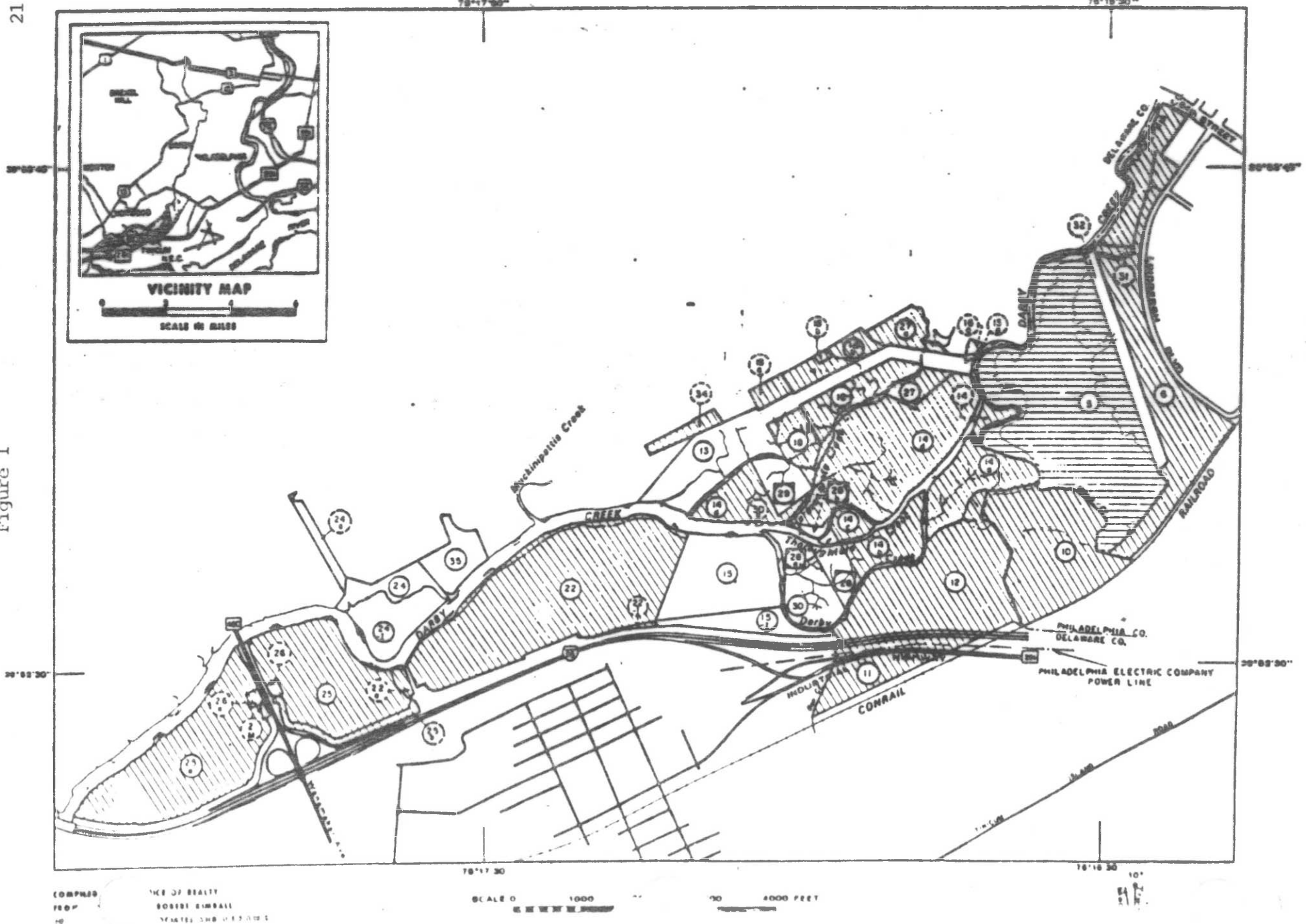


Figure 1

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Table 2: John Heinz National Wildlife Refuge at Tinicum past/present tract ownerships.

Tract No.	Acres	
5	145.33	City of Philadelphia
6	77.45	Redevelopment Authority of the City of Philadelphia
10	70.76	Shields <u>et al.</u> , Wm. S. P.
11	16.5	Scott, John Jr.
12	80.33	Scott <u>et al.</u> , John Jr.
13	55.5	Philadelphia Electric Co.
13a	0.2	" " "
14	3.8	Henderson, Wilbur C. Jr.
14a	26.6	" " "
14b	17.9	" " "
14c	5.2	" " "
14d	97.7	" " "
15	42.7	Tinicum Real Estate Holding Corp.
15-I	13.0	" " "
16	17.8	Folcroft Landfill Corp.
16a	1.2	" " "
16b	11.67	" " "
18	10.82	Frank, Charles E.
18a	4.44	" " "
18b	0.73	" " "
22	134.2	Westinghouse Electric Corp.
22-I	2.2	" " "
22a	0.84	" " "
24	11.8	Darby Realty, <u>et al.</u>
24-I	20.5	" " "
25	60.2	Layne Investment Corp.
25a	78.4	" " "
25b	6.9	" " "
26	1.0	The Nature Conservancy
26a	1.06	" " "
27	6.94	Henderson-Columbia Corp.
27a	9.61	" " "
28	8.0	Pike <u>et al.</u> , Richard I.
28a	1.1	" " "
28b	1.3	" " "
29	10.7	Haldt <u>et al.</u> , Greta
30	21.9	Watts, E. C. M.
30a	0.4	"
31	2.7	Philadelphia Conservationists, Inc.
32	15.4	Gulf Oil Corp.
34	5.8	Frank, Geraldine A.
35	14.1	Darby Realty Inc. <u>et al.</u>

Total Acres 1,114.68

D. PLANNING

2. Management Plan

January 20: The Annual Marsh and Water Management Program for 1993 was forwarded to the Zone Biologist-Central.

February 17: The Annual Marsh and Water Management Plan was approved by the Associate Manager Refuges-South.

November 8: The annual update of the complex's fire management and fire dispatch plans were forwarded to the Regional Office.

November 17: The approved fire management and fire dispatch plans were received from the Regional Office.

December 21: An updated Safety Management Plan for the John Heinz NWR Complex was forwarded to the Regional Office for review and approval.

4. Compliance with Environmental and Cultural Mandates

Museum Property

January 11: The Museum Property Statement of Collection was revised to incorporate the comments from the Regional Outdoor Recreation Planner and resubmitted to the Associate Manager, Refuges-South for approval.

February 23: The survey of museum property funding requirements was faxed to the Regional Office Public Use Specialist.

5. Research and Investigations

Supawna Meadows Deer Exclosure Study

February 18: Walker met with Central Zone Biologist Charlie Pelizza, Walt Ford and Pat DiDomizio to discuss the location for the Supawna Meadows deer exclosure study.

Evaluation of *Ceriodaphnia*

May 28: A research proposal titled "Evaluation of *Ceriodaphnia* (Crustacea: Cladocera: Daphniidae) in Zooplankton of Tinicum Waters" was received from Dorothy Berner, PhD, Professor Emerita, Temple University. The purpose of the research is to identify populations of *Ceriodaphnia dubia* and attempt to correlate the presence of the species and morphological forms of the species with nutrient loading of the water column or other pollutants. Initial sampling on the refuge occurred on May 29. If this species is found, water samples will be collected during

the summer of 1994 as well as additional collections of Ceriodaphnia dubia.

Research Needs Assessment

September 16: The research needs questionnaires for John Heinz NWR and Supawna Meadows NWR were forwarded to the Patuxent Wildlife Research Center.

6. Other

Blue Route Marsh Restoration/Mitigation-Updates

January: The following status report was prepared and submitted by Pat Quigley of PAQ, Inc. PAQ has the responsibility of Section 404 permit compliance, landscaping and post construction monitoring.

**TINICUM MARSH RESTORATION PROJECT SR 0095 TWC
STATUS REPORT NO. 3**

January 20, 1993

With the passing of the growing season, activity at the mitigation site is low and centered around maintaining the planting cells through the rougher winter storm tides. The mid-December storm that wreaked havoc at the shore brought the Delaware River tide height from approximately 5.9 feet to 10 feet at Fort Mifflin. The mitigation site weathered the storm with no serious damage although debris wash-in was significantly greater. We are cleaning out planting cells of debris, hauling limbs to the areas above the MHW line, repairing damaged enclosures, and re-stringing bird control tape. We hope to gather volunteers to carry out bags of other non-degradable flotsam.

Since the last update in late summer, we have completed the planting, conducted the final *Phragmites* control spraying and begun compiling of the vegetation monitoring and macroinvertebrate monitoring data. A brief summary follows of these activities:

Phragmites Control - The second aerial spraying with RODEO for the control of *Phragmites australis* was conducted on September 30 just after sunrise. As noted in the last update, the control band of 100 feet specified in the mitigation plans was shifted landward about 25 feet to avoid the vigorous stands of cattail (*Typha angustifolia*) that have come in along the perimeter of the site. We field marked the shift zones with high visibility flagging and for added security, Bob Pope, the PADOT Resident Engineer, went up with the helicopter to guide the work. Follow up inspection indicated the spray was on target with only minor drift at the upper edges. None of the planted areas seems to have been adversely affected.

Animal Herbivory Replanting - Following the spray program, the work began in late October to construct the planting cells with plastic protective fencing per the plan proposed and reported in the last Status Report. A total of 8,600 plants were installed per the recommended replanting list, with one modification since the last report: the inclusion of 1,200 deep water duck potato (*Sagittaria rigida*) as a substitute for ribbon wapato (*S. subulata*). As you may recall, our original order for deep water duck potato had to be modified because the contractor lost the batch to rot; he was able apparently to supply the 1,200 pieces. The replanting work also included the replanting of 6 common alder and 6 red maple that were severely browsed or broken by deer.

Due to the extremely soft sediments on the northwest side of the mitigation site, the cell in the vicinity of Sta. 205 and 206 was rotated 90° to shift it upslope to more suitable planting substrate. Replanting was completed on November 25, 1992.

January 20, 1993

PLANT LIST AND KEY			
KEY	QUANTITY	COMMON NAME	SCIENTIFIC NAME
AA	2200	arrow arum	<i>Peltandra virginica</i>
PW	1600	pickerelweed	<i>Pontederia cordata</i>
RW	1200	deepwater duck potato* (ribbon wapato)	<i>Sagittaria rigida*</i> (<i>Sagittaria subulata</i>)
RB	1200	river bulrush	<i>Scirpus fluviatilis</i>
WR	2400	wild rice	<i>Zizania aquatica</i>
	8000	Plants Total	

Note: * indicates substitution for items shown in parentheses.

Biomonitoring - We are compiling the multitude of observations made during the growing season and will be preparing a full report in the spring. We have been coordinating with the Refuge for waterfowl data to include in our reports. We expect to continue our regular monitoring throughout the 1993 growing season for the second (and final, according to the 404/105 permit) monitoring report.

Other issues:

1. **Vandalism/unauthorized access to the mitigation site.** During the replanting work last fall, we noted several instances of vandalism and unauthorized access to the mitigation site. To properly monitor and comply with the federal and state wetland permit conditions, access must be limited or controlled within the mitigation area. We have noted off-road vehicle tracks and ruts through planted areas as well as trampling by pedestrians. Plant material held overnight in marked containers were tossed about and flagging and monitoring transect markers disturbed. We continue to educate observers about the site and ask everyone to stay off the planted area. We will request that all field trips by local biologists, birders, etc. be coordinated by the Refuge with our team until the expiration of the monitoring activities.

2. **Wildlife Use.** We have been collecting wildlife use data/observations during our monitoring visits; the Refuge has also coordinated with us regarding the installation of nest boxes in the area of the two ponds within the mitigation area. We plan to develop a schematic map of these boxes for the Refuge to help them track box usage.

Respectfully submitted,

pat
Pat Quigley

March 29: Nugent met with Tim Boles, Boles, Smyth Associates, Inc., to preview the rough cut of the 27-minute video documenting the construction of the 18-acre mitigation site. Don Christ Communications was subcontracted to produce this documentary footage. The video has been slow in the making due to a Chapter 11 bankruptcy filing by Don Christ Communications. The video still needs a "voice over" script, music, reference maps and more on-site footage. Nonetheless, what footage that has been assembled looks good! The end product is expected in two weeks.

April 14: Nugent loaned a 2-hour amateur video tape of the construction of the 18-acre mitigation site to Gary Steigler of the Don Christ Communications, Inc. Steigler was subcontracted to produce a 27-minute video documentary of the project. His rough cut video is heavy on interviews with "talking heads" but light on the nitty-gritty, down 'n' dirty, actual excavation operation. Portions of the loaned tape may be spliced into the final tape.

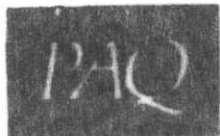
July 16: Gary Steigler of the Don Christ Communications, Inc., visited the mitigation site with Frank Baker. This was Gary's last on-site visit prior to his completion of a 27-minute video documentary of the project. Frank Baker will provide the narration. Nugent had previously loaned Gary a 2-hour amateur video tape of the construction of the 18-acre mitigation site. Some 8 minutes of that tape has been used in Steigler's video. The finished "product" should be available for viewing in August.

August: The unplanted sections of the project have developed a lush growth of volunteer vegetation. Several species of grasses, sedge, rush and smartweeds have become established. Three exotic species of concern have become established as well; i.e., phragmites, purple loosestrife, and primrose willow. All three species have the ability to form stands so thick that they effectively prevent or eliminate other plants and have little value to wildlife. At this time, phragmites is limited to a few dense stands on the south side of the channel which appear to be spreading from the edges. Primrose willow is present at the higher elevations particularly along the south side of the project. Purple loosestrife seedlings were widely distributed throughout the south side of the project last year. Survival of these seedlings appears to have been good and considerable flowering and seed production was evident in July. This year's seedlings are filling in the gaps between last year's plants resulting in large dense stands of first and second year plants.

The narrower and more steeply sloped north side of the project appears to be less conducive for the establishment of phragmites, purple loosestrife and primrose willow.

August 2: The Delta Group sent PennDOT six copies of the completed 27-minute VHS video documenting the Tinicum wetlands restoration project as part of the I-476, Mid-County Expressway construction. This video entitled "**Turning the Tide at Tinicum**" summarizes the Department's efforts in replacing approximately 18 acres of wetlands as part of the mitigation program as defined in the Final Supplemental Environmental Impact Statement (FSEIS) for the Blue Route. The refuge will receive a copy of the video once PennDOT accepts the end product.

September: The following status report was prepared and submitted by Pat Quigley of PAQ, Inc. PAQ has the responsibility of Section 404 permit compliance, landscaping and past construction monitoring.



TINICUM MARSH RESTORATION PROJECT SR 0095 TWC
STATUS REPORT NO. 4

September 25, 1993

We have nearly completed the growing season sampling of the several transects established through the restored marsh. Sampling of the planting cells has been completed and we are beginning the data reduction now. Cell monitoring has been exciting - sort of like watching a pre-historic garden come to life. This is undoubtedly due to the effect of the barrier which seems to be effective in excluding herbivory and general trampling. Although winter wave action following the fall replanting did wash out and reposition the planted tubers, roots and rhizomes, we were thrilled to see most of the planted species represented. As might be expected, wild rice and other high food value species did particularly well within the enclosures than outside (where they were quickly and quite thoroughly consumed). The most exciting findings of the cell inventory was finding so many volunteer species typical of undisturbed freshwater marshes. Several of the species were observed in the cells and no where else in the new or even the adjacent marshes. It may be that general feeding pressure over the area simply suppresses the underlying or potential species composition. We have been finding many of the species listed in the historical floristic inventories of the 1950-60's. Perhaps, in the past when the native marshes were more extensive and less disturbed this animal grazing pressure may have been less intense. Comments or insights from reviewers would be most appreciated and would be helpful in interpreting the data.

We hope to complete the summary report by the end of the year. The purpose of this status report is to briefly update you on the initial findings of species within the experimental enclosures. As shown in the following listing, we identified 27 species inside the cells (compared to the one or two commercial species planted within most of the cells!):

List of Species observed in Planting Cells and General Abundance¹

<i>Amaranthus cannabinus</i>	F
<i>Bidens laevis</i>	C
<i>Bidens connata</i>	F
<i>Cuscuta gronovii</i>	F
<i>Cyperus sp.</i>	F
<i>Echinochloa sp</i>	F
<i>Eleocharis sp.</i>	F
<i>Eupatorium serotinum</i>	F
<i>Heteranthera reniformis</i>	F

¹ Cell sampling was conducted in mid-summer in July; early ephemeral and very late season species may not be represented. F = few; C = common.

September 25, 1993

<i>Impatiens capensis</i>	F
<i>Juncus effusus</i>	F
<i>Leersia oryzoides</i>	C
<i>Ludwigia peploides</i>	C
<i>Ludwigia palustris</i>	F
<i>Lythrum salicaria</i>	F
<i>Mimulus ringens</i>	F
<i>Nuphar lutea</i>	F
<i>Peltandra virginica</i>	F
<i>Pentstemon scirpioides</i>	F
<i>Polygonum punctatum</i>	F
<i>Pontederia cordata</i>	C
<i>Sagittaria latifolia</i>	C
<i>Sagittaria rigida</i>	F
<i>Scirpus fluviatilis</i>	C
<i>Typha angustifolia</i>	C
<i>Veronica anagallis-aquatica</i>	F
<i>Zizania aquatica</i>	C

This summer was also the first time we noticed the establishment of yellow water lily (*Nuphar lutea*) both scattered outside and inside some cells at the lower intertidal elevations. At the upper elevations we continue to see a strong invasion by purple loosestrife. *Phragmites* has not been a serious problem at all.

Lastly, we are very pleased with the finalization of the educational video: "Turning the Tide at Tinicum" which was recently released by PADOT. Thanks to all of you who made it a success.

Respectfully submitted,


Pat Quigley

September 3: Boles, Smyth Associates, Inc., on behalf of the Department of Transportation, sent the refuge a copy of the completed video entitled: "Turning the Tide at Tinicum", documenting the restoration of 18-acre wetland site on the refuge. The end product is quite impressive. It has caught the attention of the folks who footed the bill for its production, i.e., PA Dot's Bureau of Environmental Quality. Nugent spoke with the Bureau's director, Wayne Kober to express his appreciation for the end product of the video as well as the mitigation project. During the conversation it was learned that PA Dot expects to reconstruct and rehab the 50+ miles of Interstate 95, which passes through the State. The project is to commence in 1996. A wetland replacement plan that will address the mitigation for the 20-30 acres of wetlands that will be impacted is being developed. Kober asked if the refuge would consider working with PennDOT as being a possible site in mitigating for the impacted wetlands. Nugent told him that he was definitely interested and wished to obtain more information. The following I-95 Intermodal Mobility Project Wetland Replacement Plan was received.

I-95 INTERMODAL MOBILITY PROJECT WETLAND REPLACEMENT PLAN

INTRODUCTION:

Transportation systems are of vital importance to our nations economic stability. The creation or reconstruction of transportation systems expedites the flow of goods and services and encourages economic growth.

One of the most vital systems on the east coast is I-95 which extends from Maine to Florida. Within the state of Pennsylvania, 51.3 miles of I-95 passes through Bucks, Delaware and Philadelphia Counties. Like many other transportation systems, I-95 is in need of reconstruction and rehabilitation. This will be accomplished through an intermodal mobility project which will be a phased, multi-year project that will call for the improvement and reconstruction or rehabilitation of all 51.3 miles of I-95 in Pennsylvania. Section I of the project will focus on the 18.8 mile stretch of I-95 which extends from I-276 (the Pennsylvania Turnpike) to I-676 (the Vine Street Expressway).

One consequence of the construction or reconstruction of transportation projects is the impact to environmental assets such as wetlands. To compensate for anticipated impacts, interagency coordination meetings are held to discuss and lay out satisfactory wetland mitigation strategies.

Efforts to revise the transportation project development process combined with the integration of the NEPA/404 permitting requirements were recently implemented. This course of action resulted from mutual concerns related to the temporal loss of natural resources.

The Wetland Replacement Plan has been developed in order to replace in advance, wetlands impacted by transportation improvements related to the I-95 intermodal transportation project in an environmentally sensitive and cost-effective manner. Replacement wetlands will not only be replaced prior to construction, they will begin to function as well. The reconstruction of I-95 represents an excellent opportunity to demonstrate the Wetland Replacement Plan.

The formation of an interagency mitigation task force will occur as a primary action of the plan. The function of the task force will be to agree upon and proceed with the implementation of a plan prior to the reconstruction of I-95 which is to commence in 1996.

The I-95 Intermodal Mobility Project is a phased, multi-year project that calls for the improvement and reconstruction/rehabilitation of all 51.3 miles of I-95 in Bucks, Delaware and Philadelphia Counties. Section I of the project will focus on the 18.8 mile stretch of I-95 from I-276 (the Pennsylvania Turnpike) to I-676 (the Vine Street Expressway) and will include:

- Construction of a two lane, at-grade, high occupancy vehicle (HOV) facility in the median of the existing roadway where there is sufficient right of way,
- Construction of a two lane, elevated section of the HOV facility above the median where insufficient at-grade right of way exists, and
- Reconstruction/rehabilitation of existing pavement and structures.

During the preliminary engineering of section I, The early identification of impacts on wetlands and the identification of mitigation sites will take place as part of the Advanced Compensation Plan.

INTERAGENCY MITIGATION TASK FORCE:

An interagency task force will be formed as part of the Advanced Compensation Plan. The task force will be charged with establishing the wetland mitigation site selection process. Utilizing this process the task force will also evaluate site selection progress. The task force will reach consensus on these issues. The task force will meet on a bi-monthly basis, or more frequently as needed.

The following agencies and organizations will be an integral part of the Advanced Compensation Plan task force.

- FEDERAL HIGHWAY ADMINISTRATION
- U.S. ARMY CORP OF ENGINEERS
- U.S. ENVIRONMENTAL PROTECTION AGENCY
- U.S. FISH & WILDLIFE SERVICE
- PA DEPARTMENT OF TRANSPORTATION
- PA FISH & BOAT COMMISSION
- PA DEPARTMENT OF ENVIRONMENTAL RESOURCES
- PA GAME COMMISSION
- PA HISTORIC & MUSEUM COMMISSION
- CONSULTANTS

The flowchart within the text indicates the role of the task force in the Advanced Compensation Plan.

IMPACT INVENTORY METHODOLOGY:

Prior to highway construction, wetlands to be impacted will be identified utilizing aerial photography possibly infrared, mapping and other identification techniques. Once identified, functional analyses and delineations will be performed on the identified wetlands within the proposed project area according to the task force's consensual agreement.

DETERMINATION OF MITIGATION STRATEGY:

The creation of a successful mitigation strategy will depend on effectively determining and setting mitigation goals. The task force will be charged with reaching consensus on clearly defined mitigation goals. It is crucial that the task force reaches consensus on the mitigation goals consistent with the NEPA/404 permitting regulations and agency guidelines.

During the determination of project goals, a number of important issues will be focused on and resolved. Issues may include but are not limited to the following:

- Replacement hierarchy,
- Replacement based on acreage or functions,
- Mitigation at one large site or multiple sites,
- Hydrological linkages,
- Tidal vs. non-tidal replacements,
- Restoration of degraded wetlands,
- Monitoring requirements,
- Ownership/maintenance responsibilities of mitigated wetlands, and
- Construction scheduling.

PROCESS DESCRIPTION:**(TASK FORCE CREATION)**

In the initial stages of the advanced wetland replacement plan, an interagency task force will be formed. The function of the task force is to determine an appropriate mitigation strategy and to develop acceptable methodologies. Agreement concerning these issues must occur in a timely manner, this will allow for the construction of mitigation sites prior to the reconstruction of I-95.

(TASK FORCE BRIEFING/SCOPING MEETING)

Upon project proposal, the task force will meet and receive a briefing on the projects details. In addition, the mitigation process development will be presented during this scoping meeting.

(PRELIMINARY ID OF WETLAND IMPACTS)

Following the initial meeting, a preliminary identification of potential impacts to wetlands will be completed. The conclusions of the preliminary identification will be presented to the task force upon the completion of this action.

(DETERMINATION OF METHODOLOGIES)

The task force will then partake in the development of acceptable methodologies for: (a) delineations, (b) functional analysis and (c) mitigation site location, assessment criteria and related processes. It is of vital importance that the task force reaches consensus concerning these issues since these methodologies will be the basis for site selections.

(WETLAND ANALYSIS & PRELIMINARY MITIGATION SITE LOCATION/ASSESSMENT)

Once methodologies have been agreed on, the analysis of wetlands impacted by construction will occur. A preliminary site location and assessment process will then occur. Conclusions of the analyses will be presented to the task force upon completion. Preliminary sites may be field viewed at this time, sites found unacceptable will be eliminated from further consideration.

(DETAILED MITIGATION SITE LOCATION/ASSESSMENT)

Following consensus, the task force will then proceed into the detailed site location and assessment process for the remaining sites. At the completion of the detailed studies, results will be presented to the task force and additional field views will occur.

(SELECTION OF MITIGATION SITE(S))

The next task force action is the selection of mitigation sites. Following the selection of sites, field views will be held for the task force. Each site will be evaluated and the task force will reach consensus on the respective sites.

(REVIEW OF CONCEPTUAL & FINAL MITIGATION/MONITORING PLANS)

Once replacement sites have been selected, the consultant will develop conceptual mitigation plans which will be reviewed and commented on by the task force. Consensus will be reached on any revisions made to the conceptual plans by the task force. Revisions will be made and the consultant will provide final plans for task force review and final consensus.

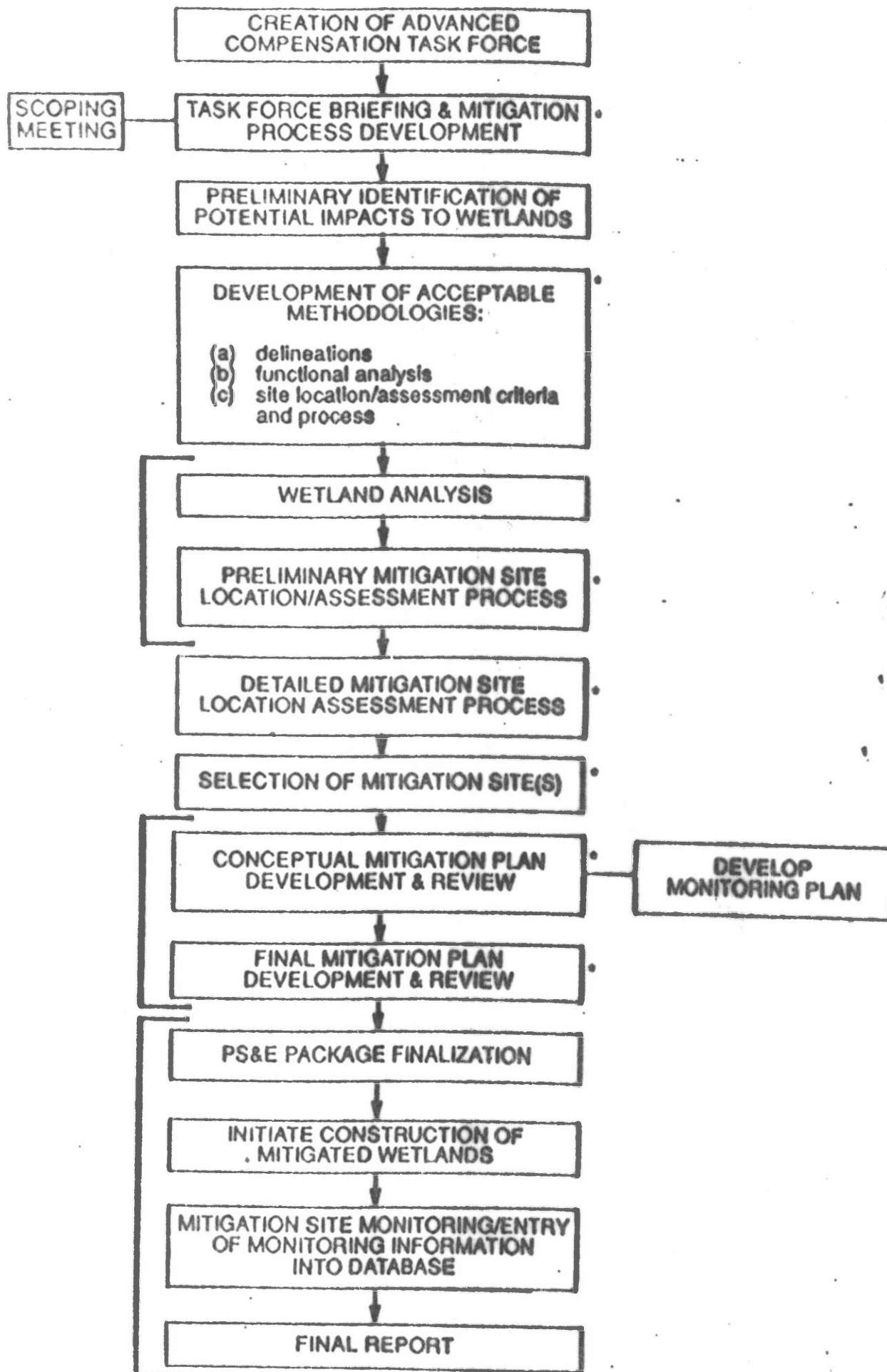
The task force will then provide input for the development of monitoring plans and a schedule of monitoring information.

(CONSTRUCTION, MONITORING INFORMATION & FINAL REPORT)

Concurrent with the review of the final plans, PennDOT and its consultants will then finalize the PS&E package. The construction of the mitigated wetlands will be initiated during the first growing season feasible following the task force's consensus on the final plans.

Upon the completion of the mitigated sites, monitoring and database information entry will begin. Monitoring information will be provided to each agency within the task force at the agreed upon intervals. In addition, a final report will be generated and sent to each party upon completion of the monitoring period.

WETLAND REPLACEMENT PLAN PROCESS FLOWCHART



Philadelphia International Airport Wetlands Mitigation

September 27: Lisa Weis, Weston Inc., visited the Refuge Headquarters to gain access to the Henderson inholding (tract 15). Weston is preparing a wetlands mitigation plan for the City of Philadelphia. Wetlands creation will be required as a condition of an Army Corps of Engineers (COE) "After the Fact" permit for filling of 11 acres of wetlands which occurred at the City-run International Airport. Additional wetlands mitigation/creation will likely be required as a condition of a COE permit for the planned expansion of the airport's runway system. The ratios of mitigation for the "After the Fact" permit and the proposed project have not been determined at this time.

Three sites are currently being considered for the required mitigation. They are in priority order: 1) The Henderson property (refuge tract 15), 2) Tinicum Properties holdings in Tinicum Township (the former Westinghouse property), and 3) Tract 22 of the refuge. Henderson has expressed an interest in selling his property to the City for use as the mitigation site. It is undetermined at this time whether the City will purchase the property or only the development rights for the mitigation project.

Wetlands Restoration on Refuge

August 11: Dave Putnam and Cindy Rice, Biologists, ES, State College, PA visited the refuge to discuss possible wetland restoration projects with Nugent and Walker. Reference was made to the Refuge's Master Plan and its several Resource Planning Units. The least controversial unit seemed to be FL3, i.e., Filled Land Resource Planning Unit. There is potential to recreate wetlands/ tidal wetlands via the excavation of fill and breaching of a dike. A two-hour, on-site tour, through all the applicable RPU's, followed the office discussion. (The refuge may be the recipient of some \$40,000 that was awarded to the Service as partial restitution money from a bank associated with the Philadelphia-located Publicker Superfund site. This money may be doubled via a challenge grant. ES is holding the purse strings for future obligation involving wetlands enhancement... we hope that we're in the running.)

Regional Force Account Heavy Equipment

February 27: A revised Request for Heavy Equipment was forwarded to Greg Sepik as recommended by the Central Zone Biologist. This request substituted the feller/buncher for the hydro-axe for Supawna Meadows NWR and requested the cookie-cutter for John Heinz NWR. The feller/buncher will be used to remove large trees from areas hydro-axed the past two years.

The cookie-cutter will be used to create channels in the 145 acre impoundment to improve the drainage during the July scheduled draw-down.

I-95 Lagoon Embankment Erosion

February 24: McMenamin and Mitchell checked the survey stakes to measure the erosion on the south shore of the large I-95 Lagoon. On the average, the embankment is eroding approximately 2 feet a year. This survey has been going on since December 1987.

E. Administration

1. Personnel



(Photo: DiDomizio)

Standing (L to R) 2, 6, 7, 1, 5
Kneeling (L to R) 8, 9, 4

1. Richard F. Nugent, Refuge Manager, GM-13, PFT
2. Thomas C. Walker, Assistant Refuge Manager, GS-12, PFT,
3. Walt Ford, Refuge Operations Specialist, GS-9, CFT,
(Supawna Meadows NWR)
4. Jacqueline A. Burns, Outdoor Recreation Planner,
GS-11, PFT
5. Julie M. Rowand, Outdoor Recreation Planner, GS-9, PFT
6. Leigh Zahm, Park Ranger, GS-7, PFT, entered on duty
3/7/93
7. Quandá E. Hayes, Office Assistant, GS-6, PFT
8. Michael J. McMenamin, Automotive Mechanic, WG-10, PFT
9. Terry D. Mitchell, Maintenceman, WG-7, PFT
10. Patrick DiDomizio, Maintenceman, WG-7, TFT,
(Supawna Meadows NWR)

a. Staffing Pattern

Tables 3 and 4 present a five-year comparison of on-board strength (FY 1990-1994).

Table 3: Staffing pattern for Heinz Refuge Complex (number of employees).

	<u>Permanent</u>		<u>Temporary</u>	<u>FTE</u>
	<u>Full-Time</u>	<u>Part-Time</u>		
FY 90	9.0	0	0	90
FY 91	9.0	0	0	90
FY 92	8.0	0	1	90
FY 93	8.0	0	1	90
FY 94	9.0	0	1	100

Table 4: Five-year staffing pattern for Heinz Refuge Complex by title, type, grade, and status. (P=perm., T=temp.)

	FY90	FY91	FY92	FY93	FY94
	<u>P</u> <u>T</u>	<u>P</u> <u>T</u>	<u>P</u> <u>T</u>	<u>P</u> <u>T</u>	<u>P</u> <u>T</u>
Manager (GM-13)	x	x	x	x	x
Ass't. (GS-12)	x	x	x	x	x
Ass't. (GS-9) SPM	x	x	x		
Ref. Op. Spec. (GS-9) SPM				x	x
Ass't. (GS-7)	x	x			
ORP (GS-11)					x
ORP (GS-9)	x	x	x	x	x
ORP (GS-7)	x	x	x	x	
Park Ranger (GS-7)					x
Office Ass't. (GS-6)	x	x	x	x	x
Carpenter (WG-9)	x				
Auto Mechanic (WG-10)		x	x	x	x
Maint. Worker (WG-7)	x	x	x x	x x	x x
FTE TOTAL	<u>9</u> <u>0</u>	<u>9</u> <u>0</u>	<u>8</u> <u>1</u>	<u>8</u> <u>1</u>	<u>9</u> <u>1</u>

b. Personnel Changes

March 7: Leigh Zahm entered on duty March 7, 1993. Leigh's previous position was as a Park Ranger (Law Enforcement) at Independence National Historical Park in Philadelphia. Here, he is working in law enforcement and public use.

July 11: ORP Jacqueline Burns was promoted to GS-11, the full-performance level for the position.

July 11: ORP Julie Rowand was promoted to GS-09, the full-performance level for the position.

c. Training

Refuge Manager Nugent

February 11: "Street Survival '93 The Tactical Edge" Seminar, in Atlantic City, NJ.

March 2-3: "Field Response Coordinator Training Session" in Northampton, MA.

March 7-12: Regional Conference, "Working for the Future Together", at Ramada Renaissance Hotel, Herndon, VA.

March 29 - April 2: 1993 Law Enforcement In-Service Training at the Patuxent Wildlife Research Center, Laurel, MD.

October 19: Triennial basic aviation safety training at Forsythe NWR.

Assistant Refuge Manager Walker

January 20: Delaware Estuary Zebra Mussel Workshop sponsored by the New York, New Jersey and Delaware Sea Grant Programs.

January 25-27: Department of Defense pesticide applicator recertification training course to maintain his Pennsylvania pesticide applicator certification.

February 1-12: Refuge Officer Basic School at the Federal Law Enforcement Training Center completing the mandatory training for Refuge Officers.

March 2-3: "Field Response Coordinator Training Session" in Northampton, MA.

April 5-8: Law Enforcement Refresher Training held at the Patuxent Wildlife Research Center, Laurel, MD.

July 29: Weed control seminar sponsored by the Montgomery County Cooperative Extension Service to obtain the remaining four credits required to maintain pesticide applicator certification in Pennsylvania.

August 18-20: Semi-automatic pistol transition training course instructed by Service Firearms Instructors Kenny Kessler and Kevin Gormley at Chincoteague National Wildlife Refuge, VA.

October 19: Triennial basic aviation safety training at Forsythe NWR.

Outdoor Recreation Planner Burns

March 18: "Training the Trainer", A Fred Pryor Seminar, King of Prussia, PA.

August 8-10: Project Learning Tree (PLT) meeting / retraining for facilitators, Harrisburg, PA.

Outdoor Recreation Planner Rowand

January 27: "Business Writing for Results", a Fred Pryor Seminar, King of Prussia, PA.

March 1: 8-hour seminar on Desktop Publishing with WordPerfect, King of Prussia, PA.

June 22: **Advanced Pagemaker** workshop at MicroCenters, Radnor, PA.

July 18-20: Project Learning Tree (PLT) meeting / retraining for facilitators, McKeever Environmental Education Center, PA.

Park Ranger Zahm

April 5-8: Law Enforcement Refresher Training held at the Patuxent Wildlife Research Center, Laurel, MD.

August 9-20: Refuge Officer Basic School held at the Federal Law Enforcement Training Center, Glenco, Georgia.

Office Assistant Hayes

September 7-10: Control desk in the Regional Office, Hadley, MA.

Automotive Mechanic McMenamin

February 10-11: "Street Survival '93 The Tactical Edge" Seminar, in Atlantic City, NJ.

March 29 - April 2: 1993 Law Enforcement In-Service Training at the Patuxent Wildlife Research Center, Laurel, MD.

April 18-23: Maintenance Workshop at the Patuxent National Wildlife Research Center. ... McMenamin was part of the team that designed and developed this first of its kind training. The Workshop was a great success and many talented speakers offered terrific presentations on everything from managing stress to chain saw safety. Emphasis was also placed on team building and communication between the Maintenance staff and Management. The critiques showed the class of 60 Maintenance personnel from Region 5 to be both enthusiastic and enlightened.

Self-paced Commercial Driver's Licence training, provided by videos, written materials and time in an appropriate vehicle was completed. McMenamin passed the Pennsylvania Department of Transportation's Commercial Driver's License (CDL) written, driving and skills tests on August 6, 1993 and received his permanent license.

Maintenanceman Mitchell

April 18-23: Maintenance Workshop at the Patuxent National Wildlife Research Center.

Commercial Driver's Licence training, provided by videos, written materials and time in an appropriate vehicle was completed. Mitchell passed the Pennsylvania Department of Transportation's Commercial Driver's License (CDL) written, driving and skills tests on November 3, 1994 and received his permanent license.

d. Other Personnel Items

July 21: ORP Rowand was recommended for a special achievement award based on her overall performance rating of "exceeds fully successful". Starting the Environmental Education Initiative Committee to improve and expand our EE program is just one of the ways that she excelled.

Assistant Refuge Manager Walker was recommended for a special achievement award based on her overall performance rating of "exceeds fully successful".

Auto Mechanic McMenamin was recommended for a special achievement award based on her overall performance rating of "exceeds fully successful".

Maintenance worker Pat DiDomizio was recommended for a special achievement award based on her overall performance rating of "exceeds fully successful".

High School Co-op Program

(Photo: Nugent)

Vol. Steve Fleishman, High School Co-op
Jason Bozman, and Supawna Meadows Student
Conservation Association's Jonas Brown.

All watching the grass grow.

May 6: A Cooperative Agreement with Interboro High School, signed by the school, was forwarded to the Regional Personnel Office.

June 13: Charles W. Cardell, Jr. entered-on-duty as a High School Student Trainee to work at the John Heinz NWR Complex.

July 12: Jason Bozman entered-on-duty as the Complex's second Student Trainee.

Jason's arrival ends an almost two-year quest to fill the two High School Coop Student Trainee positions. During the summer, they worked full-time completing a variety of maintenance and resource management tasks including trail clearing, grass cutting, preparing waterfowl trapping sites, and retrieving diseased waterfowl.

September 28: High School Co-op Student Jason Bozman was placed in LWOP status. Jason has been out sick since September 14 with mononucleosis.

October 31: High School Co-op Student Charles Cardell resigned due to a conflict between the three hours/day he was devoting to after-school work at the refuge and time spent on homework and personal matters.

3. Other Manpower Programs

The refuge continued to work with the Delaware and Philadelphia Court Systems to provide a work place where individuals convicted of crimes could do community service. Overall this year, nine youths worked at the refuge for a total of 157 activity hours. They stripped and waxed floors, picked up litter, cleared snow, cut grass, cleaned buildings, cut brush and vegetation, cleared trails, washed windows, weeded, trimmed trees, helped remove clean and store netting from the insect enclosure pens, and assisted with vehicle maintenance.

4. Volunteer Program



(Photo: Reeves)

All stars on the big silver screen!

July 7: A volunteer bar-be-que and meeting was held. The potluck dinner was great! We congratulated and thanked Bill Buchanan (present) and Bob Confer (in absentia) for their **five years** of volunteering. At the meeting we covered the fall schedule, March - May volunteer accomplishments, beginning a series of family programs, which day for winter walks, recent refuge happenings and changing the volunteer meeting's frequency. We concluded with a slide show by Bill Buchanan. He covered the history and documentation of recent impoundment drawdowns, close-ups of refuge wildlife, volunteers in action, and skyline photos.

Quarterly meetings were held the first half of the year (January and April). Attendance at our quarterly meetings has been poor, and the schedule has been completed by phone, so in July, at our Bar-be-que meeting it was decided that we will no longer meet quarterly. We will have a summer bar-be-que, a winter holiday/awards dinner and a January meeting.



(Photo: Nugent)

No, it's not the making for a
wet T-shirt contest!

Dec. 3: The volunteer "Holiday Gathering" was held at Doris McGovern's house. This was a nice way to say thanks to those

who volunteer their time on a regular basis throughout the year. USFWS provided roast beef for this pot luck feast. Manager Nugent provided "thank you" gifts. Volunteer Coordinator Burns thanked those present for their efforts.

a. Guided Walk Program

Guided walks were scheduled every weekend. From March through November there are usually two walks per weekend, one on Saturday and one on Sunday. From December through February there is usually one walk per weekend on Saturday. This year we had 81 walks with 970 visitors attending. This works out to 2384 activity hours.

Table 5: Volunteer Walk Statistics, 1993

Month	# Walks	# Attendees	Activity Hours
January	5	37	102
February	2	7	10
March	3	29	77
April	9	138	261
May	13	190	474
June	9	123	257
July	8	91	234
August	10	107	317
September	6	60	180
October	7	93	237
November	7	78	211
December	2	17	24
Totals	81	970	2384

Workshops

February 6: Volunteer Bill Buchanan conducted a workshop called *Basic Nature Photography at Tinicum*. Bill covered such topics as what to photograph at the refuge, what equipment is needed, 'seeing' like an artist, metering and framing your subject. Ten (10) people attended this six-hour workshop.



(Photo: Buchanan)

Palmer ready to assist his
students-of-the-day.

June 19: Palmer and Lee Paist led a workshop called *SLR Close-up Photography Workshop for Nature*. Participants learned about lighting techniques for documentation or drama, and how to set up their own mini studio. Nine people attended this five-hour workshop.

b. Other Volunteer Programs

Other Regular Volunteers

January 4, 28 and March 2: Volunteer Jay Newmark repaired pot holes, picked up litter, washed and waxed the Dodge pick up truck, swept out the storage building, unclogged culvert pipes and transported concrete block from outside of the maintenance compound to a more secure area inside the compound.

In January and February, Ellen Mingione volunteered 16.5 hours for the Environmental Education program. She assisted the ORPs at the Introduction to Environmental Education workshop for the Philadelphia Ranger Corps, participated in the EE initiative committee, and assisted with the curriculum library.



(Photo: Buchanan)

A jarring experience.

From March through September, Jennifer Kauffman volunteered to inventory the environmental education equipment at the maintenance compound and led several scout groups on tours of the refuge. At the end of September she moved to Washington state.

From January through October Volunteer Steve Fleishmann worked

nearly 1,000 hours cleaning the maintenance building, picking up litter and repairing service roads, cutting grass, trimming trees, washing station vehicles, painting equipment, cutting brush and vegetation along the impoundment dike and clearing trails.

Volunteers Ann Clendening, Anne Marie and Stan Rapp presented their slide show, "*A Walk Through Tinicum*" to about half a dozen citizen groups this year, including a local chapters of AARP and *Trout Unlimited* and a local garden club. The Rapp's have also helped with clerical work, such as folding brochures, on occasion.

July 15: Tom Reeves gave a slide presentation about birds to the *Philadelphia Avicultural Society*. The presentation led to several refuge visits by their members.

September 28: A new volunteer, Donna Sweet of Berwyn, PA began volunteer service. From September through December she volunteered 42 hours assisting refuge staff in collecting biological data. She set up transects and sampled vegetation in the impoundment, prepared maps of the transects and recorded the data, assisted in vegetation sampling and posting the waterfowl hunting area at Supawna Meadows NWR, conducted a survey of the heron and egret nests in the loosestrife island in the Refuge's 145-acre impoundment and painted furniture to be used in the refuge offices.

Student Interns

(Photo: Nugent)

Missy sharing the limelight with her
counterpart at Supawna Meadows,
Jennifer Hunter.

March 1 - May 19: Our spring SCA intern was Missy McLean. Missy did an excellent job of helping with day-to-day operations and the logistics of our spring teacher's workshops. She worked hard for us, was able to pick things up quickly and frequently worked independently. She has a degree in geography and is now looking for full-time work.



(Photo: Nugent)

We didn't have any reservations
about Tara or with the restaurant!

June 14 - August 18: Tara Nace completed a volunteer internship with the refuge, working 3 days a week with our public use staff. She helped staff the Visitor Contact Station, attended a Project Wild / Project Learning Tree workshop and assisted in the preparation of our new (as yet incomplete) teacher packet. She did well.

July 12: The refuge was visited by Sally Miske, Student Conservation Association. ORP Burns gave her a tour of the refuge, with intern, Tara Nace. They discussed how we are using their program here and at Supawna Meadows NWR, possibilities for expansion, and their experiences at San Francisco Bay NWR (Sally was there as an intern about five years before Jackie worked there).

Dec. 1: SCA called to get a reference for one of our former interns. Tina Copeland applied for a position as a recruiter for their program. (Update: She got the position. She will travel to different schools talking about SCA and the experiences that she had here and elsewhere. We will be sending

her some slides to use in her program. ...Should be good PR for our internships also. May help our recruitment efforts.)

Group Volunteer Efforts

May 20: Maintenceman Mitchell worked with Dr. Sharon Taylor and her group of 6 students from Springfield High School who volunteered their services by cutting a 1/4 mile length of Henderson's trail. They also painted 10, 55-gallon drums which will be used as trash receptacles around the refuge.

September 25: Eleven members of Boy Scout Troop 2 from Alden, PA and their leader, Don Brackbill, worked for three hours collecting two pickup truck loads of litter from the 16-acre pond area.

October 22: Dr. Sharon Taylor and 8 Springfield High School students volunteered their services and cut a quarter-mile stretch of Henderson's Trail.

November 18-19: Eight students from Friend's Central High School volunteered a total of 96 hours removing litter from tract 34, the 16 acre pond area, and the Route 420 area of the refuge.

Bell Pioneers

These folks started their volunteer work at the refuge by helping with the annual Darby Creek Clean-up in 1992 and have helped us out on many other occassions.



(Photo: Buchanan)

"Wouldn't a whitewash last longer?"

September 25: Five members of the Bell Telephone Pioneers worked for four hours cleaning and re-painting the railings on the Refuge's observation tower.

November 6: Eleven members of the Bell Pioneers volunteered a total of 55 hours collecting trash and other debris from the fence along Interstate 95 in tract 15,I along the impoundment dike and painting the railings on the observation tower.

5. Funding

General

Table 5 summarizes the Refuge's funding amounts by activity from FY 1989 to FY 1993.

May 29: The updated RPPS data for FY 1994 was forwarded to the regional office.

August 17: Comments on proposed IPW's to be funded in FY94 were provided to Ward Feurt, Refuges South. This opportunity to

comment may prevent refunding of completed projects which has occurred in the previous two fiscal years.

September 15: Walker received a call from Cecilia Zokites of Cigna Corp., Philadelphia, PA regarding potential small contributions to the Service from Offices in several states in Region 5. She was referred to the Regional Office. She also requested information regarding the Service's mission. Several brochures were mailed to her office.

September 23: A list of potential projects at John Heinz NWR and Supawna Meadows NWR suitable for accomplishment with small donations was forwarded to the Diane Weaver, Region 5 Public Affairs Office, at her request.

November 15: The updated RPPS data reflecting FY93 project accomplishments was forwarded to the Regional Office.

Refuge Revenue Sharing Checks

April 14, we received the Fiscal Year 1992 Refuge Revenue Sharing checks for the following jurisdictions:

Borough of Folcroft	\$43,156.00
Township of Darby	955.00
City of Philadelphia	1,781.00
Tinicum Township	6,495.00
Interboro School District	15,979.00

The checks were for 81.1% of what would be a full payment to these governmental units based on the most current appraised fair market value. Last year's payment was for 89.5% of what was due.

Table 5. Funding pattern for the John Heinz National Wildlife Refuge at Tinicum Complex
Fiscal Years 1989 through 1993.

Fiscal Year	Wildlife Resources 1260 \$	Fire Mgt. 12XX \$	Contributed Funds 7201 \$	Quarters 8610 \$	Construction 2821 \$	Total \$
1989	660,589 ⁽¹⁾	----	2,072	2,127	----	664,788
1990	398,499	15,800	2,910	4,171	1,000,000 ⁽²⁾	1,421,380
1991	606,328 ⁽³⁾	13,400	5,724	4,467	----	629,919
1992	532,043 ⁽⁴⁾	2,000	21,306 ⁽⁵⁾	6,875	----	564,224
1993	549,712 ⁽⁶⁾	9,500	10,900 ⁽⁷⁾	5,520	----	575,632

- (1) Includes \$250,000 for storage building construction. The extra funds needed to award \$299,500 construction contract with Hampton Beach Construction was covered by the R.O. from other field stations. Because \$14,000 of the \$250,000 had been spent on A&E work only \$236,000 was available for the construction contract.
- (2) One-time funding for completion of the Maintenance/storage complex.
- (3) Includes \$250,000 for EPA/FWS Folcroft Landfill Study.
- (4) Includes \$100,000 Environmental Education Initiative Funding.
- (5) Includes \$12,500.00 contribution from Chevron Inc.
- (6) Includes \$50,000 Environmental Education Initiative Funding.
- (7) Includes \$10,000.00 contribution from the Attorney General of the Commonwealth of Pennsylvania as part of the negotiated settlement for environmental damages to the Delaware River caused by the 1990 Cumene spill from the vessel "Jo Rogn".

Contributions

July 28: Interstate Outdoor Advertising, Inc. contributed \$200.00 to the refuge for "being a good neighbor". The money is "...too help with all the great work being done at the refuge". the firm erected two large billboards, northbound and southbound, alone I-95 on property owned by Conrail; the refuge controls access to the sign sites.



(Photo: Nugent)

A seasoned friend of the refuge visits
in the autumn of her life.

November 29: the refuge received a check in the amount of \$100.00 from Josephine Albrecht and daughter, Nancy Zachow of King City, Oregon. Mrs. Albrecht, now frail at 94 years of age, was very instrumental in preserving the tidal marshes and lagoons of the Darby Creek watershed. She was involved with the Concerned Area Residents for the Preservation of Tinicum Marshes and its precursor, the "Friends of Tinicum". While visiting her East Coast friends, she and her daughter paid an unexpected visit to the refuge on November 22nd. Her protege, Jean Diehl, president of CARP, called Nugent and coordinated with him for a personalized tour/update on the progress of the refuge.

December 17: Chevron Oil contributed \$600.00 to the refuge's

general operations. Through thick or thin, Chevron has been a mindful neighbor... whether it be financial contributions or providing the Visitor Contact Station with free electricity. It has also shown an interest in contributing to National Fish and Wildlife Foundation's Cusano challenge grant.

The Antonio "Tony" Cusano Bequest

May 27: Regional Director Ron Lambertson called Nugent to inform him of an unrestricted bequest of \$2 million plus from Mr. Cusano to the Department of the Interior. Cusano lived in Crum Lynne, a small community, approximately one-mile west of the refuge. Nugent called Regional Solicitor Tony Conte for more specifics. It seems that Cusano had invested well in Phillip-Morris and Dupont stocks. He had an avid interest in animals and wildlife. Learning that Cusano died in February, 1993, the following day a copy of his obituary was retrieved from a local library. From the write up it was learned that "Tony" died on Feb. 12th at the age of 85 without heirs. A brother had died in 1972. Tony was the oldest living Ridley Park High football star at the time of his death. He graduated from Ridley Park High School in 1927. He was a quarterback on the football team and earned a scholarship to the University of Pennsylvania. He also played football for the Leiperville Athletic Club. He was a life member of the Vauclain Fire Co., Crum Lynne. Tony lived in Crum Lynne for 75 years and was an employee of General Electric Co., retiring in 1967. "Tony was a caring and humble person," said Ridley Township District Justice Greagory Mallon (also executor of his will). "The individual examples of his generosity are generally known only to the recipients. He shunned the limelight but brought a lot of sunshine into the lives of others."

The National Fish and Wildlife Foundation has been approached to accept this bequest on behalf of the Department and Service. Given Tony's interest in Philadelphia and wildlife, application of this bequest to the Heinz N.W.R. would seem appropriate after it leaves Probate Court in an estimated six months.

The NFWR has approached the Assistant Secretary's Office of D.O.I. to campaign for its acceptance of the bequest:

"The purpose of Tinicum NEC is to preserve the natural resources of Tinicum Marsh (the largest remaining freshwater marsh in Pennsylvania) and to provide environmental education and wildlife-orientated recreation opportunities for people of the surrounding metropolitan Philadelphia area. While the refuge is one of the best suited for an environmental education mission in an urban area, the facilities are woefully inadequate. Region 5 estimated the FY 1993 construction needs for Tinicum at \$5.7 million for a visitor center and headquarters.

"The Foundation is the ideal institution to accept this bequest on behalf of the Department and Service, to invest it, and to work with the Service, Department and private sector to construct the necessary visitor center/headquarters at a cost that would require no additional federal funds. The Foundation would use the bequest as a challenge grant to leverage additional funds from the private community. Donation of the bequest to the Foundation would allow this money to greatly enhance Tinicum's missions by developing public/private partnerships."

Footnote:

Congressman Tom Foglietta's (D-Pa.) office was advised of the possible bequest to the refuge since he is the refuge's new house representative since the 1990 re-districting changed Congressman Weldon's (R-Pa.) former district. Foglietta is very interested in obtaining construction money for the much-needed Headquarters/EE Center for the refuge through his colleagues or in support of this challenge grant. His office liaison says that he is waiting in the wings to assist us.

August 12: It was learned via the Regional Solicitor that Assistant Secretary Frampton has decided to accept the bequest for "environmental education at Tinicum". The entire sum, whatever that might be, will go to the FWS. Nugent placed a call to Bill Ashe, Director, North American Waterfowl Mgt. Plan for the National Fish and Wildlife Foundation, to see if he had any updates in gaining the Foundation's support for a Challenge Grant for this bequest. He had no update but was planning on travelling to Washington during the week of August 22nd for updates on various financial matters.

September 7: The Regional Solicitor Conte wrote a memo to Assistant Secretary Frampton. Excerpts follow:

"Please be advised that I have reviewed the initial account of the executor of the above-captioned estate which indicates a distribution of the residue to the Department of approximately \$2,470,000. Provided that the executor's account is approved on schedule by the Probate Court, I anticipate receipt of the said distribution by the end of this month and will forward the same as you direct.

"I understand that the Department has decided to utilize the said bequest for environmental education at the Tinicum National Environmental Center which is located less than two miles from the decedent's former residence. The executor has raised the question of whether the Department would be willing to offer some type of lasting recognition of the decedent's bequest - perhaps a plaque or naming a structure at the Center after Mr. Cusano. I would appreciate your thoughts on this request so

that I may notify the executor."

The refuge was contacted for feedback as related to the naming of a structure in behalf of the decedent. Several other refuge structures have been dedicated to deserving individuals; thus, this request did not present any problem. A recommendation was made to honor the National Fish and Wildlife Foundation for its upcoming part in matching the bequest.

October: During the month, movement continued in a positive direction as related to the bequest and its eventual placement at the refuge. It was learned that the "initial account" of the executor was approved on schedule by the Probate Court. The \$2,470,000 should be received by the U.S. FWS Regional Solicitor, Northeast Region, by year's end. Once the executor of the will and U.S. Fish and Wildlife Service make a joint motion before Delaware County's Court of Common Pleas, Orphans Court Division to waive the usual one-year claims statute and reduce it to 6 months. Meanwhile, the National Fish and Wildlife Foundation can begin its effort in matching the fund via its challenge grant program; the Heinz Foundation will probably be solicited amongst other philanthropic groups. Once the money is received by the Regional Solicitor's office, the public will be advised of the Cusano bequest via a news release.

November: Still no money in hand but as the word leaks out, interest and potential sources for Challenge Grant money or Congressional assistance has surfaced. Amongst those expressing interest include: Chevron U.S.A.; Congressmen Curt Weldon and Tom Foglietta and Senator Harris Wofford.

December 17: This date represents the expiration of the estate's 6 month adverse claims statute. The time period had been previously halved via the joint motion (petitioned by FWS and executor of will) before Delaware County's Court of Common Pleas, Orphans Court Division. It is now presumed that the FWS is the legal holder of the \$2,473,791.11 bequest. The next step would be the transfer of it to the National Fish and Wildlife Foundation, the non-profit organization established by congress in 1984 to act as the catalyst between the public and private sectors to promote wildlife conservation through partnerships. To that end, the Foundation has drafted a "Letter of Agreement" between itself and the Service to establish a fund to support the development of the refuge's Headquarters/Environmental Education Center. The Foundation will manage the Fund for use at the direction of the Service for the benefit of the Refuge. Contributions to the Fund will be held in a segregated account and will be invested in a manner which ensures immediate liquidity and realizes no less than a market rate of return. Upon completion of the Headquarters/EE Center, the title to all facilities constructed and property acquired will be donated to the Service. That's the essence of the three-year agreement.

The FWS Solicitor Office is currently debating the legal/technical points of transferring "federal funds" to a "private" foundation. Or is it a "quasi-governmental" foundation. That legal issue must first be resolved before the "partnership" is a done deal. Meanwhile, no release of information has been made to the news media.

Headquarters/EE Building:

March 5: Congressman Tom Foglietta's (D, PA-1) Legislative Assistant, Kevin Brennan, called the refuge to discuss concepts and estimated costs for its Headquarters/Visitor Center. Nugent referenced backgrounding material, given to Brennan during a previous visit, that supplied him with the basic answers. Congressman Foglietta sits on the House Appropriations Committee.

It appears that the Committee wants to accommodate President Clinton's "Economic Stimulus Package" request and has targeted two of his district's Federal projects for funding, i.e., Independence National Historic Park and the John Heinz NWR at Tinicum. We're keeping our fingers crossed on this one!

May 19: Congressman Tom Foglietta (D-1st PA) drafted a letter to Congressman Sidney Yates, Chairman of the House subcommittee on Interior Appropriations requesting \$915,000 in the Fish and Wildlife Service Construction account to begin development for the site of the planned environmental education center and administrative headquarters. He further stated:

"The John Heinz NWR was established by a mandate from the Congress in 1972 to preserve and protect area marshlands and wildlife. Special emphasis was placed on promoting environmental education programs for the densely populated and highly urbanized Philadelphia metropolitan area. While I understand that funding to begin this project was included in the Fish and Wildlife's FY93 budget request. Due to the tight budget restraints, the Committee was unable to fund this project last year. While I understand that the current fiscal situation is only slightly different, I believe that this project is of the utmost importance and should be funded by the Committee."

As a result of this request, a "Capability Statement" was prepared on June 1st by Regional Office and refuge personnel.

June 24: during a mark-up session, thumbs were turned down on all funding requests for FY94 new construction projects. C'est la vie!"

Special Environmental Education Initiative (SEEI)

January 5: Congressman Curt Weldon and Thomas Foglietta co-signed a letter to Deputy Director Smith requesting the reinstatement of the \$50,000. cutback to the refuge's budget. The letter read as follows:

"It has recently come to our attention that the Department of Interior has reduced the funding level of the Environmental Education Initiative for the John Heinz National Wildlife Refuge at Tinicum (Tinicum) from \$100,000 to \$50,000. Included in the Fiscal Year 1993 Budget, Tinicum was slated to receive this funding specifically for environmental education purposes. Again, it appears that funding designated for Tinicum has been unfairly withdrawn from the Refuge.

"Tinicum is a unique refuge because of its proximity to the city limits of Philadelphia. As one of only urban National Wildlife Refuges in the country, Tinicum is plagued with ever-increasing land use demands. Yet, in an effort to combat the adverse impacts of pollution and development that surround the parameters of the refuge, Tinicum has promoted various solutions to the area's growing environmental problems.

"As you may know, one of the main objectives of Tinicum is the promotion of effective environmental education programs in order to promote awareness and understanding of the environment. There are over 47,000 visitors Tinicum each year who participate in birdwatching, environmental education programs, fishing and bicycling activities. Also, in an effort to outreach to the community, Tinicum provides teacher workshops and environmental education materials for area schools, colleges and scientific organizations.

"However, in order for the refuge to continue to play an meaningful role in the promotion of environmental education in the Philadelphia metropolitan area, it is imperative that efforts are made to enhance its environmental education programs. The funding slated for Tinicum in the Environmental Education Initiative was to be used to fund two additional environmental education-related positions. This includes a Park Ranger and Environmental Education Specialist. These positions are crucial to further the Congressional-mandate objective of promoting environmental education.

"We appreciate your immediate attention to this matter and look forward to hearing from you shortly."

March 16: Another letter was sent by Congressman Weldon to Deputy Director Smith requesting a response to his initial correspondence of January 5th. (in the interim, Congressman Weldon became a member of the Migratory Bird Conservation Commission.)

May 27: a letter of response from the Deputy Director's Office was sent to Congressman Weldon. No explanation was given for the \$50,000.00 "take back" of the SEEI money.

A tangential concern was resolved, however, between the R.O. and refuge as to the filling of the preferred SEEI-funded vacancy. If the funding remained cut, Nugent felt that more environmental education benefits would be derived at this time from the hiring of the Park Ranger rather than the Environmental Education Specialist. Documentation to support his contention was submitted to the R.O. on January 5th, and concurred with on January 21st. Park Ranger-designate Leigh Zahm was notified; a March 7th E.O.D. was agreed upon.

Reprogramming of Maintenance Building's Savings Updates:

October 13: Joe Williams advised the refuge that an additional \$48,000.00 was going to be reprogrammed from the maintenance complex construction fund to Eastern Neck NWR. The balance in the fund would then be approximately \$80,00.00.

October 27: A list of equipment and facility improvements for the maintenance complex totalling \$53,550.00 was forwarded to the Associate Manager, Refuges South for approval. Funding would be from the balance of the maintenance complex construction fund. The forwarding memo read in part:

"Attached is an abbreviated list of projects and equipment required to address construction deficiencies and oversights in the refuge's maintenance complex as well as major equipment needs. As you are aware, our first submittal listed many items we felt were needed to fully equip this facility. The large majority of the hand tools and small power equipment listed are still required. In addition, the refuge is still using a 1960's vintage dozer donated by the Philadelphia Conservationists at the refuge's inception.

On a related matter, I am concerned about the talk of yet another attempt to "reprogram" some \$48,000.00 of money Congressionally appropriated to this refuge to another refuge. This attempt is number 4 within recent years. All previous efforts to re-direct such funds have caused much contrived stress. Why repeat the past? Perhaps there are new folks involved with this latest reprogramming effort that do not know the litany. Regarding those folks, please inform them of past Congressional concern about such reprogramming. If still not convinced, please mention to them the fact that since the initial congressional mandate creating this refuge, some \$19.5 million has been authorized to be appropriated for "preserving, restoring, and developing" the refuge. To date only \$8.2 million has

actually been appropriated; nearly all of it for land acquisition. It would stand to reason that the bi-partisan Congressional support for this construction money would favor the "reprogramming" of any "value engineered" savings to other projects at John Heinz National Wildlife Refuge at Tinicum not to Eastern Neck NWR or any other refuge."

Land and Water Conservation Fund

February: Unbeknownst to the refuge staff, it was learned this month, via the Philadelphia Daily News, that Federal funding has been proposed for the John Heinz National Refuge (as well as several other Pennsylvania locations) according to a report issued by 36 conservation groups headquartered in Washington and headed by the Wilderness Society in Washington, D.C. The money would come from the Land and Water Conservation Fund, which derives more than 80 percent of its revenues from off shore oil-drilling royalties and is the largest source of funds for land acquisition. A \$1.5 million request for the Heinz Refuge has been proposed.

March: Subsequent to reading last month's newspaper article about a push by The Wilderness Society to obtain \$1.5 million for land acquisition at Tinicum, contact was made with the group's Washington Office to find out more specifics. It was learned that the Henderson Property's 43-acre in-holding (Tract 15) was the specific tract targeted for acquisition. Apparently, the Regional Office's Realty Division ranked this tract as the region's 17th most desired tract to be acquired from a total of 25. The estimated appraised value translates to \$34,800/acre. Nugent learned that The Wilderness Society and other conservation groups were about to testify before the House Appropriation Committee re in-holding funding requests for various federal projects. Since Congressman Foglietta sits on the Committee, it was suggested that contact be made between the Wilderness Society and Foglietta's staffers to alert him of the Henderson in-holding which is within his Congressional District.

6. Safety



(Photo: Nugent)

Boy, can this guy throw a line!

The chairmanship for the monthly safety meetings is rotated among the Refuge's staff. Everyone presides over at least one meeting each year. Some of the topics included: stress reduction, heat related emergencies, how to keep from being a victim of violent crime and a safe holiday season.

March 24: ORP Rowand, March Safety Chairman, invited Bruce Simmons, of Sonitrol Alarm Systems, to present information to the staff concerning the VCS alarm system and a hostage button which could be worn and used in the event of an emergency. Bruce informed us that Sonitrol was updating their central system and we will need to update our system in the next 3 months. He provided Refuge Manager Nugent with a cost summary of the new system.

June 10: McMenamin went to the Doctor for treatment of a tick bite. The tick was identified by the physician as a deer tick, the area was red from the bite, and a rash was present. Tetracycline was prescribed for treatment of Lyme Disease.

September 21: Nugent and McMenamin traveled to Prime Hook National Wildlife Refuge to conduct the annual safety inspection. Prime Hook conducted their safety inspection of John Heinz NWR, two weeks prior.

December 27: McMenamin installed two new stop signs: one at the main entrance on Lindbergh Blvd., the other at the Route 420 parking lot. The signs were provided by the Tinicum Township Highway Department. McMenamin contacted Philadelphia City Hall to request replacement of a stop sign at 86th Street and Lindbergh Blvd. (just outside the refuge entrance on Lindbergh Blvd.) which was removed by vandals.

7. Technical Assistance

January 19: Fire Qualifications Data Sheets for Mitchell and Ford were forwarded to the Regional Fire Management Coordinator.

January 23: The Annual Request for Heavy Equipment and Operators was forwarded to Greg Sepik and the Associate Manager, Refuges-South.

August 7: McMenamin conducted an 8-hour Commercial Drivers License training course for 11 Newtown Borough Highway Department employees.

Pennsylvania Wetlands Restoration Team

August 29 - September 2: McMenamin assisted Dennis Brown (State College Ecological Services Field Office) in constructing a 300 foot dike and installing a water control structure at a wetlands restoration project in Bloomsburg, PA.

December 9: A response to the State College Field Office request for equipment operators for the 1994 construction season was made committing ten man-days to the wetlands restoration program.

8. Other

Time Management

May 24: The time management program was installed on one of the station's 386 computers.

May 26: Ann Smyth, Regional Office, assisted Walker in running the time management program and defining the rules for data entry which will allow input of data and testing of the program.

June 14: The field testing of the time management program was

completed and comments forwarded to the Regional Office. Problems encountered with the program included the lack of instructions on how to use the program and the refuge staff's lack of knowledge of the "Clipper" software used to develop the program. A revision of the refuge's cost codes was required after reviewing the cost codes provided with the program. As a result of this revision, each time management work sheet had to be carefully reviewed and the cost codes revised prior to entry in the database. Entry of one employee's data for 12 pay periods required five hours. The test of the program identified one report which did not function properly. Since the test program would not accept data for the entire Fiscal Year, no attempt was made to enter all of the refuge data (an effort which would have required approximately 100 man hours).

F. HABITAT MANAGEMENT

2. Wetlands

Impoundment Water Management

The Annual Water Management Plan called for raising the water level from 0.70 feet above the reference level to 1.0 feet on April 1. Due to the March blizzard and subsequent rainfall, the water level was at 1.2 on April 1 and rose to 1.3 feet on April 2 despite the stop logs being set at 0.7 feet. The water level remained above 1.0 throughout the month even though the sluice gate was opened at low tide on several occasions to increase the outflow.

By mid-April, the spatterdock leaves were beginning to emerge above the impoundment surface. By month's end, the impoundment was once again lush with the green of spatterdock covering much of the water surface. From casual observation it appears that last summer's drawdown had little if any effect on spatterdock distribution in the impoundment. Aerial photographs at 1" = 500' have been ordered again this year to aide in assessing the effect of last year's drawdown.

May: The spatterdock leaves have fully emerged. The refuge has received several inquiries (including one from Allston Jenkins, President Emeritus, Philadelphia Conservationists) regarding the ineffectiveness of last summer's drawdown and plans for resolving the situation this year. Additional public involvement is expected as the network of concerned individuals develops again this summer.

Purple loosestrife which sprouted in the horseshoe area of the impoundment survived the winter flooding. By month's end some of the plants which had sprouted last summer have reached over 24" in height. While this stand is not extremely dense, similar survival rates will result in the open water area of horseshoe being completely covered with purple loosestrife after one to two more drawdown cycles if control measures are not implemented. (No funds were provided for chemical control of purple loosestrife in the 1993 Bluebook.)

In anticipation of this year's drawdown, the "Cookie Cutter" was requested from the regional equipment pool. It is hoped that cutting of channels through the mats of spatterdock would setback growth and improve drainage during the drawdown.

May 21: The regional heavy equipment schedule for 1993 did not include sending the "Cookie Cutter" to John Heinz NWR during the planned July drawdown. A memo was sent to Charlie Pelizza, Zone Biologist, Central requesting assistance in obtaining the

required equipment through the regional equipment pool or other sources.

May 25: Charlie Pelizza advised that due to equipment breakdown and subsequent rescheduling, the "Cookie Cutter" may be available for use at the refuge. Charlie has also identified sources for equipment rental. Use of this option would require additional funds or reprogramming of funds since no funds for management of the impoundment were included in the FY 1993 Blue Book.



(Photo: Nugent)

Blade Runner!

July: Here we go again! We're into our second year drawdown within a five-year water management scheme. Last year's attempt was much anticipated but produced little long-term benefits. The birders were happy to view their "special interests", the fisherman were nonplused, and the noxious plants survived, if not thrived. The many inherent problems in attaining the goals of draining the impoundment and stressing the spatterdock are still with us this year. In an effort to better the results this year, we requested and received the use of the 5-ton "Cookie Cutter". It was transported from the Forsythe NWR on July 7th.



(Photo: Buchanan)

Birders flocked to see the refuge "crane".

The "game plan" was to utilize this floating weed eater/dredger by cutting 10' wide channels, 3' deep through portions of the spatterdock-choked impoundment. A recent aerial photo of the impoundment was used as a blueprint for delineating the cutting of the main channel, leading to the water control structure, and several radiating channels. Unfortunately, the radiating channels were constrained due to an old 6" diameter gas pipeline that traverses the pond approximately in its middle, going in a northeast direction! Although the pipeline owned by National Transit Pipeline Co., is empty it still poses a threat to the "Cookie Cutter" due to its buried depth of 1'- 3'. So in essence, only the northern half of the impoundment was eligible for channelling. Two rectangular "demonstration plots" were also planned for interpretive/monitoring purposes. But due to the "Cookie Cutters" wide turning radius and side-rimming tendencies, many shallow snaking pathways were cut that tied into the deeper main radiating channels. A 50-ton Crane was hired for the launching and recovery of the "Cookie Cutter". Although it was a \$1,300. expenditure; it is thought to be a wise investment. No problems were encountered with the "Cookie Cutter"; it had been worked on prior to having it transported

here. The mechanic had crossed up the hydraulic lines to the two six-foot cutting blades; the end result required reverse throttle thrusts. The two blades were not operating in clockwise/counter/clockwise synchronization like an "egg beater". Subsequent to reversing the hydraulic lines, the blades worked fine. All channeling and "salad tossing" work was accomplished within 5 working days. The 'Cookie Cutter' was operated for a total of 39 hours. On July 13, Charlie Pelizza, Central Zone Biologist, visited to have a first hand looksee at this year's drawdown operation.



(Photo: Buchanan)

"Damn the mosquitoes,
full speed ahead!"

The heatwave of the Century seemed to coincide with the "cookie cutter" operation. The water level plummeted by 1/2" a day for a week. The "cookie cutter" requires a 4" minimum water level, to draft; it was getting very difficult to maneuver it by the time it was beached on July 22; the stop logs in the water control structure were also removed on that date. Gravity flow continued to lower the water unit and equilibrium was reached between it and the normal low tide of Darby Creek. The 16" Crisafulli pump and its Gator pump were placed at the water control structure by month's end. Protective screening was placed around the pump and engine. Active pumping will begin

during the first week in August.



(Photo: Nugent)

The stage is unwittingly set for
botulism's grand entrance.

What has been the impact of the "Cookie Cutter" and drawdown so far? It's difficult to attribute the browning of the spatterdock leaves to the drawdown. It seems that it is a natural phenomenon for non-tidal, ponded spatterdock in this area to turn brown in July and then resprout again August. We, however, can attribute increased shorebird and wader use to the drawdown. The elevated horseshoe area of the impoundment (with all its purple loosestrife) is the first area to go dry; it's also the first area visited by the peeps and waders. A new temporary niche was provided by the "Cookie Cutter": the channels "side rims", consisting of mud and vegetation, have provided shorebirds access to an otherwise inaccessible area.

What has been the public's reaction to the drawdown? Minimal. Anticipating the event, we re-erected interpretive displays which explain the process and objectives. One display is located in the VCS, another at the lower parking lot behind the VCS. A reporter has also covered the story in a local weekly newspaper. So far, so good.

August: July's Monthly Highlights, as related to the impoundment's draw down, ended on the upbeat... "So far, so good." Such is definitely not the case for this month. By month's end 109 birds have been impacted by a botulism endemic. Much attention, via the news media, has been given to this unfortunate turn of events. An August 26th accounting of the disease outbreak written by Philadelphia Inquirer report Claire Furia follows:



(Photo: Nugent)

Loosestrife rootstock provide a final
resting place for this victim.

Less than two weeks ago, a few ailing waterfowl were first spotted on grounds of the John Heinz National Wildlife Refuge at Tinicum. The next day, a search by refuge staff turned up 40

dead birds in various stages of decay.

And Friday, a federal agency confirmed that the birds on the refuge were suffering from an outbreak of avian botulism, a disease that paralyzes, and often kills, the birds it infects.

The refuge last witnessed a botulism outbreak in 1977, when eight waterfowl were found to have died from the bacteria, said refuge general manager Dick Nugent.

The bacteria that caused that virus may have lain dormant at the refuge since then, said Kathryn Converse, a wildlife disease specialist at the National Wildlife Health Research Center in Madison, WI. Conditions at the refuge this summer allowed the bacteria to multiply once again, she said.

Shallow water (which allows for the rapid warming of the marsh soil below), water level fluctuations and high ambient temperatures are all suspect.

The refuge's impoundment was shallower than usual this summer due to the gradual drainage of the 145-acre pond. The drainage, or drawdown was intended to attract birds, encourage the growth of wildlife food plants and prevent further growth of the spatterdock weed, which covers a good part of pond's surface.

The drainage itself is probably not responsible for the spread of the disease in Tinicum, Converse said, as several other East Coast wildlife centers have reported similar outbreaks in the last few weeks, including ones in Maryland and Lebanon, PA. Birds suspected of suffering from botulism had just arrived at the center yesterday from Virginia, she said.

Refuge staff, suspicious that something was wrong, called off the drainage project Aug. 12th, Nugent said. If the problem had turned out to be a disease more virile than botulism, the continued pumping of water into Darby Creek could have created havoc for the tidal marsh, the refuge general manager said, Nugent also said that, so far, about 100 birds were found to be dead or dying as a result of type C botulism at the refuge.

Once botulism appears in a decaying bird carcass, maggots tend to follow and become infested with the bacteria. Other birds particularly young ducklings, will eagerly consume the maggots and become infected. In fact, 11 maggots were found to be ingested by one of the refuge's wood ducks that had been taken to the wildlife research center in Madison, which is under the U.S. Fish and Wildlife Service, Converse said.

"A duckling can die from just one infected maggot," she said. "Young birds go for insects because they need a lot of protein."

Maggots, on the other hand, can survive the bacteria because they lack a central nervous system.

To cut off the maggots' food supply, the refuge staff has been searching for, and collecting dead and ailing birds. Two or three have been retrieved each day this week.

Six infected mallards and wood ducks have been transported to the Tri-State Research and Rescue Group in Newark, Del., for treatment and are recuperating well enough to be released within a few days Nugent said.

The botulism bacteria releases a toxin that paralyzes certain birds, making them susceptible to drowning or to hungry predators. Sometimes, the toxin is so strong, it will also cause respiratory paralysis, preventing the birds from breathing, said Converse.

Already, the botulism outbreak is easing down at the Heinz Refuge, thanks to cooler nights and a higher water level in the impoundment due to Friday's rainfall.

"Often the birds will have droopy wings and heads, but their minds can be alert," Converse said. "They just can't move their bodies."



(Photo: Buchanan)

"You got a blindfold?"

With news articles like that, it's little wonder that the television media became aware and interest in our plight. On August 26th Channel 29 arrived at dawn to cover the early morning search for impacted waterfowl. Assistant Manager Walker and Maintenance man McMenamin were filmed retrieving a couple of ducks from the impoundment. The T.V. crew then followed the ducks as they were transported to the Tri-State Bird Rescue & Research facilities in Newark, Del. An informative, 3-minute, film clip appeared on the 10:00 Evening News.



(Photo: Buchanan)

"Is that 'baggin' or 'waggin'?"

A few updates for impoundment-related items are offered at month's end: The impoundment's water levels are solely dependent upon rainfall. The Crisafulli pump remains on-site yet idle. The quality of Darby Creek's water has been too questionable to use for re-flooding. No preseason waterfowl banding has been done due to the botulism situation. We would rather not concentrate waterfowl at this time. Spatterdock has gone into its second growth of the season. The leaves and stalks are smaller and shorter than their predecessors yet the general appearance of the impoundment is quite verdant... where spatterdock isn't, duckweed is. Rainfall has been sporadic throughout August. Three separate drenchings, with 1"-2" of rain, have temporarily re-flooded most portions of the impoundment. But within a few days the higher spots become mudflats again; these flats have now been covered by various volunteer grasses and sedges. The ubiquitous purple loosestrife continues its encroachment along the pond's perimeter. A pesticide use proposal for the application of the EPA non-approved use of Arsenal in seasonally-dry area was submitted for Regional Office approval. Sample 1/10 acre plots of loosestrife

and spatterdock are the targeted area.

September: As the summer's extreme heat subsided and the intermittent yet drenching rains arrived, the "botulism battle" became recent history. Regarding both the heat and rain aspects of the weather, a few statistics are offered:

- o The Summer of 1993 had 44 days where the temperatures reached a minimum of 90 degrees... 3 days saw temperatures at 100 degrees or higher.
- o September's rainfall was 6.1"; almost twice the average.

Regarding the "botulism battle", a few statistics are offered on its "victims":

124 ducks *
1 goose
6 shorebirds
5 wading birds

* Eleven of the ducks were transported to Tri-State Bird Research & Rescue, Inc. Seven of those ducks survived and were released at various sites in Delaware and Maryland after being banded.



(Photo: Buchanan)

"Don't let my mascara run!"



(Photo: Buchanan)

"I should have read my horoscope!"

The aforementioned statistics are the short of it. What follows is the "public relations" aspect of the botulism outbreak.

On September 8, the News of Delaware County ran the following editorial:

Mother Nature Doesn't Need Help With Chores

"The message in this summer's blockbuster flick "Jurassic Park" is "Don't fool with Mother Nature." The ironic message Tinicum refuge of officials learned this summer is "Don't even try to help Mother Nature."

"Officials at the John Heinz National Wildlife Refuge at Tinicum drained water from the marsh earlier this summer to slow the growth of spatterdock, an aquatic plant that had taken over most of the open water. Officials hoped that with less spatterdock around, more species of plants, and therefore, birds would come to call the refuge home.

"Instead, the low levels of water, warmed by the summer sun and filled with decaying spatterdock, created a perfect breeding ground for avian botulism. The disease killed about 100 birds as of last week.

"Workers at the refuge and Tri-State bird Rescue and Research, Inc. in Delaware have been nursing other birds back to health.

"If the situation gets worse, Refuge officials may increase water levels, or even use noise to scare away birds for their own safety.

"All this show how little we understand the interaction of plants, animals and environment in a given ecosystem. The best way to manage our protected lands and waterways is to limit the influence of man and let nature take its course."

In response, Manager Nugent wrote the following:

To the editor:

Correspondent Bill Buchanan deserves recognition for his excellent article in your September 1st edition that explained the botulism dilemma at the John Heinz National Wildlife Refuge at Tinicum. It is, however, regretful that you misinterpreted the area in which this avian disease occurred. The use of the word "marsh" was a misnomer in your September 8th editorial entitled: "Mother Nature doesn't need help with chores." I am not trying to nit-pick but the proper word is "impoundment." Here's why. "Marsh" connotes a natural condition not changed by man; whereas, "impoundment" connotes an altered habitat. I agree wholeheartedly with your statement: "Don't fool with

Mother Nature." In fact, that seemingly trite expression is the main premise on which the refuge was Congressionally mandated. Prior to the creation of the refuge, the 1200 acre area had been "fooled with" in the form of filling, dredging and/or impounding (e.g., diking). Only 250 acres of habitat remains in its natural state, i.e., freshwater tidal marsh. The 145-acre impoundment was created when a dike was constructed (date unknown) separating it from the tidal waters of Darby Creek. This artificially-created habitat has evolved over the years via a natural process known as "ecological succession." The water's depth has become more shallow due to the decomposition and settlement of vegetative matter. If left unchecked, this large pond would eventually become a meadow/upland and become less attractive to the migratory birds that the U.S. Fish and Wildlife Service is mandated to better and protect. The impoundment's water levels are, thusly, manipulated to impede the ecological succession and to maintain the pond's attractiveness to various birds. Ancillary benefits and drawbacks occur. One such drawback is to make the dewatered site more conducive to a botulism outbreak. This highly contagious disease, amongst birds, is caused by the toxin-producing bacterium: Clostridium botulinum. It favors a niche where there is no oxygen, and the water is tepid. The dormant bacterium was "waiting" for the right conditions and they occurred here this summer. They also occurred in many other areas of the country. Unfortunately, it is a common avian ailment.

We, the Congressionally-appointed stewards for the natural resources of the Tinicum marshes, are not attempting to fool with Mother Nature. We, instead, are playing the hand dealt to us by others. We're in the process of trying to re-shuffle the deck in favor of the natural resources. An example of which we are most proud is the recent restoration of 18 acres of previously filled marsh back into a functional freshwater tidal marsh. Next time that you travel south on Interstate Highway 95, look to your right as you pass the Airport Business Complex. You might reconsider your statement of: "Don't even try to help Mother Nature."

P.S. Thankfully the botulism endemic suffered at the Refuge this summer has ended. The recent rains and cooler temperatures are just what the veterinarian ordered!



(Photo: Nugent)

Transect site

September 28, 30: Volunteer Donna Sweet and Assistant Manager Walker established vegetation transects in the horseshoe area of the refuge's 145-acre impoundment and began vegetation sampling. The sampling program, outlined in the annual water management plan, is designed to document changes in the types and quantity of vegetation volunteering in the impoundment during the drawdowns. Due to suspension of the drawdown resulting from the botulism outbreak, sampling this year will be limited to those areas dry long enough for vegetation to become established.

October 1-6: Volunteer Donna Sweet completed vegetation sampling using the Daubenmire technique in twenty-three plots in two areas, the horseshoe and a cove on the east side of the impoundment.

Five species (purple loosestrife, primrose willow, nutsedge, cattail, and Pennsylvania smartweed) were present in the plots in the horseshoe. Purple loosestrife was present in seven of the 16 plots (44%) in the horseshoe. Primrose willow was present in 15 of the 16 plots (94%). Nutsedge was present in 15 plots (94%) with a 100% range of cover in six plots (37%) and a

95% or higher range of cover in three additional plots (19%). The average number of species present per sample plot at this site was 2.7.

Six species (purple loosestrife, primrose willow, nutsedge, cattail, common duckweed, and pickerelweed) were present in the east impoundment plots. Purple loosestrife, primrose willow, and nutsedge were present in 100% of the plots. Common duckweed was present in six of the plots (86%). No species exhibited a range of cover higher than 90% in any of the plots at this site. The average number of species present per plot at this site was 4.1.

5. Grasslands

July 21, 22: The five-acre field adjacent to the Visitor Contact Station was cut as outlined in the Upland Habitat Management Plan.

August 19: McMenamin mowed part of the PennDot mitigation Project Disposal Site 1 to set back the establishment of woody and broadleaved vegetation. This site has good potential as grassland nesting cover for upland birds and waterfowl.

9. Fire Management

November 9: Refuge maintenance staff put out a small fire, burning leaves and yard debris, along the Conrail railroad tracts adjacent to tract 6 of the refuge.

10. Pest Control

June 23, 24: Resprouting stumps along the impoundment dike and the Long Hook Creek road were cut and treated with a brush-on application of herbicide.

July 26-30: Portions of the Frog Pond area in Tract 6 were cut to control purple loosestrife, phragmites and woody vegetation intruding into this grassland compartment.

July 30: Prescott Towle, a field representative of American Cyanamid, delivered a new label for Arsenal herbicide which permits use in non-cropland areas on wetlands. This new label permits treatment of marshes, swamps and bogs after water has receded. It is hoped that this product will be helpful in controlling spatterdock and purple loosestrife in drawdown areas of the 145-acre impoundment. A pesticide use proposal for several 10 foot by 10 foot test plots will be submitted in August.

August 17: A Pesticide Use Proposal for test plots using Arsenal Herbicide for control of Spatterdock and Purple

Loosestrife in the refuge's 145-acre impoundment was forwarded to the Regional Office. As noted in the July monthly activity report, Arsenal was recently approved for use in seasonally-dry or drained wetlands.

August 30: The Approved Pesticide Use Proposal was received from the Regional Pesticide Coordinator. Implementation of the impoundment drawdown has been temporarily suspended due to the Botulism C outbreak in the impoundment. The application of Arsenal is dependent on the drawdown so it is also on hold at this time.

August 30: The Report of Integrated Pest Management Programs was forwarded to Refuges South.

September: The application of Arsenal herbicide in test plots to control spatterdock and purple loosestrife in the Refuge's 145-acre impoundment, as approved by the Regional Pesticide Coordinator, has been postponed. Suspension of this year's drawdown, due to the botulism outbreak, and several heavy rainfalls resulted in a water level too high to complete the applications. If a drawdown is scheduled for the summer of 1994, the proposal will be resubmitted.

September 14: The maintenance compound fence line was treated with a soil-active post and pre-emergence herbicide in accordance with the approved pesticide use proposal.

September 15: Kudzu growing along the Darby Creek dike in tract 22 was treated by cutting the main stems and applying herbicide to the exposed cambium layer in accordance with the approved pesticide use proposal.

December 9: The aerial photographs of the refuge's 145-acre impoundment taken in 1992 and 1993 were sent to the Central Zone Biologist for mapping of the areas covered by spatterdock and purple loosestrife to determine the rate of expansion of these two pest species. This information will be used in development of the 1994 Annual Water Management Plan and in planning pest plant management programs.

Biological Control of Purple Loosestrife

Background: The USDA identified two species of leaf beetles and a root weevil as candidates for release as biological control agents of purple loosestrife. All three species were screened to identify potential adverse impacts on native plant species. The weevil Hylobius Transversovittatus was approved for release by USDA and the Pennsylvania Department of Agriculture in 1991. The leaf beetles (Galerucella californiensis and G. pusilla) were approved for release in 1992.

March 30: The Special Use Permit for the U.S. Department of Agriculture's biological control of purple loosestrife project on the refuge was renewed. Replacement of the netting on the insect cages will be accomplished as soon as the weather permits access to the site which is currently covered by approximately two feet of water.

April: The experimental control of purple loosestrife through introduction of a root weevil and two species of leaf beetles is entering its third season. The extreme high water levels following the March blizzard and the above average rainfall in April resulted in flooding of the test plots with 6 - 18 inches of water throughout the month. Leaf emergence of purple loosestrife in the test plots has been delayed, compared to plants on adjacent drier sites. It is still unknown what impact these extreme high water levels will have on survival of the insects overwintering in the soil and loosestrife roots.

May: Stephen Hight of the USDA Agricultural Research Service installed the insect netting on the ten insect enclosures located in Tract 10 adjacent to Hoy pond. Adults and egg masses of the two species of leaf beetles were observed indicating at least some of the insects survived the extreme high water levels which flooded the test plots with 6 - 18 inches of water throughout April and early May. No weevils were observed but Dr. Hight feels that they will survive the flooding by remaining in the plant roots until conditions improve. The two species of leaf beetles were also observed on the release site adjacent to the frog pond in Tract 6.



Walker wishing for "biological control" of Nugent.

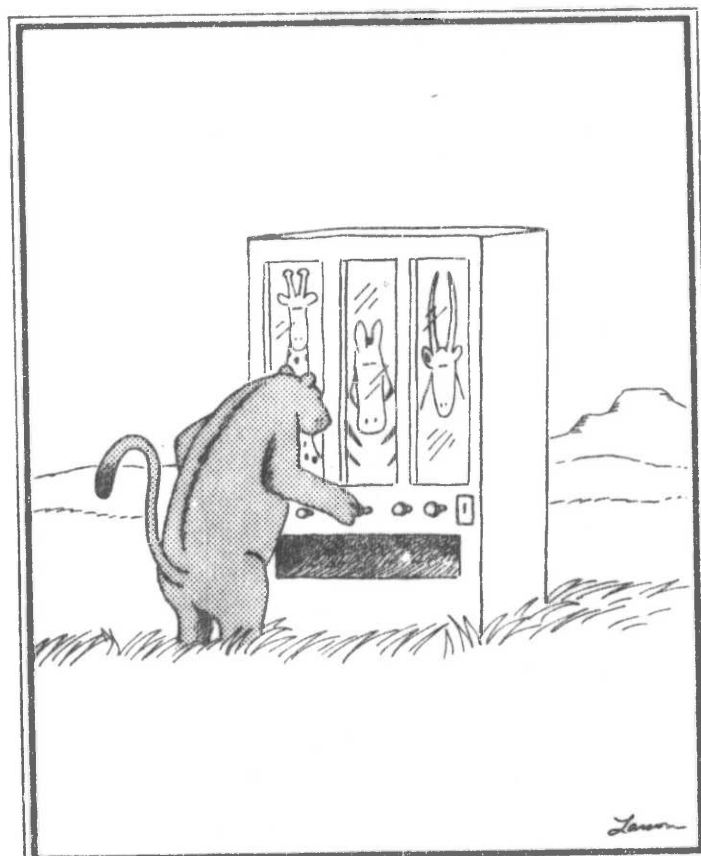
August 30: Stephen Hight, USDA, Agricultural Research Service confirmed that the USDA will not be funding the Biological Control of Purple Loosestrife Project in Fiscal Year 1994. He will be working on the Gypsy Moth Control Program effective October 1. The insect enclosures will be left at the refuge in the hope that USDA will permit Stephen to conduct limited monitoring or oversee monitoring conducted by refuge staff and volunteers. Stephen provided this summary of the project: Both species of leaf beetles have become established in two of the enclosures located at Hoy Pond in Tract 10 and the release site at the Frog Pond in Tract 6. Only one generation was produced this year rather than the hoped for two or three generations. The reasons for this are unknown. Root weevil larvae were found at the Frog Pond release site. Due to the extremely wet spring and prolonged flooding, no surveys for root weevil larvae were conducted at the Hoy Pond site for fear of reducing survival rates even more by the destructive sampling methods used. Stephen recommended not attempting to reconstruct the enclosures. He is not sure whether the fine mesh netting required to confine these small insects affected temperature, plant growth, and forage quality.

November: The following project update was provided by Stephen Hight of the Insect Biocontrol Laboratory, USDA, Agricultural Research Service. "All three insect species successfully overwintered at the J. Heinz NWR, despite serious flooding throughout the spring. The two leaf-feeding beetles (*Galerucella californiensis* and *G. pusilla*), released for the first time in 1992, established in four of the eight cages. Factors influencing overwintering success of the *Galerucella* spp. were evaluated. No differences between cages with and without established beetles were found with regards to number of live *L. salicaria* stems, dry litter weight, or dry stem weight. Overwintered adults, larvae, and a new generation of beetles were also observed in unconfined releases.

Permission has recently been granted from the Animal and Plant Health Inspection Service (APHIS) for the introduction and release of two additional biological control agents of purple loosestrife, the flower feeding weevils *Nanophyes brevis* and *N. marmoratus*. Release of these new biological control agents will present a unique opportunity to study the interactions and impact of a guild of introduced herbivores attacking all primary plant parts - reproductive (*Nanophyes* spp.), above ground vegetative (*Galerucella* spp.), and below ground vegetative (*H. transversovittatus*). Hopefully, releases can be made at J. Heinz."

G. WILDLIFE

1. Wildlife Diversity



Vending machines of the Serengeti

May: An inclusive listing of 75 butterfly species of record on the refuge was recently published in Butterflies Through Binoculars by Jeffrey Glassberg, Oxford University Press, 1993. The species identified are shown in Table 7.

December 18: John Freiberg and John Miller conducted the Christmas bird count on the Delaware County and Philadelphia County portions of the refuge. Sixty-four species were recorded, compared to 68 species in 1992. Unusual sightings included Virginia rail, redpoll and barn owl. The number of species recorded during the Christmas bird counts from 1989 to 1993 is shown in Figure 2.

Table 7. Butterfly species list for John Heinz NWR from Butterflies Through Binoculars; Glassberg, Jeffery; Oxford University Press; 1993.

Pipevine swallowtail	U	Baltimore	R	Viceroy	C
Black swallowtail	U C	Pearl Crescent	C	Tawny emperor	U
Giant swallowtail	R	Question mark	C	Eyed brown	U
Eastern tiger swallowtail	C	Red-banded hairstreak	R	Appalachian brown	U
Spicebush swallowtail	R	Gray hairstreak	C	Red-spotted purple	C
Checkered white	C	Eastern comma	C	Little wood satyr	U C
Cabbage white	A	Morning cloak	C	Common wood nymph	C
Clouded sulphur	C	American lady	C	Monarch	C
Orange sulphur	A	Southern cloudywing	C	Silver-spotted skipper	C
Southern dogface	R	Red admiral	C	Hoary edge	U
Cloudless sulphur	U	Northern cloudywing	U	Long-tailed skipper	S
Sleepy orange	R	Painted lady	U	Dun skipper	C
Little yellow	U	Common buckeye	C	Ocola skipper	R
Harvester	R	Confused cloudywing	U	Juvenal's duskywing	U
American copper	U	Horace's dusky-wing	C	Zarucco duskywing	R
Bronze copper	U	Common checkered skipper	C	Common sootywing	C
Banded hairstreak	R	Swarthy skipper	U	Clouded skipper	R
Eastern tailed blue	C	Least skipper	A	Fiery skipper	R
Spring azure	C	European skipper	U	Cobweb skipper	U

American snout	U	Peck's skipper	C	Whirlabout	S
Gulf fritillary	S	Tawny-edged skipper	U	Crossline skipper	U
Varigated fritillary	R	Sachem	R	Delaware skipper	U
Great spangled fritillary	C	Northern Broken dash	C	Little glassywing	U
Silver-bordered fritillary	R	Hobomok skipper	U	Zabulon skipper	C
Silvery checkerspot	U	Broad-winged skipper	A	Salt marsh skipper	C

A=Abundant, C=Common, U=Uncommon, R=Rare, S=Not seen most years

2. Endangered and/or Threatened Species

April 25: An immature bald eagle was seen flying over the impoundment around 11:30 am.

3. Waterfowl

The peak spring waterfowl population level decreased slightly from the 1992. The peak fall waterfowl population level increased from the 1992 level reaching the second highest level recorded during the past ten years. Figure 3 shows the peak spring and fall waterfowl populations for the ten-year period: 1984 - 1993. Waterfowl production increased substantially. Figure 4 shows waterfowl production for the ten-year period: 1984 - 1993. The average monthly waterfowl counts for 1992 and 1993 are shown in Tables 8 and 9.

Goose and dabbling use of the refuge's 145-acre impoundment during the spring migration, as measured by the average number of various species counted during the weekly waterfowl surveys, decreased in 1993 to the lowest levels since 1988. Spring migration diver-use increased in 1993 to the highest level in four years. Fall migration use by geese and dabblers in 1993 increased substantially over 1992, exceeding the 1988 levels. Diver use increased slightly. Spring and fall average waterfowl use of the East impoundment from 1988 - 1993 is shown in Figure 5.

Average monthly waterfowl use of the East impoundment for 1992 and 1993 are shown in Tables 10 and 11.

One-hundred, twenty-four 124 ducks, one goose, 6 shorebirds, and 5 wading birds were recovered during the botulism outbreak that

was first identified on August 12. This included: 83 mallards, 20 wood ducks, 11 green-winged teal, 2 black ducks and 1 blue-winged teal. This most likely represents a substantial percentage of the refuge's production of mallards and wood ducks. Eleven of the ducks were transported to Tri-State Bird Research & Rescue, Inc. Seven of those ducks survived and were released at various sites in Delaware and Maryland after being banded.

February 5, 9, 18: The annual survey, cleanout and repair of the Refuge's 32 wood duck nest boxes utilized in the 1992 nesting season was completed. Evidence of wood duck use was found in four boxes, a decrease from six during the 1991 nesting season. Unhatched eggs were found in all four boxes with evidence of hatched eggs in two boxes. No evidence of hatched or unhatched hooded merganser eggs was found in the nest box (where eggs were observed in April 1991).

February 26: Two Canada goose leg bands and neck collars were submitted to the Patuxent Bird Banding Laboratory. The two birds had been shot during the third segment of the 1992-93 PA goose hunting season. One goose was bagged in Yardley, the other in Fairless Hills. Both bands and collars were turned over to PA Deputy District Game Protector Roscoe White. White gave them to Refuge Officer Nugent.

March 2: McMenamin and Mitchell installed two wood duck boxes along the edge of Darby Creek. They were built and donated by a neighbor of the refuge.

April 30: McMenamin and volunteer Steve Fleishman conducted a mid-year wood duck nesting box survey. Out of a total of 19 boxes that were checked 10 of them had wood ducks actively nesting in the boxes.

May 10: SCA interns Missy McLean and Jennifer Hunter assisted McMenamin with a wood duck nest box survey. A total of 30 boxes were checked. Thirteen wood duck nests were observed.

May 10-13: Nest surveys identified two mallard nests with a total of four eggs, one goose nest with 4 eggs and two goose nests (number of eggs unknown).

May 10-26: Brood surveys identified a total of 26 mallard ducklings, 19 wood duck ducklings and 52 goslings.

August 12: Two wood duck hens and 9 downy young were observed in the refuge's 145-acre impoundment.

**Figure 2. Christmas Bird Count
Number of Species 1989-1993.**

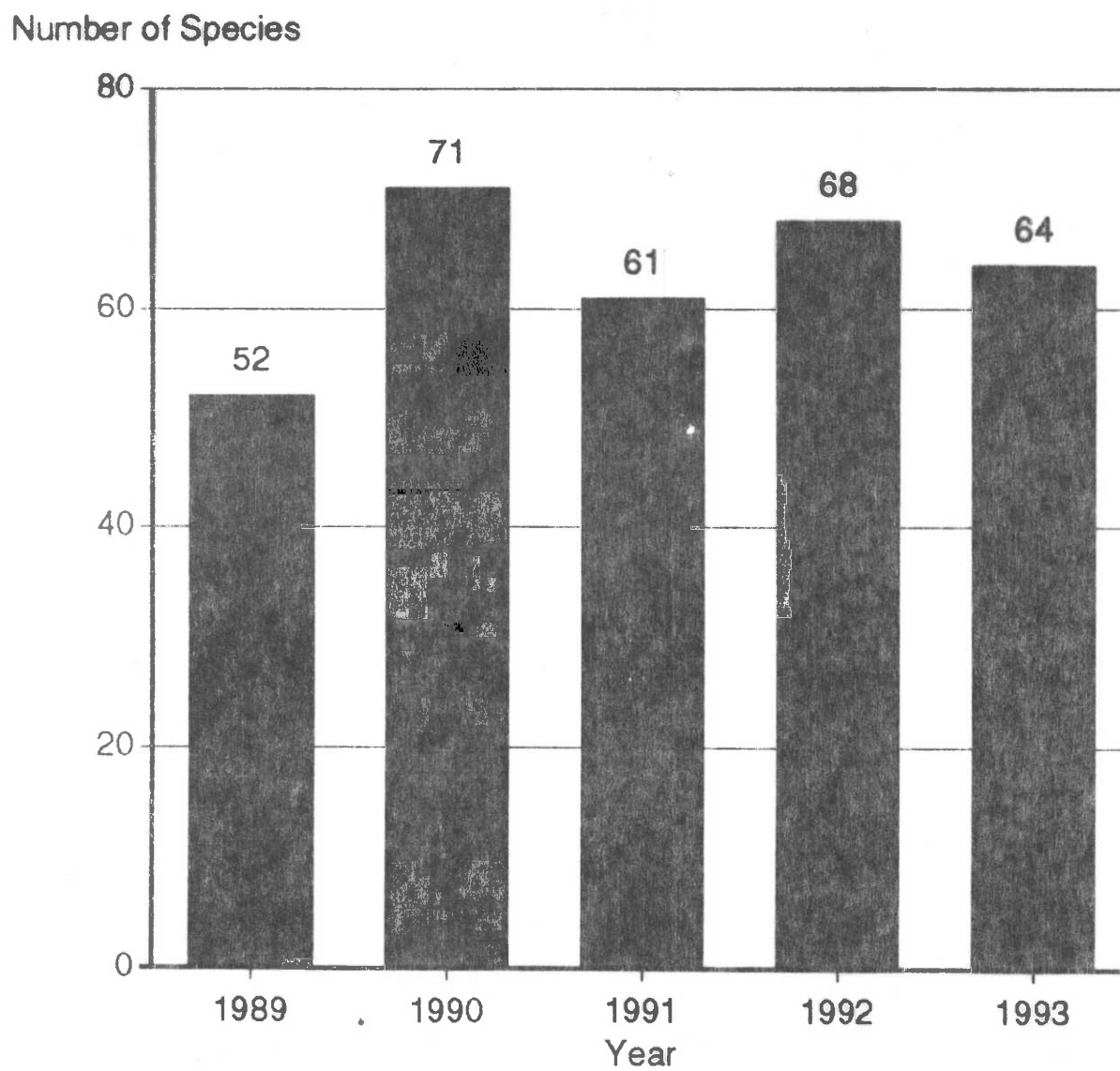
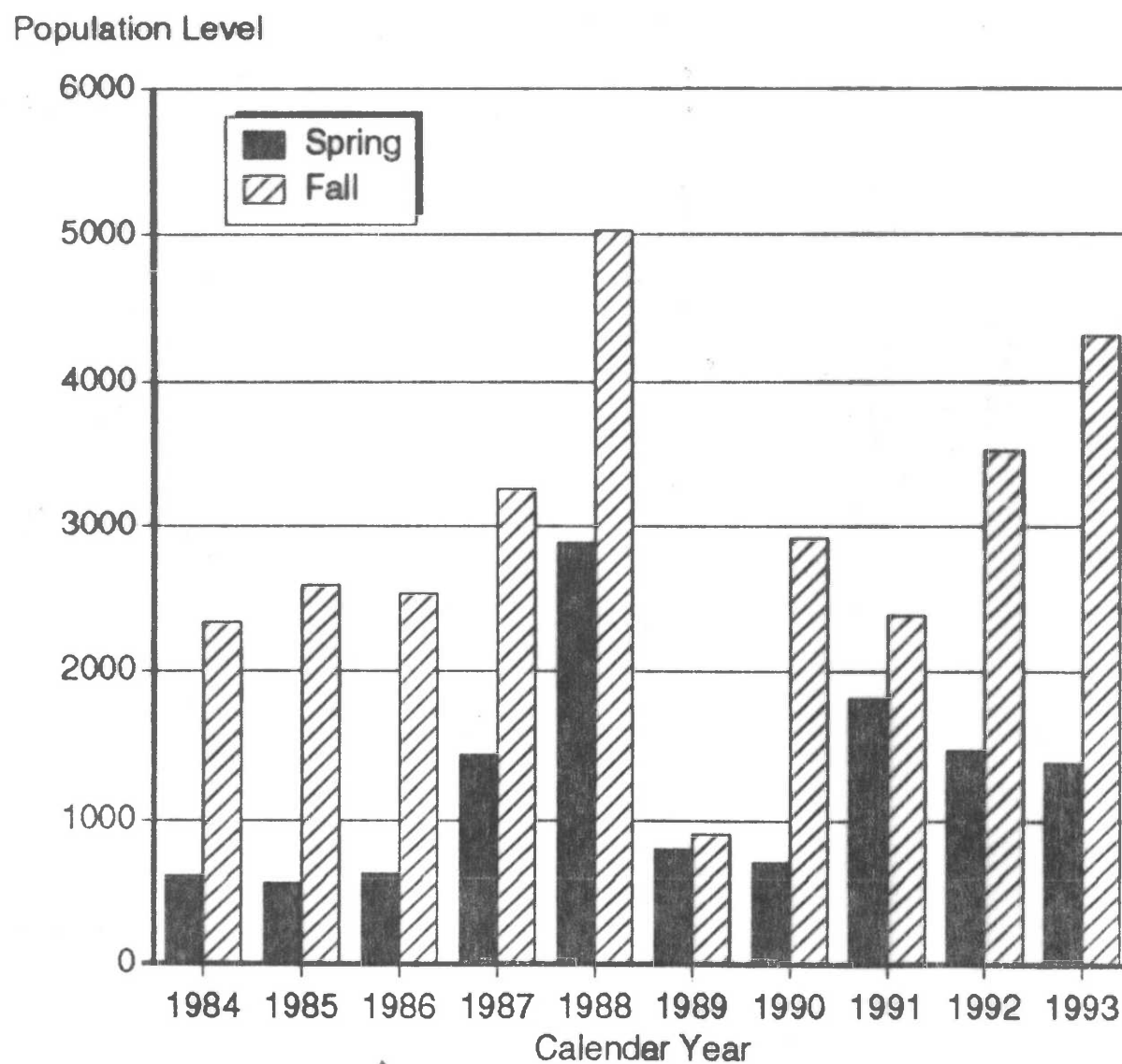
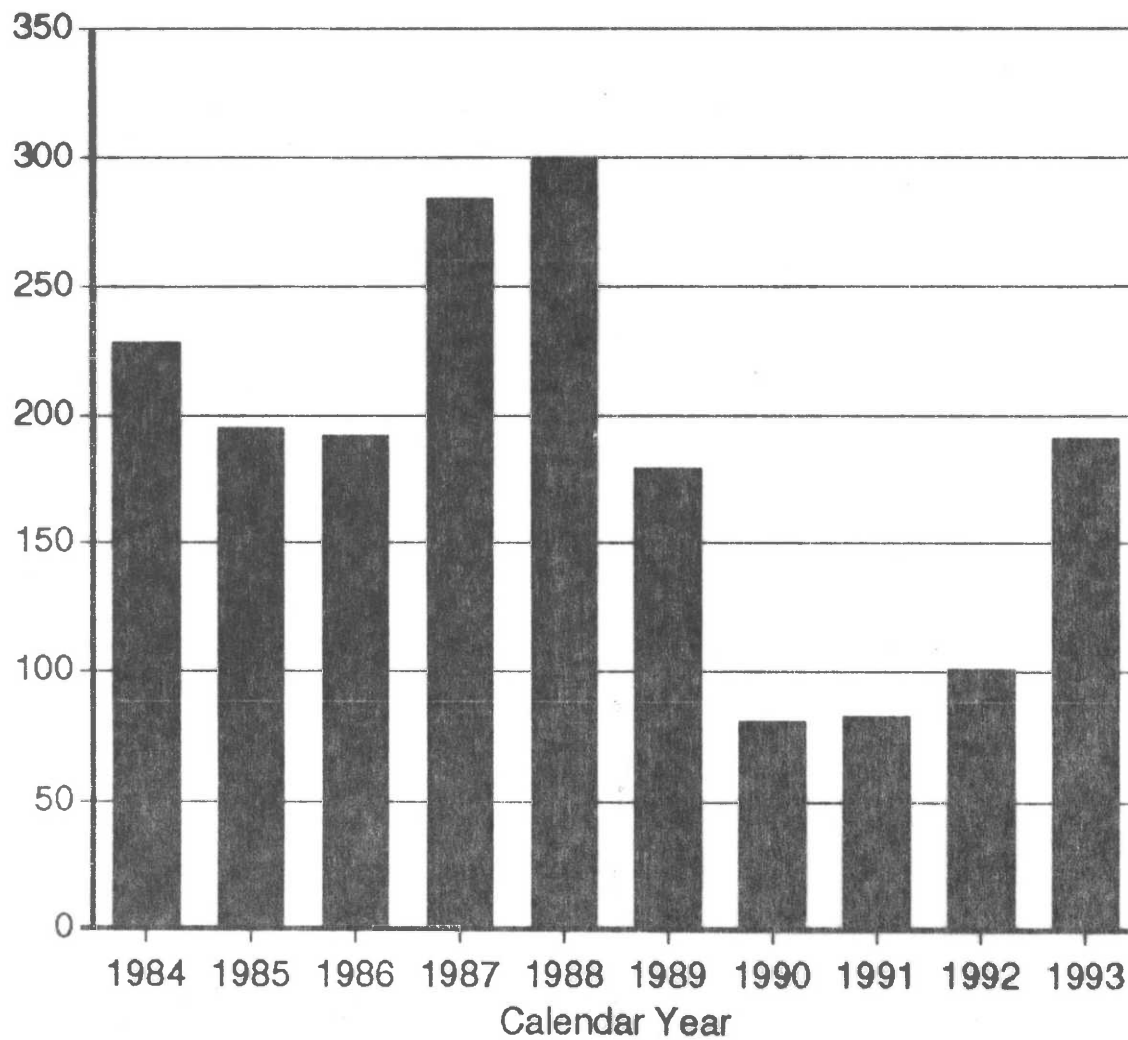


Figure 3. Peak Spring and Fall Waterfowl Populations 1984-1993



**Figure 4. Waterfowl Production
1984-1993.**

Population Level



**Figure 5. Impoundment Waterfowl Use
1988-1993.**

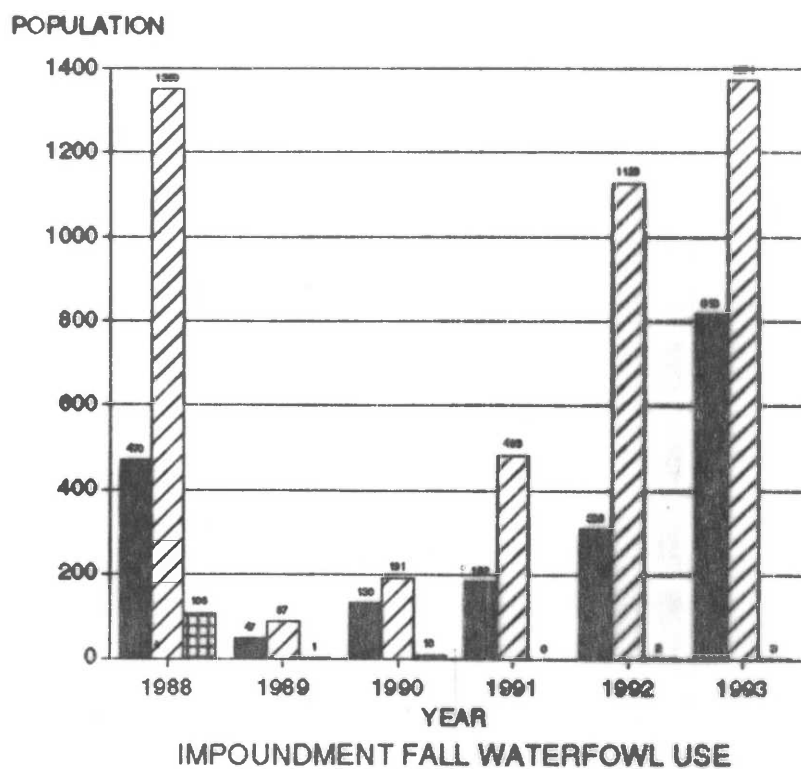
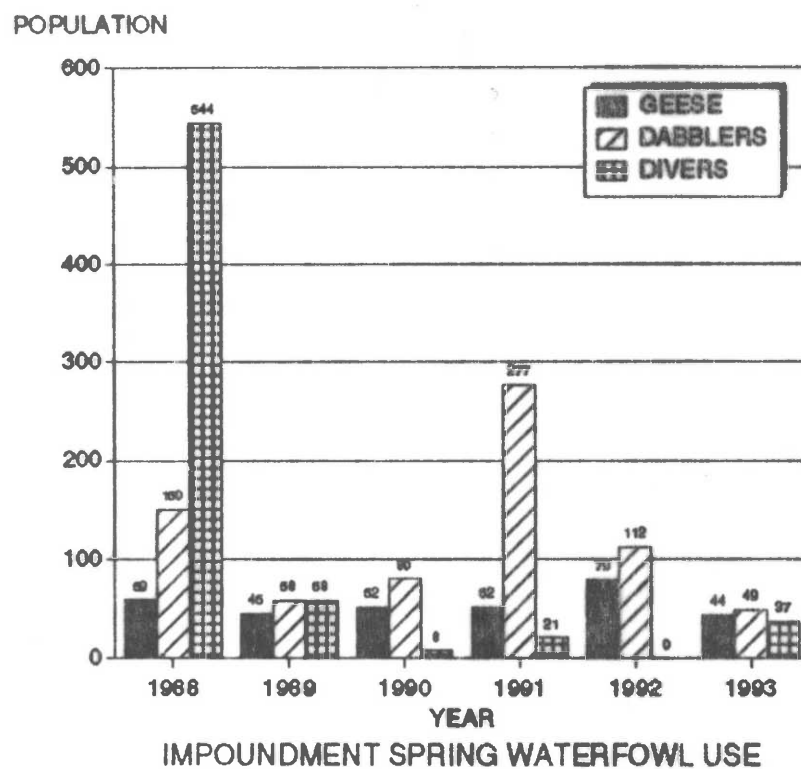


Table 8. Monthly average waterfowl use at John Heinz NWR during 1992.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coot	1	0	0	0	0				0	2	0	0
Canada Goose	326	231	200	120	65				64	773	549	176
Mallard	274	157	170	100	20				54	416	548	171
Black duck	124	63	44	24	2				29	93	92	76
Gadwall	0	0	8	0	0				0	0	0	0
Pintail	61	152	123	0	0	N	N	N	0	508	733	124
GW Teal	0	76	68	0	0	O	O	O	56	515	549	62
BW Teal	0	0	0	0	0				16	0	0	0
Am widgeon	0	30	18	0	0	S	S	S	0	12	0	3
Shoveler	23	72	35	10	0	U	U	U	6	39	37	17
Wood duck	0	14	10	18	7	R	R	R	91	61	8	0
Redhead	0	0	0	0	0	V	V	V	0	0	0	0
Ring-necked	0	0	0	0	0	E	E	E	0	0	0	0
Canvasback	0	0	0	0	0	Y	Y	Y	0	0	0	0
Scaup	15	0	0	0	0	S	S	S	0	3	0	0
Bufflehead	0	0	0	0	0				0	0	0	0
Ruddy duck	0	0	0	0	0				0	13	0	0
C. merganser	29	0	0	0	0				0	0	1	2
H. merganser	0	0	0	0	0				0	0	0	0
R.B. merganser	0	0	0	0	0				0	0	0	0
Goldeneye	0	0	0	0	0				0	0	0	0
<hr/>												
TOTAL	853	795	668	272	94				316	2433	2517	631

Table 9. Monthly average waterfowl use at John Heinz NWR during 1993.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coot	0	0	0	0	0	0	0	0	0	22	95	0
Canada Goose	465	113	179	72	56	131	139	61	202	1125	859	476
Snow Geese	0	0	0	0	0	0	0	0	0	0	2	>1
Mallard	265	114	118	57	30	51	111	150	341	794	733	336
Black duck	159	36	46	28	20	15	0	4	36	148	130	85
Gadwall	0	0	0	0	0	0	0	0	3	0	0	0
Pintail	0	0	4	0	0	0	0	0	110	589	820	172
GW Teal	0	0	0	66	6	0	0	15	83	331	378	164
BW Teal	0	0	0	38	0	0	0	>1	46	49	39	0
Am widgeon	0	0	0	0	0	0	0	0	2	17	12	>1
Shoveler	12	11	13	0	0	0	0	0	25	65	103	74
Wood duck	2	0	4	24	18	20	19	36	107	125	71	15
Redhead	0	0	0	0	0	0	0	0	0	0	0	0
Ring-necked	0	0	0	0	0	0	0	0	0	0	0	0
Canvasback	0	0	22	0	0	0	0	0	0	0	0	0
Scaup	0	0	14	1	0	0	0	0	0	0	0	0
Bufflehead	0	0	6	0	0	0	0	0	0	0	3	0
Ruddy duck	12	0	1	0	0	0	0	0	6	9	18	14
C. merganser	12	21	24	3	0	0	0	0	4	0	0	11
H. merganser	0	0	5	0	0	0	0	0	0	0	0	0
R.B. merganser	0	0	0	0	0	0	0	0	0	0	0	0
Goldeneye	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	927	295	436	293	130	217	269	267	925	3271	3263	1349

Table 10. Monthly average waterfowl use of the East Impoundment during 1992.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coot	1	0	0	0	0					2	0	<1
Canada Goose	48	79	93	45	35					243	331	56
Mallard	27	37	57	19	5					163	293	86
Black duck	11	13	14	3	1					47	55	21
Gadwall	0	0	0	0	0					0	0	0
Pintail	8	8	36	13	0	N	N	N	N	285	466	118
GW Teal	0	35	8	21	0	O	O	O	O	309	346	58
BW Teal	0	0	0	0	0					0	0	0
Am widgeon	0	0	8	0	0	S	S	S	S	6	5	3
Shoveler	8	8	10	0	0	U	U	U	U	21	34	9
Wood duck	0	12	10	8	8	R	R	R	R	38	8	0
Redhead	0	0	0	0	0	V	V	V	V	0	0	0
Ring-necked	0	0	0	0	0	E	E	E	E	0	0	0
Canvasback	0	0	0	0	0	Y	Y	Y	Y	0	0	0
Scaup	15	0	0	0	0	S	S	S	S	3	0	0
Bufflehead	0	0	0	0	0					0	0	0
Ruddy duck	0	8	0	0	0					0	0	0
C. merganser	9	0	0	0	0					0	1	0
H. merganser	0	0	0	0	0					0	0	0
R.B. merganser	0	0	0	0	0					0	0	0
Goldeneye	0	0	0	0	0					0	0	0
<hr/>												
TOTAL	127	192	236	109	49					1117	1539	352

Table 11. Monthly average waterfowl use of the East Impoundment during 1993.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coot	0	0	0	0	>1	0	0	0	0	19	83	>1
Canada Goose	205	37	61	20	28	78	76	26	99	996	624	264
Snow Geese	0	0	0	0	0	0	0	0	0	0	2	>1
Mallard	75	24	30	15	19	29	83	85	148	504	487	134
Black duck	0	12	10	9	10	7	3	0	15	91	81	16
Gadwall	0	0	0	0	0	0	0	0	3	0	0	0
Pintail	0	0	>1	0	0	0	0	0	39	344	578	76
GW Teal	0	0	0	4	4	0	0	6	54	179	267	77
BW Teal	0	0	0	2	0	0	0	0	16	34	29	0
Am widgeon	0	0	0	0	0	0	0	0	2	17	12	>1
Shoveler	3	8	10	0	0	0	0	0	11	52	73	59
Wood duck	2	0	3	12	10	16	13	30	82	107	65	12
Redhead	0	0	0	0	0	0	0	0	0	0	0	0
Ring-necked	0	0	0	0	0	0	0	0	0	0	0	0
Canvasback	0	0	9	0	0	0	0	0	0	0	0	0
Scaup	0	0	13	1	0	0	0	0	0	0	0	0
Bufflehead	0	0	6	0	0	0	0	0	0	0	0	0
Ruddy duck	0	0	>1	0	0	0	0	0	0	2	4	0
C. merganser	0	0	19	2	0	0	0	0	1	0	0	11
H. merganser	0	0	0	0	0	0	0	0	0	0	0	0
R.B. merganser	0	0	0	0	0	0	0	0	0	0	0	0
Goldeneye	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	285	81	163	65	72	130	175	141	470	2345	2305	652

October 2: Two geese neck collared during the summer's banding program (#36, #3J) were sighted on the refuge.

November 8: Two immature snow geese were observed in the Refuge's 145-acre impoundment.

December 1: Five neck-collared geese were observed in the refuge's 145-acre impoundment. Two birds (#3C, #Z1) were banded on the refuge during the summer of 1993; a third bird (KLG) has been observed on the refuge periodically since 1991; the collars on the other two birds could not be read.

December 19: Four neck-collared geese, three of which (#3F, #3G, #3M) were banded on the refuge during the summer of 1993, were observed in the Refuge's 145-acre impoundment. The neck collar letters on the fourth bird could not be determined.

December 29: McMenamin cleaned and repaired 32 of the refuge's wood duck boxes. Evidence of wood duck use was found in twelve boxes. Eleven showed evidence of successful hatching and one contained 21 unhatched eggs (a dump nest). Hen wood ducks had been observed in all 12 boxes during an April 30, 1993 survey. This is a new high in wood duck nest box use, up from six during 1991 and four during 1992.

4. Marsh and Water Birds

The monthly average marsh and water bird use for 1992 and 1993 is shown in Tables 12 and 13.

Volunteer Donna Sweet conducted a nest survey of the heron rookery for the 1993 breeding season. Fifty-seven black-crowned night heron nests and 16 green heron nests were found (total 73 nests). Twelve black-crowned night heron nests were located in purple loosestrife, the other 45 were in buttonbush. Fourteen green heron nests were located in purple loosestrife, the other two were in buttonbush.

August 10-12: A common moorhen was observed sitting on a nest in the horseshoe area of the refuge's 145-acre impoundment.

5. Shorebirds, Gulls, Terns and Allied Species

March 11: Charles Glotfelty a woodcock banding cooperator for the Pennsylvania Game Commission reported hearing 12 woodcock singing along the Haul Road on March 8. He observed eight individual birds in this area. He also reported that no woodcock were heard at the Folcroft landfill on March 9.

Monthly average shorebird use for the summers of 1992 and 1993 is shown in Tables 14 and 15.

6. Raptors

February: Red-tailed hawks and northern harriers were observed throughout the month.

February 18: Nugent noted an adult great-horned owl nesting under the I-95 southbound overpass over Tract 12. It appeared to be incubating.

August 24 - 26: A peregrine falcon was observed perched in the large dead oak in the impoundment. This is close to the botulism-impacted area where over fifty dead and dying waterfowl and shorebirds have been found.

August 23, 24: McMenamin and Walker observed a peregrine falcon sitting in a large dead oak at the edge of the refuge's 145-acre impoundment. Several sightings of a peregrine had been reported by refuge visitors. The peregrine continued to use the refuge through most of September.

December 18: John Freiberg and John Miller conducted the Christmas bird count on the Delaware County and Philadelphia County portions of the refuge. Results of the 1992 and 1993 counts are shown in Table 16.

7. Other Migratory Birds

April 6: Mitchell and McMenamin installed a new martin box donated by volunteer Johnny Miller on a telephone pole out on the dike near the observation tower. This replaces an old martin box which was not far from the site.

December 18: John Freiberg and John Miller conducted the Christmas bird count on the Delaware County and Philadelphia County portions of the refuge. Species identified during the counts from 1989 to 1993 are shown in Table 17.

Table 12. Monthly average marsh and water bird use at John Heinz NWR during 1992.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
G. blue heron	20	16	16	8	4	N	N	39	101	75	39	39
Great egret	0	0	0	0	0	O	O	54	122	39	11	>1
Am. bittern	0	0	0	0	0			0	0	0	0	0
Bk-c. nt. heron	0	0	0	24	17	S	S	13	47	0	13	0
Green heron	0	0	0	0	1	U	U	5	6	0	0	0
Little b. heron	0	0	0	0	0	R	R	4	6	0	0	0
Least bittern	0	0	8	0	1	V	V	0	0	0	0	0
Snowy egret	0	0	0	0	1	E	E	30	41	5	1	0
Cattle egret	0	0	0	0	2	Y	Y	0	0	0	0	0
TOTAL	20	16	16	32	26		142	145	323	119	64	40

Table 13. Monthly average marsh and water bird use at John Heinz NWR during 1993.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
G. blue heron	19	9	6	6	10	7	12	46	36	68	17	9
Great egret	0	0	0	0	3	7	32	136	86	37	4	>1
Am. bittern	0	0	0	0	0	0	0	0	>1	0	0	0
Bk-c. nt. heron	0	0	0	49	50	23	46	12	25	15	0	0
Green heron	0	0	0	0	0	4	14	12	8	3	0	0
Little b. heron	0	0	0	0	0	0	0	10	19	1	5	0
Least bittern	0	0	0	0	0	1	0	0	>1	0	0	0
Snowy egret	0	0	0	0	0	0	0	0	43	3	5	0
Cattle egret	0	0	0	0	0	0	0	>1	>1	0	0	0
Glossy ibis	0	0	0	0	0	0	0	2	2	0	0	0
TOTAL	19	9	6	55	63	42	104	219	222	127	31	10

Table 14. Monthly average shorebird use at John Heinz NWR during summer 1992.

Species	Jul	Aug	Sep
Spotted sandpiper	6	1	1
Semi-palmated sandpiper	165	1400	462
Semi-palmated plover	0	0	4
Killdeer	16	11	11
Solitary sandpiper	0	1	1
Pectoral sandpiper	0	5	26
Least sandpiper	0	1266	84
Lesser yellowlegs	0	0	15
Greater yellowlegs	20	6	12
Common snipe	0	0	4
TOTAL	207	2690	620

Table 15. Monthly average shorebird use at John Heinz NWR during summer 1993.

Species	Jul	Aug	Sep
Spotted sandpiper	160	53	44
Semi-palmated sandpiper	0	271	112
Semi-palmated plover	0	<1	8
Killdeer	20	39	19
Solitary sandpiper	17	99	0
Pectoral sandpiper	0	0	6
Lesser yellowlegs	53	40	6
Greater yellowlegs	11	20	16
Common snipe	0	2	4
TOTAL	261	525	215

Table 16. Raptors Recorded at John Heinz NWR during the 1992 and 1993 Christmas Bird Counts.

Species	1992	1993
Northern harrier	4	2
Sharp-shinned hawk	4	1
Red-tailed hawk	15	15
Red-shouldered hawk	2	0
Cooper's hawk	1	1
Kestrel	8	0
Great horned owl	1	3
Barn owl	1	1
TOTAL	36	23

Table 17. Species identified during Christmas bird counts at John Heinz NWR 1989 - 1993.

SPECIES	1989	1990	1991	1992	1993
Pied-billed grebe	x	x	x		
Great blue heron	x	x	x	x	x
Black-crowned night heron		x	x	x	x
Great egret		x			
Tundra swan			x		
Canada goose	x	x	x	x	x
Mallard	x	x	x	x	x
Black duck	x	x	x	x	x
Pintail	x	x	x	x	x
Shoveler		x	x	x	x
American widgeon		x	x		
Gadwall		x	x		
Green-winged teal		x	x	x	x
Wood duck				x	
Lesser scaup		x			
Ruddy duck		x			
Common merganser	x	x	x	x	x
Hooded merganser			x		
Bufflehead		x	x		x
Northern harrier	x	x	x	x	x
Sharp-shinned hawk	x	x	x	x	x
Cooper's hawk			x	x	x
Red-tailed hawk	x	x	x	x	x
Red-shouldered hawk				x	
Broad-winged hawk			x		

Kestrel	x	x	x	x	
Ring-necked pheasant	x	x	x	x	x
Common gallinule		x			
Virginia Rail				x	x
American coot		x			
Killdeer	x	x	x	x	x
Greater yellow-legs		x			
Woodcock	x	x	x	x	x
Common snipe	x	x	x	x	
Ring-billed gull	x	x	x	x	x
Herring gull	x	x	x	x	x
Great black-backed gull	x	x	x	x	x
Rock dove	x	x	x	x	x
Morning dove	x	x	x	x	x
Barn owl	x	x		x	x
Great-horned owl	x	x	x	x	x
Saw-whet owl		x			
Belted kingfisher	x	x	x	x	x
Yellow-shafted flicker		x	x	x	
Downy woodpecker	x	x	x	x	x
Hairy woodpecker	x	x			x
Red-bellied woodpecker					x
Bluejay	x	x	x	x	x
Common crow	x	x	x	x	x
Fish crow	x	x	x	x	x
Carolina chickadee	x	x	x	x	x
Black-capped chickadee		x		x	
Tufted titmouse	x	x		x	x

White-breasted nuthatch			x		x
Brown creeper		x	x	x	x
House wren		x			
Winter wren	x	x	x	x	x
Carolina wren	x	x	x	x	x
Long-billed marsh wren			x	x	
Ruby-crowned kinglet		x		x	x
Golden-crowned kinglet	x	x	x	x	x
Robin	x		x	x	x
Hermit thrush	x				
Catbird	x	x	x	x	x
Mockingbird	x	x	x	x	x
Brown thrasher		x		x	
Cedar waxwing		x		x	x
Starling	x	x	x	x	x
Common yellowthroat	x				x
Myrtle warbler				x	
Cardinal	x	x	x	x	x
Rufous-sided towhee		x			
Chipping sparrow			x		
Song sparrow	x	x	x	x	x
Swamp sparrow	x	x	x	x	x
Fox sparrow	x	x	x	x	x
White-throated sparrow	x	x	x	x	x
Field sparrow	x	x	x	x	x
Tree sparrow	x	x	x	x	x
White-crowned sparrow				x	
Slate-colored junco	x	x	x	x	x

Red-winged blackbird	x	x	x	x	x
Common grackle		x		x	x
Rusty blackbird		x		x	x
Brown-headed cowbird	x			x	x
Eastern meadowlark				x	
Gold finch	x	x	x	x	x
House finch	x	x	x	x	x
House sparrow	x	x	x	x	x
Common redpoll					x
Pine siskin					x
Double-crested cormorant					x

8. Game Mammals

May 3-7: Three deer roadkills were noted on Bartram Avenue, adjacent to the refuge, during this five-day period.

10. Other Resident Wildlife

January 31: A visitor came in wondering if an unusual dog-like animal he had seen adjacent to the refuge could be a coyote. The visitor's description fit the field guide description except that it looked mangy and "the tail was rat-like." The animal had gray on his snout, like an old dog. The animal was sighted in the field between Lindbergh Boulevard and Mario Lanza Boulevard. The visitor had not seen a coyote before. Since we had several reports of an unusual dog-like animal in the area in the summer, and two staff people thought that they saw a coyote, this unconfirmed report is being recorded.

March 4: Mitchell and McMenamin observed 11 deer grazing on the Refuge's Army Corp property (tract 2). This was (to our knowledge) the largest herd observed to date.

May 8: Tom Imparato and his daughter reported seeing a river otter in the impoundment. This is the third visitor-reported otter sighting this year. No otters have been seen by refuge staff.

June 11: Chevron employees clearing the pipeline portion of the East Impoundment Trail reported sighting four to five bobwhite

quail. This is the first reported sighting of quail on the refuge in several years.

August 23: Joan Keeth of Essington reported seeing a coyote on Tract 25 near PA Route 420. This is the third coyote sighting on the Refuge in the past year.

11. Fisheries Resources



(Photo: Walker)

"My cat's going to love me!"

April: A large run of gizzard shad up to 20 inches in length appeared in Darby Creek the first two weeks of April. The fish congregated at the impoundment water control structure at low tide. Along with the fish came an abnormally high number of fisherman.

September 17: The Pennsylvania Fish and Boat Commission stocked 1,000 tiger muskie fingerlings. The fingerlings were equally divided between the lagoons west of Route 420 and Darby Creek in the area of Long Hook Creek.

14. Scientific Collections

July 14: A research proposal and Special Use Permit were

approved for Nosta Glaser of the University of Pennsylvania School of Medicine to collect a total of 16 dragonflies for use in medical research related to heart disease. Dragonfly flight muscle is used to study muscle at the cellular level because of its similarity to human cardiac muscle.

16. Marking and Banding

March 11: Charles Glotfelty a woodcock banding cooperator for the Pennsylvania Game Commission requested permission to band woodcock on the refuge. A management study proposal was requested for review and approval as required by 4 RM 6.

March 15: Three hundred leg bands were ordered for the preseason mallard and black duck banding to be conducted at the Heinz and Supawna refuges. The bands arrived March 28.

May 20: Neck collars were received from the Pennsylvania Game Commission for preseason banding to commence June 15. John Dunn, Waterfowl Biologist, PA Game Commission requested that adult geese be neck collared and banded and juveniles be banded only. John also requested that we band all species of ducks caught during the preseason banding program commencing August 1.

May 27: Volunteer John Miller banded 103 tree swallows from the refuge's nest boxes.

June 22, 25, 28: The first three attempts to roundup geese for banding and neck collaring were unsuccessful. Two attempts were thwarted by joggers who spooked the birds. The geese eluded the other attempt at capture by disappearing into the impoundment's lush maze of spatterdock.

June 29: John Dunn, Waterfowl Biologist, Pennsylvania Game Commission visited the refuge to assist in goose banding. Once again the geese were uncooperative, disappearing into the spatterdock. Four birds were banded at Roosevelt Park in South Philadelphia. A survey of other local resting areas frequented by geese prior to John's arrival netted no birds.

July 12, 13, 15: A total of twenty-five geese and one mallard were banded. Eighteen adult geese were neck collared.

August: Banding efforts have been suspended due to the outbreak of Botulism C in the Refuge's 145-acre impoundment.



(Photo: Nugent)

Tallying their net results.



(Photo: Nugent)

"Do we need any more backup
for this wild critter?"

18. Resource Contamination Assessment

Continental Container, Inc.

In January an anonymous caller, to the Environmental Protection Agency, alleged that the Continental Container firm had been dumping contaminated drums into Darby Creek's tidal marshes. Nugent and Walker investigated the purported incident without success. No such company could be located either in the field or telephone directories.

On January 15, Terry Stillman, EPA's On Scene Coordinator, met with Nugent to fieldcheck the complaint. Darby Creek's banks and marshes were re-checked starting from the north-end Clearview Landfill to the west-end Folcroft Industrial Park. No evidence to support the complaint was found.

Action Concrete Co.

January 4: Ben Petulavits called to express concern over the air quality on the refuge when the neighboring Action Concrete Company is operating its concrete recycling plant. Ben became concerned last summer when he was jogging the dike trail and saw dust drifting toward the refuge. The plant is located in Darby Borough, along Darby Creek, opposite the western edge of the refuge's impoundment. Later that day, Nugent and Walker met with, Zeek the owner, to discuss the situation. Zeek was very cooperative and acknowledged a dust problem from time to time. A mist spraying operation tends to reduce the problem when the wind is blowing. If the wind becomes too severe, the operation is automatically shutdown. EPA has checked the concrete crushing operation for other environmental concerns, i.e., drawing water from Darby Creek; but has never expressed any concern over the dust particle contents. Zeek will shut down operations whenever requested by the refuge personnel or EPA. (The concrete re-cycling operation is but a sideline to Zeek's major business of making and delivering concrete; the two operations are separate in function and location.)

USX's Fairless Hills, PA Oil Lagoons

It has been nearly five years since our initial contact with USX. Remedial action taken last year via the netting of several of the smaller oil lagoons has lessened the hazardous situation to unsuspecting waterfowl. The largest open oil lagoon, a 10-acre pit, has yet to be properly addressed. Temporary, stop-gap measures to decrease the likelihood of impact to waterfowl have included the placement of propane cannons and an oil skimming operation. Periodic spot checks have been made by Federal and State personnel. EPA is still waiting for USX to sign a consent order that will outline the time frame and specifics in

remediating the many environmental infractions within the 1,500 acre semi-mothballed steel plant. A unilateral court order is being threatened by EPA if the consensual order is not received.

On February 5, FRC Nugent, McMenamin and PA Deputy District Game Protector White re-visited USX and met with Allan Lewis for a check of the oil-filled lagoons. The netted pits looked good. The netting was taunt and free of debris/damage. The large, uncovered lagoon was partially covered in ice. The skimmers were not working; one propane cannon was operational.

Consent Order

March 31: USX signed the EPA Consent Order. EPA should co-sign it by Mid-May. In entering into this Consent Order, the mutual objectives of EPA and USX are to: (1) to perform Interim Measures (IM) (including, but not limited to, stabilization Measures), to prevent or relieve threats to human health or the environment, (2) to perform a Resource Conservation and Recovery Act of 1976 (RCRA) Facility Investigation (RFI) to determine fully the nature and extent of any release of hazardous waste and/or hazardous constituents at or from the Site; and (3) to perform a Corrective Measures Study (CMS) to identify and evaluate alternatives for corrective action necessary to prevent or mitigate mitigation or releases of hazardous wastes and/or hazardous constituents at or from the Site.

Interim Measures:

Within thirty (30) days after the effective date of this Consent Order, Respondent shall submit an IM Workplan which shall set forth interim corrective measures to protect wildfowl and other wildlife from releases of hazardous wastes, and/or hazardous constituents from the On-Site Terminal Treatment Plant lagoons and Borrow Pits 35, 35A, 35B, and 35C. Upon receipt of EPA approval of the IM Workplan, Respondent shall implement the approved IM Workplan in accordance with the requirements and schedules contained therein. Unless provided for in the EPA-approved IM Workplan or until receipt of notice from EPA to cease, Respondent shall continue to operate and maintain the wirenetting, oil skimming system, and sound devices in order to protect the wildfowl and other wildlife from releases of oil, hazardous wastes and/or hazardous constituents from the On-Site Terminal Treatment Plant lagoons and Borrow Pits 35, 35A, 35B, and 35C.



(Photo: Nugent)

"So what d'ya got to do^{to} get one
of them blue chapeaus?"

May 13: A EPA/USX "Kickoff Meeting" was held at USX to discuss generalities of the Interim Measures that are required under the recent RCRA Corrective Action order for the USX Fairless Works Facilities. Seventeen individuals attended. In addition to the two major parties (EPA and USX) other representatives attended from PADER, Solid Waste Specialist; USF&WS, Biologist and Field Response Coord.; BCM Engineers, USX environmental consultant and Bureau of Reclamation, Technical Assistance. After a brief introductory meeting a tour by van of the entire plant followed. Wildlife sightings included some thirty Canada geese observed grazing in a mowed 10-acre field south of Biles Creek and two broods of geese. Both broods were comprised of five goslings. One brood was amongst the grazing geese, the other was observed in a grassy area near the infamous oil pits.



(Photo: Nugent)

Is this the "economic safety net"
those politicians keep takin' 'bout?

May 18: In accordance with the RCRA Corrective Action order a copy of the "Interim Measures Workplan" for the On-Site Terminal Treatment Plant and Borrow Pits 35, 35A, 35B and 35C was forwarded to EPA by USX. FRC Nugent received a copy for review shortly thereafter. EPA expects written comments on the Workplan by June 9th.

A general scoping meeting is scheduled for June 4 at USX, followed by another site tour with focus on the SWMUs, other than BP35 and the wastewater treatment lagoons where open water exists; posing a direct risk to waterfowl. Outfalls will also be visited for future samplings of sediment in the Delaware River. (A map offered by BCM is attached for general orientation purposes and a short-term schedule for RCRA Corrective Action is also appended.)

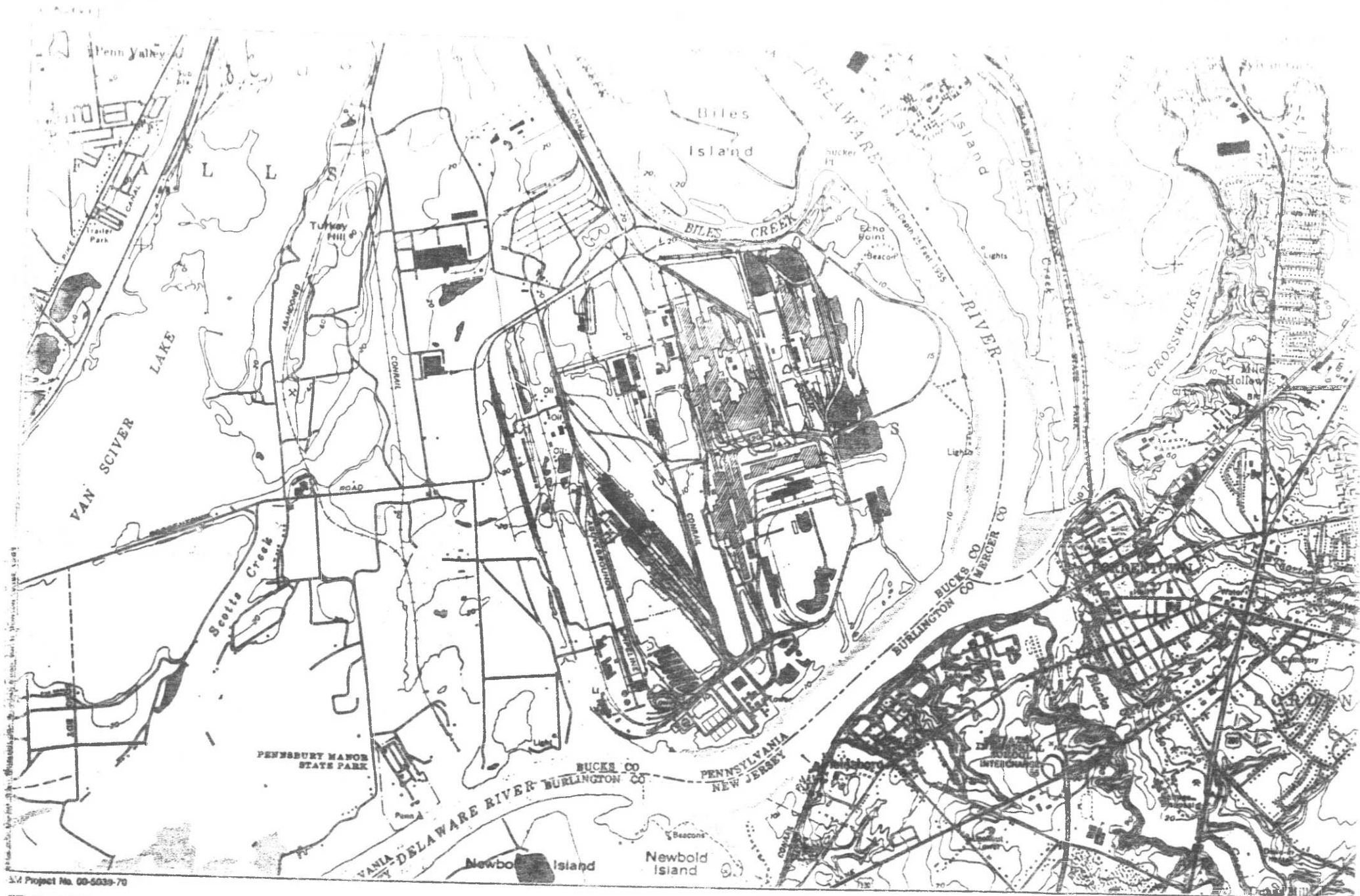


Figure 1
Geographic Location, USX Fairless Works

**SHORT-TERM SCHEDULE FOR RCRA CORRECTIVE ACTION
AT USX FAIRLESS WORKS**

The 3008(h) corrective action consent order for USX was signed on April 20. This order triggers the following key activities over the next year¹:

- Meeting at facility on May 13 on communications and first interim measures(s).
- Interim Measures Work Plan to address oiled geese from treatment plant lagoon and BP35 due May 20 to EPA. Revised Interim Measures Work Plan due 15 days within receipt of EPA comments (disapproval). Interim Measures design and construction to be begin shortly after EPA approval.
- First bimonthly progress report due June 1. These will not necessarily receive EPA comment.
- Description of Current Conditons due July 4 to EPA².
- Supplemental Health and Safety Plan is due July 4 to EPA, if that sumitted with first Interim Measures Workplan does not meet requirements of VI.F of order for entire facility.
- Proposed list of source areas to implement Interim Measures due July 19 to EPA. Interim Measures Workplan due 20 days after EPA approval of list.
- Conceptual Technical Approach due August 3 to EPA.
- Expect draft RFI CMS Work Plans around January 3 (depends on prior submissions and comments; actually are due within 60 days of EPA's approval of Technical Approach.

¹ The list and schedules provided herein do not supercede any requirements in the 3008(h) order. This list is provided simply to communicate what the EPA RPM anticipates is the short-term schedule, as of May 13, 1993, and to provide a framework for discussion with USX representatives on May 13 of requirements under the order.

² All revised "submissions" are due to EPA within 30 calendar days of EPA comments (disapproval). Only exception is each Interim Measures Workplan, which must be revised within 15 calendar days of EPA comments (disapproval).

June 4: Another on-site tour was made by Manager/FRC Nugent at the USX steel-making plant. Twenty-two folks representing either USX or Federal agencies attended. A side tour of the former USX property now owned by Wheelabrator Environmental Systems, Inc. was made. This "trash to energy" recycling system is being constructed on land formerly used by USX to dump its residual slag from coke and iron firings. What remedial work that might be required within Wheelabrator's ownings is not know at this time. Two small "mitigation" sites were pointed out to the visitors. Wetlands were filled in the process of creating the state-of-the-art incinerator which will be on line next year.

June 7: Manager/FRC Nugent provided EPA's RCRA Enforcement Section his comments on USX Fairless Works' Interim Measures Work Plan for Borrow Pit 35 and Terminal Treatment Plant Lagoons. Suggestions were made on how to improve the oil emulsion removal water removal, contouring and promotion at drainage, bird deterrents, and revising USX's Community Relations Plan.

June 15: In reaction to Nugent's above concerns, EPA sent USX's Environmental Project Manager a notice of violation of the Final Administrative Order on Consent, EPA Docket Number RCRA- III-065-CA, proceeding under Section 3008(h) of the Resource Conservation and Recovery Act. Specifically, Section VI.A.1 of the Order requires USX to continue to operate and maintain the wire netting, oil skimming system, and sound devices in order to protect the waterfowl and other wildlife from releases of oil, hazardous wastes and/or hazardous constituents. During the May 13 and June 3, 1993 visits, the wire netting over two lagoons was noted to be very slack and partially resting in the oil-laden treatment lagoons. USX was advised that "Failure to comply with the terms of the Order may subject USX to stipulated penalties which EPA may assess in accordance with Section XIV of the Order.

July 2: FRC Nugent received 3 volumes of the "Description of Current Conditions" in accordance with the Final Administrative Order on Consent between USX and EPA.

July 15: FRC Nugent visited USX to check on its compliance with the terms of the notice of violation of the Final Administrative Order on Consent; specifically, the upgrading and maintenance of a wire netting over two lagoons that had become very slack and partially resting in the oil-laden treatment lagoons. Both nets were found to have been repaired and taunt. Approximately 50 Canada geese were observed within the 1,500 acre plant; none appeared to have been oiled. Another 500± Canada geese were observed within one mile of the plant scattered within the Penn Warner Club and Pennsbury Manor. (Two with neck collars were observed.)

July 19: FRC Nugent participated in a conference call involving some sixteen individuals involved in the Interim Measure Work Plan for Borrow Pit 35 and the Terminal Treatment Plant Lagoons at the USX Fairless Works. Represented were folks from the USX Fairless Works in Fairless Hills, and Pittsburgh, PA BCM Engineers, Inc.; U.S. Bureau of Reclamation, Fish and Wildlife Service, and Environmental Protection Agency. A 1-1/2 hour general discussion ensued regarding USX's response to EPA's comments on the initial Interim Measure (IM) Work Plan for Borrow Pit 35 and USX's Terminal Treatment Plant Lagoons. The revised IM will be further reviewed and commented on the various State and Federal team members in early August.

September 14: Roscoe White, PA Deputy District Game Protector delivered 4 badly oiled Canada geese to the refuge. They had been retrieved from the 10-acre oil pit by Alan Lewis, USX Environmental Engineer, the day before. The geese were transported by Maintenance man Mitchell to Tri-State Bird Rescue & Research, Inc., Newark, Del. The previous week, an oiled Canada goose was delivered to the Ark Foundation in Bucks County.



(Photo: Nugent)

If an explosion occurs and there's no
wildlife in the area to hear it...
is it effective?

September 20: Manager/FRC Nugent travelled to USX to assess the status of the resident population of Canada geese and the observe the erecting of nylon wire with reflective streamers over the 10-acre oil pit. Nugent met with USX's Alan Lewis and Norman Rodowicz. A walk was made along the perimeter dike of the large oil pit. Contractors were stretching 100 lb. test monofilament line over the pit at 50' intervals; 3' long two-color mylar streamers dangled from the lines. Four Zon guns were placed on the dike. (The explosive discharges were being contested by New Jersey residents across the adjacent Delaware River.) No geese or other wildlife was noted in the general area. Lewis expressed an interest in having employees of the oil removal contractor retrieve future geese impacted by the oil. Nugent requested that Lewis continue to do any emergency field retrieval and to notify Roscoe White or Nugent in a timely fashion. If geese are being impacted on a sustaining basis, paperwork will be cut naming Lewis a sub-permittee of the refuge's collection permit to handle the federally-protected waterfowl.

Nugent checked the grounds of the down-river Pennsbury Manor for oiled geese; no geese were observed. A survey of the nearby Penn Warner Club found 250-300 Canada geese... all of which appeared un-oiled.



(Photo: Nugent)

Lathing all the way
to the embankment.

December 1: Manager/FRC Nugent travelled to USX to assess the status of migratory birds in the area and to observe the various scare devices being used to intimidate potential bird usage of the oil lagoons. USX employees Alan Lewis and Norman Rodiwicz accompanied Nugent. Pit #13-A was filled with relatively clear water, this pit will be fenced and wire gridded as outlined in the "Interim Measures Work Plan for Borrow Pit 35 and Terminal Treatment Plant Lagoons". The previously gridded/netted treatment lagoons appeared taunt and well maintained; snow fencing had been recently erected around the non-gridded/netted treatment lagoons... adding a measure of security for any unsuspecting ambulatory wildlife. Borrow Pit 35 has a problem with the mylar ribbon ripping off the wire gridding. All streamers were lost within a 6-8 week period. The red/silver reflective ribbon was taped to the wire with string-reinforced taping; all that remains is the taping. Alternative methods of ribbon attachment to the wire will be investigated by USX. The



(Photo: Nugent)

No strings (mylar) attached.

propane cannons were operating atop the lagoons perimeter dike. Six cannons are equally spaced with two of them operational at any one time. Both oil skimming devices were observed in working order. Upon request, an operation schedule was provided that showed the hours of skimmer and cannon usage at Borrow Pit 35 for ten months:

	<u>HOURS</u>	
MONTH	SKIMMER	CANNON
January	0*	160
February	0*	224
March	0*	224
April	171.0	272
May	61.5	330
June	60.5	341
July	125.5	372
August	292.5	372
September	330.5	352
October	339.5	336

* Pit frozen

Although no Canada geese were observed within the plant, tens-of-thousands of gulls (mostly Herring, some ringed-billed) were observed loafing in the general vicinity of Borrow Pit 13-A. Many overhead pipes were being used as feeding/roosting areas. The gulls gather food at the adjacent 500± acre gigantic landfill and carry it off-site for leisurely consumption. The 100' high landfill takes on the slate gray hue of the hundreds-of-thousands of foraging gulls.

Off-site, some 500 Canada geese were observed: 100± opposite Wheelabrators incinerator; 200± on the Causeway leading into Tullytown; and 200± at Tullytown's Riverside Industrial Complex.


Mobil Oil Pipeline Tract 25-A - Updates

(Photo: Nugent)

Investigating an indecent exposure.

As previously mentioned in June, 1992's Monthly Activity Report, large sections of the 12" diameter pipe that traverses a tidal portion of the refuge between two lagoons (Tract 25-A) have been completely exposed due to erosion and appear susceptible to damage by floating debris or subsidence. Mobil Oil was notified of the situation at that time. Mobil has subsequently applied for and received an Army Corps of Engineers "emergency" permit and Pennsylvania's Department of Environmental Resource Water Quality Certificate and Coastal Zone Management permit. The latest wrinkle has been the need for a "Section 105" Water Obstruction permit that is issued from the PA DER's Water Quality Division. It has also been learned that a review period of up to 90 days may be required. In light of the disaster waiting to happen, a letter was sent to the Water Quality Division expressing the urgency in obtaining whatever permit is required so that the remedial work can begin. An invitation was extended for an on-site visit so that the immediacy of the problem can be seen.

Mobile's Pipeline




ATTENTION VISITORS

Mobil Pipeline Company is co-ordinating with John Heinz Wildlife Refuge at Tinicum with this Erosion Control Project.

Project Goals Are:

1. Protect the Environment
2. Protect the Public
3. Comply with Dept. of Transportation Regulations
4. Prevent Soil Erosion of Refne and Pipeline

Project is to begin March 1, 1993 and to be completed by April 15, 1993.
 We Apologize for any inconvenience this may cause you.
 For additional information call John Heinz National Wildlife Refuge at Tinicum, Phone 521-0662



(Photo: Nugent)

A "Heads up".



(Photo: Nugent)

Heads down.



(Photo: Nugent)

Making headway.

February 10: In response to a letter sent by Nugent last month to PA DER's Water Quality Division, an on-site meeting took place to discuss the urgency in performing protective work to Mobil's 12" diameter pipe that traverses a tidal portion of the refuge. In attendance was Joe Snyder and Ed Bender, PA DER's Water Quality Division; Gene Graves and Bob Shaeffer, Mobil Oil; and Nugent. A quick tour of the eroded pipeline area convinced DER folks of the need for them to issue an emergency permit. Work should begin in early March to repair approximately 558 linear feet of pipe exposed in 6 locations. Methods of repair will include: (1) repair w/cement-filled bags anchored w/rebar and/or (2) repair w/Gabion baskets and ballast stone cover, and/or (3) repair w/ballast stone cover only. A special use permit will be issued prior to work initiation. One special condition will be the need for Mobil to construct and erect a sign describing the project for general information and public relations.

March 8: Work began. A Special Use Permit was issued to repair the approximate 558 linear feet of pipe exposed. Work on that section of the pipeline should be complete by month's end. Another SUP will then be issued to address and protect two exposed sections of Mobil's pipeline on the east side of Route 420; one 30' and one 33' section are exposed as they cross over two bridged tidal guts. Both sections have been "stress calculated" and neither are threatened. Mobil will strip off the existing fiberglass/tar mixture covering and replace it with an epoxy covering; a small portion of the embankments will be cut into for additional epoxy coating of the pipe.

March 30: A Special Use Permit was issued to Mobil Pipeline Company to recoat exposed sections of their 12" pipeline in Tract 25 to prevent corrosion.

April 15: Work was completed. The work site was seeded with a ryegrass/bluegrass/fescue mix and covered with a straw mulch. Mobil elected not to utilize its other Special Use Permit, at this time, to work on two exposed sections of pipe on the east side of Route 420. Both sections have been "stress calculated" and neither one is threatened. A letter of appreciation was sent to Mobil's Malvern, Pennsylvania, Headquarters for their responsible job completed with minimal disruption of the Refuge's activities and minimal inconvenience to the visiting public.

Buckeye Pipeline Co. Tract 25-A - Updates

(Photo: Nugent)

A problem re-visited.

In great contrast to Mobil's positive attitude and efforts in remediating its pipeline problems within the refuge, Buckeye has been its antithesis! No action has occurred since a letter was sent last June to its corporate headquarters. A follow-up registered letter was sent last September. A response promised consideration of "our position with respect to your request that we perform certain work on that segment of our pipeline". On February 10, while inspecting Mobil's eroded pipeline, PA DER folks were also shown buckeye's eroded 24" pipeline. Ed Bender expressed concern regarding its lack of maintenance and offered to lend his support in having the environmental-threatening

situation properly addressed and resolved by Buckeye Pipe Line Co.

March 11: Ed Bender, Chief, Division Soils and Waterways Management, notified Buckeye of exposed portions of its 24" diameter pipeline that traverses the refuge (paralleling Mobil's pipeline). Portions of his letter are as follows:

"The Dam Safety and Encroachments Act and the companion Chapter 105 Rules and Regulations require that owners of stream and wetland encroachments properly maintain their structures. Therefore it is requested that you submit to this office plans for the restoration of section of your pipeline located in and near the John Heinz Wildlife Refuge and the nearby Darby Creek 100 year floodway.

"This letter is only intended to inform you of the need for proper operation and the necessity to satisfactorily maintain the exposed segments of your pipeline. This letter is not intended, and shall not be construed, as a final action of the Department. It also shall not be construed to waive or impair any rights of the Department, including the right to take any action in the future. Finally, this letter shall not be construed to waive, either expressly or by implication, the power or authority of the Commonwealth of Pennsylvania to prosecute for any and all violations of the law arising prior to or after issuance of this letter, or for the conditions upon which this letter is based.

"If you do not contract the Department within 30 days, the Department may pursue enforce actions with regard to this matter."

Buckeye was quick to respond to the letter. It has hired the services of Gannett Fleming, engineers and planners, to perform surveying services along the pipeline. The work will involve horizontal and vertical surveys at three locations to detect any movements of the pipeline.

March 29: A Special Use Permit was issued to Gannett Fleming, Inc. to conduct a survey of Buckeye's 24" pipeline in tracts 25 and 25a to determine the remedial measures required for the three exposed sections of the pipeline.

June 1: Buckeye Pipe Line Co. provided a formal response to Pennsylvania's Department of Environmental Resources March 11th letter. Buckeye had hired the services of Gannett Fleming, Inc., to survey three exposed portions of the pipe to investigate the effects of fluctuating water levels produced by tides on the pipeline. The results of the surveys indicate the pipeline is not moving due to the tides.

Buckeye continues to write ...

"Based upon this report, we do not believe that our pipeline is improperly supported within the Wildlife Refuge. In addition, the mere fact that a segment of the pipeline is exposed does not, in our view, threaten the integrity of the pipeline. The location of this segment of pipeline within the Wildlife Refuge eliminates the possibility that the pipeline might be damaged by construction equipment, etc. the threat of such mechanical damage is the reason petroleum product pipelines are usually buried below ground level."

"Based on the foregoing, we believe that we are properly maintaining the segment of our pipeline that crosses the Wildlife Refuge in accordance with the Dam Safety and Encroachments Act, the companion Chapter 105 Rules and Regulations, and all other applicable federal, state and local rules and regulations."

"Nevertheless, in order to accommodate the Wildlife Refuge and the DER, we would be pleased to discuss this situation further with Mr. Nugent. In that connection, he should expect a telephone call from our representatives to schedule a meeting in the near future. We will, of course, keep the DER informed of developments."

"You should be aware, however, the substantial amounts of sediment were excavated and removed from the vicinity of our exposed pipeline in connection with the construction of Interstate Highway 95. As a result, tidewaters encroached on Buckeye's right-of-way. This tidal action eventually resulted in the erosion that exposed our pipeline segment in the Tinicum Swamp. Because such construction activity was presumably approved by the Wildlife Refuge, and undertaken by other federal and state agencies, we would expect to be reimbursed for any work that we might undertake in connection with our pipeline in the Wildlife Refuge."

On June 14, Nugent wrote to PA DER to counter with ...

"Buckeye states that '...we are properly maintaining the segment of our pipeline that crosses the Wildlife Refuge...'. While Texas-Eastern, Mobil, Chevron, and Sohio pipeline companies have periodically maintained their pipelines through the Refuge, via rip-rapping, cathodic protecting and placement of cutoff valves, no such coordination for any of the above mentioned prophylactic measures or U.S. Dept. of Transportation regulations have been performed by Buckeye during my fifteen year tenure at the Refuge. Buckeye has been conspicuously absent in being a "good neighbor".

"A question for you: Is Buckeye currently meeting Pennsylvania's standards of the Dam Safety and Encroachment

Act and the companion Chapter 105 Rules and Regulations? If not, where do we go from here?"

July 12: Pennsylvania's Department of Environmental Resources provided a response to Buckeye Pipe Line Co. June 1, 1993 assertion that it is properly maintaining its 24" diameter pipe that crosses portions of the refuge's tidal marsh:

"Please be advised that Chapter 105, Section 313 of the Department's Rules and Regulations requires a minimum of three feet of cover between the top of any pipe or encasement and the lowest point in the stream bed. Special provisions are made for pipelines in rock; however, the cover is never less than one foot of total depth. Furthermore, Section 105.52 states that "it shall be the duty of the permittee or owner of a dam, water obstruction or encroachment to evaluate the safety of the facility and appurtenant structures and to modify the facility in accordance with the permit requirements of S105.11 (relating to permit requirements) to ensure protection of life and property in accordance with changed conditions and current safety criteria" regardless of the date of construction or whether or not it was permitted by the Department or its predecessors. The exposed sections of your pipeline within the John Heinz National Wildlife Refuge at Tinicum appear to be improperly maintained in accordance with the Rules and Regulations cited above.

"Enclosed with your letter was a report prepared by your engineering consultant, Gannett Fleming, Inc., that concluded that tidal action within the refuge was not impacting the stability of your pipeline. There are a host of other safety concerns that require the proper maintenance of your pipeline. They include, but are not limited to the stability of your pipeline during storm and/or flood events and the threat of damage from debris carried by tidal, storm, or flood waters.

"In reference to your expectation to be reimbursed from the Commonwealth of Pennsylvania for the necessary maintenance and/or possible relocation of your pipeline as a result of alleged impacts upon your pipeline arising from the construction of Interstate 95, please be advised that, generally, permit conditions prevent the permittee from making any claims against the Commonwealth.

"Claims are also limited if modification and/or removal is required if the Department determines that the existing project is adversely impacting the public health or safety, the environment, the free passage of floodwaters, and/or navigation.

"It is requested that you contact this office within 15 days as to your intentions to enhance the pipeline backfill, or if you have any questions."

August 19: Buckeye finally blinked! After much posturing saying that they had no pipeline problem and if they did, remedial costs would have to be borne by the State and FWS, it has conceded to our request (backed by the Penn Dept. of Environmental Resources) to properly maintain its 24" diameter pipeline that crosses portions of the refuge's tidal marsh. Roy Haase Jr., Permit Division of Buckeye, called Nugent to inform that Buckeye would proceed to stabilize its exposed portions of pipeline west of Route 420. It was also interested in stabilizing two portions of its pipe that cross two small creeks on the east side of Rt. 420. It was initially suggested that both pipes be rip-rapped. Nugent expressed concern over the blockage of tidal flow past the rip-rap that would restrict water reaching wetlands south of the pipeline. Haase agreed. Nugent referred him to Texas-Eastern Pipeline engineers who successfully buried their pipeline under the marsh in the same area in 1990. It was a costly well-managed endeavor that left the site in better shape aesthetically and safety-wise than it was originally. Haase will be applying for various permits including ACE, County Soil Conservation District and refuge special use permits. Actual field work is slated for September.

Prerequisite paperwork and planning for the remedial pipeline work continued in November. During this reporting period drawings depicting the restoration of cover over the 24-inch, 300-foot section of the Laurel pipeline and copies of their application to PADERS, Division of Soils and Waterways were sent for review to Manager Nugent, Tinicum Township Board of Commissioners, Delaware County Council and U.S. Army Corps of Engineers.

Buckeye's plans call for the installation of a geotextile layer over the pipeline and the area between the pipeline and the remaining portion of the causeway. Stone rip rap, which will be stored off site and moved onto the causeway using only light equipment, will be laid over the geotextile liner. It is expected that the geotextile layer will extend the life of the restoration by preventing the rip rap from becoming consolidated into the soil. After restoration of cover over the pipeline is complete, Buckeye will rehabilitate and reseed all areas damaged by their equipment. Other safeguards will be addressed in a Special Use Permit to be issued by the refuge.

December 15: A Special Use Permit was issued to Buckeye Pipe Line Company to repair the erosion damage.



(Photo: Nugent)

...becoming a sign of the times.

December 27: With all required Federal, State, County and refuge permits in hand, Buckeye finally began its remedial work to stabilize its exposed portions of the 24" diameter pipeline that traverses the western portion of the refuge. The project involves removal of driftwood and other debris from the area over the pipeline, installation of geotextile blanket and placement of stone rip-rap over the 300' project area of exposed pipeline or reduced cover. The total surface area of the project is approximately 6,925 sq. ft. A special condition of the refuge's Special Use Permit required the placement of a 4' X 4' interpretive sign in the adjacent parking lot that explains the need for the work to be done. Work is expected to be completed by the middle of January, 1994. (It took eighteen months of arm twisting with Buckeye to finally accomplish this much-needed protective work.)



(Photo: Nugent)

Nearing the end(s).

USCG-Area Committee

February 17: FRC Nugent attended an Area Committee Meeting (formerly the Multi Agency Local Response Team) at Philadelphia's U.S. Coast Guard Marine Safety Office/Group.

Background Information on Area Contingency Plan (excerpted from Draft Area Contingency Plan):

Authority

Section 4202 of the Oil Pollution Act of 1990 (OPA 90) amended Subsection (j) of Section 311 of the Federal Water Pollution Control Act (FWPCA) (33 U.S.C. 1321 (j)) to address the development of a National Planning and Response System. As part of this system, Area Committees are to be established for each area designated by the President. These Area Committees are to be comprised of qualified personnel Federal, State, and local agencies. Each Area Committee, under the direction of the Federal On-Scene Coordinator (OSC) for the area, is responsible

for developing an Area Contingency Plan (ACP) which, when implemented in conjunction with the National Contingency Plan (NCP), shall be adequate to remove a worst case discharge of oil or a hazardous substance, and to mitigate or prevent a substantial threat of such a discharge, from a vessel, offshore facility, or onshore facility operating in or near the geographic area. Each Area Committee is also responsible for working with State and local officials to pre-plan for joint response efforts, including appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife. The Area Committee is also required to work with State and local officials to expedite decisions for the use of dispersants and other mitigating substances and devices.

The functions of designating areas, appointing Area Committee members, determining the information to be included in Area Contingency Plans, and reviewing and approving Area Contingency Plans have been delegated by Executive Order 12777 of 22 October 1991, to the Commandant of the U.S. Coast Guard (through the Secretary of Transportation) for the coastal zone, and to the Administrator of the Environmental Protection Agency for inland zone.

PURPOSE AND OBJECTIVE

The Area Committee is a spill preparedness and planning body made up of Federal, State, and local agency representatives. The OSC will coordinate the activities of the Area Committee and assist in the development of a comprehensive Area Contingency Plan that is consistent with the NCP.

This Area Contingency Plan describes the strategy for a coordinated Federal, State and local response to a discharge or substantial threat of discharge of oil or a release of a hazardous substance from a vessel, offshore facility, or onshore facility operating within the boundaries of the Area of Responsibility. This plan addresses response to a most probable discharge, a maximum most probable discharge, and a worst case discharge including discharges from fire or explosion. Planning for these three scenario covers the expected range of spills likely to occur in this area.

For purposes of this plan, the most probable discharge is the size of the average spill in the area based on the historical data available. The maximum most probable discharge is also based on historical spill data, and is the size of the discharge most likely to occur taking into account such factors as the size of the largest recorded spill, traffic flow through the area, hazard assessment, risk assessment, seasonal considerations, spill histories and operating records of

facilities and vessels in the area, etc. The worst case discharge for a vessel is a discharge of its entire cargo in adverse weather conditions. The worst case discharge from an offshore or onshore facility is the largest foreseeable discharge in adverse weather conditions.

This plan shall be used as a framework for response mechanisms to evaluate shortfalls and weaknesses in the response structure before an incident, and as a guide for reviewing vessel and facility response plans required by OPA 90, to ensure consistency. The review for consistency should address, as a minimum, the economically and environmentally sensitive areas within the area, the response equipment (quantity and type) available within the area (this includes Federal, State, and local government and industry owned equipment), response personnel available, equipment and personnel needs compared to those available, protection strategies, etc.

USCG-SENSITIVE ENVIRONMENTAL RESOURCE SUBCOMMITTEE

February 24: FRC Nugent serves as a member of the Sensitive Environmental Subcommittee. This subcommittee is drafting a chapter within the Area Contingency Plan. The Highlights of the meeting were written by Don Henne Subcommittee Chairman.

Approach to protection priorities

We agreed that the priority scheme should be simple and flexible and therefore adopted a three-level approach of "A" (most sensitive), "B" (sensitive), and "C" (least sensitive). The initial list of descriptors that would guide the setting of priorities was distributed and discussed. Factors such as sensitivity, recovery time, ease of cleanup, and political influences would be considered.

It was agreed that priorities should be adjusted for the four seasons, i.e., a resource having an "A" priority in the spring could have a lower priority in the fall.

The group agreed that we need to have a clearly stated rationale for putting most commercial facilities at the lowest protection priority. This rationale would include devoting limited resources to protection of public resources plus recognition that vulnerable private facilities should be protected by their operators.

Qualifiers on priorities

It was agreed that in addition to the A, B, or C designation, a 1, 2, or 3 would be assigned as a measure of the ability to protect (1 for most likely to protect, 3 for the most difficult to protect). In other words, although a long stretch of sandy

beach may have a high priority, there may not be an effective response technique to protect it. In such an example, the area would have an "A3" designation.

Another issue addressed was that of the consideration to be given to chemical and biological countermeasures in the ability to protect. Due to the uncertainties of approval and effectiveness, we decided to limit the ability to protect to booming strategies and other physical containment techniques.

We agreed that the Area Plan would contain the rationale for our prioritization decisions so that they would not appear to be arbitrary.

Status of resource information

We reached consensus that the natural resource information base for the Bay and River is fairly complete and mostly captured by the DBRC Response Plan Appendices. The Atlantic shore resources, while not included in the DBRC Plan, are identified in other sources which need to be reviewed for accuracy and completeness. I will bring the USFWS Atlantic Coast Ecological Inventory maps and arrange to view the Coast Guard's ESI maps so that the group can take a first look at these shore resources.

We discussed the issue of water intakes and concluded that Delaware has identified theirs, Pennsylvania has identified most of theirs, and New Jersey has information for those linked to drinking water suppliers. I will contact the River Basin Commission to find out what they have on file. Once identified, we can decide if overlays or "stick-on" dots would be appropriate to update maps.

On the topic of cultural/historic resources, it was agreed that the primary (public use) areas are already identified and that the more sensitive sites should not be made public. Instead these locations would simply be noted on maps for consultation with State specialists.

Categories of sensitive resources

The initial list of resource types (based on shoreline types with addition of some habitat, water intake, and historic site categories added) was distributed and discussed. Ben Anderson, Delaware representative, offered to fine-tune this list and the revised version is attached.

USCG-NATIONAL POLLUTION RESPONSE EXERCISE PROGRAM

March 17: Nugent attended a USCG-sponsored planning meeting for the upcoming National Pollution Response Exercise Program to be held in Philadelphia at the Adams Mark Hotel on April 7 and 8,

1993. The exercise will focus on pollution management and organization among the predesignated Federal On-Scene Coordinator from U.S. Coast Guard Marine Safety Office Philadelphia, the Regional Response Team for Region III, and the Philadelphia Area Committee which is comprised of federal, state, and local responders from the tri-state area. The participants, will be implementing a "Unified Command" approach to pollution response using an incident command structure. As a table top exercise, no actual equipment will be moved for exercised purposes.

Specifics of the scenario have been kept confidential. It is generally known, however, that the "incident" will involve two tankers and a spill of some 300,000 barrels of oil.

FRC Nugent will serve on the operations staff as a wildlife rescuer during the six-hour scenario.



(Photo: Nugent)

Too sanitized and organized...
you can tell it's an exercise!

April 7: Manager/FRC Nugent participated in the table top oil spill response exercise to test Unified Command. The scenario took place at the Adams Mark Hotel, Philadelphia, and was sponsored by the U.S. Coast Guard. The event focused on

pollution management and organization among the predesignated Federal On-Scene Coordinator (FOSC) from Coast Guard Marine Safety Office Philadelphia and the members of the State and local responders from the Tri-State area of New Jersey, Pennsylvania and Delaware. This "first of it's kind" on the East Coast exercise focused on the Incident Command structure as mandated under OPA '90. Two independent tanker owners volunteered to "play" as responsible parties and comprised one-third of the Unified Command Structure. The other two-thirds of the UCS consisted of the FOCS and impacted State representatives. The three day scenario was condensed into one day and involved the 872' tank vessel KNOCK BUIE loaded with 550,000 barrels of Forcados Blend Crude that was inbound for the Coastal Eagle Point Refinery in West Deptford, New Jersey. The KNOCK BUIE collided with the 872' tank vessel JANE STOVE, which was at anchor in the middle area of the Marcus Hook Anchorage. The JANE STOVE had recently completed bunkering and was preparing to leave the port. The collision damaged the star-board bow of the JANE STOVE; a fire began on board of the JANE STOVE. Spillage of bunker oil was observed. The KNOCK BUIE, which had lost propulsion, was carried up river where it became grounded on the west bank of the river; it too was leaking oil.

That summarized scenario set the scene for the remainder of the day for the 100+ participants, and 400+ members of the audience. the FOSC's Incident Command System Structure was comprised of seven staff elements, i.e., personnel, logistics, operations, supply, planning, communications and public affairs. Each staff element had its own organizational chart with a chain-of-command or hierarchy. FRC Nugent was placed within the Operations Staff Element and served as the DOI's representative for Wildlife Rescue. In that role, he communicated with his Federal and State colleagues in the area of impact and/or potential impact. An "aerial reconnaissance" was made of the River/Bay area to assess the affected area and the oil spill's victims. The Tri-State Bird Rescue and Research Inc., was also involved in the Operations Staff Element. During a noontime Press Conference/Town Meeting, FRC Nugent and Tri-States Dr. Heidi Stout presented an update on the impact of the oil on the area's wildlife.

Although the exercise had its problems with "fast forwarding" the time sequencing and communications between the Unified Command Control and the Incident Command System Structure, an important lesson was learned: A drill without its problems doesn't prepare one for the real thing!

DELAWARE RIVER AND BAY COOP OIL SPILL DRILL

September 15: AFRC Walker participated in a Delaware River and Bay Cooperative oil spill drill. Notifications were received from the Coast Guard Marine Safety Office, Philadelphia; the

Regional Oil Spill Coordinator; and the Interior of Environmental Affairs, Philadelphia. Refuge staff were put on standby, however. The drill scenario did not include involvement of trust resources.

FOLCROFT LANDFILL WELL MONITORING

January 19: The radiological test results from the sampling of the Folcroft Landfill monitoring wells in October 1992 were received. The gross alpha and gross beta analyses of all five sample sites were elevated over the 1990 test results. A copy of the results was faxed to the State College FWE Field Office for review and recommendations as to the need for further testing. The samples will be destroyed by the contractor on January 30, 1993 unless it is determined that further testing is required.

February 22: The radiological test results from the sampling of the Folcroft Landfill monitoring wells in October 1992 were discussed with Cindy Rice of the State College FWE Field Office. The gross alpha and gross beta analyses of all five sample sites were elevated over the 1990 test results. Based on recommendations from experts of the U.S. Geological Survey additional testing should be done in 1993. The test protocol should be modified to require testing of filtered and unfiltered samples to determine if the radiation is soil background radiation or resulting from leachate from the landfill.

No funds were programmed for test well monitoring this year. The 1992 testing of only unfiltered samples cost \$4,500.00. Approximately \$8,000.00 needs to be identified for this project.

April 29: An acquisition request and contract specifications for continued groundwater monitoring of the Folcroft Landfill was forwarded to the Associate Manager, Refuges South. The contract was modified from previous years' contracts in an attempt to obtain better radiological test results. Previous years radiological testing was confounded by the presence of high concentrations of dissolved solids in the test samples. No funds for the project were provided in this year's annual work plan. Use of funds appropriated for study and cleanup of the site was recommended.

October 26: Representatives from the Northeastern Analytical Corporation, Marlton, NJ, collected groundwater from five existing groundwater monitoring wells on and adjacent to the refuge.

Scope of Work

The characteristics of the five groundwater monitoring wells are attached. The inside diameter of the riser pipes is 2".

The Contractor is to monitor the air during well sampling efforts using an HNU Model ISP1 101 photoionization detector with a 10.2 electron volt lamp (or equivalent) and an MSA Model 260 combustible gas/oxygen deficiency meter (or equivalent).

Immediately prior to collection of groundwater samples, the Contractor is to purge each well of five well volumes of water. Water temperature, pH, and specific conductance is to be measured and recorded during the purging to ensure conditions in the wells have stabilized before samples are collected. Purging and sample collection is to be done with bottom-loading Teflon R (Trademark of Dupont, Inc.) bailers. After filtration in the field with a 0.45-micron filter and vacuum pump, groundwater samples are to be processed in accordance with the following publication or more current guidance if it exists:

RCRA Groundwater Monitoring Technical Enforcement Guidance Document. U.S. Environmental Protection Agency, Office of Water Programs Enforcement and Office of Solid Waste and Emergency Response. 1986. OSWER-9950.1

Groundwater samples are to be analyzed for the following elements, compounds, and properties:

pH	
alkalinity	
hardness	
total dissolved solids ⁽²⁾	
gross alpha radiation ⁽²⁾	2 pico-curies/l
gross beta radiation	2 pico-curies/l
benzene	5 ug/l
vinyl chloride	10 ug/l
1,1-dichloroethane	5 ug/l
1,2-dichloroethene	2 ug/l
chlorobenzene	5 ug/l
trichloroethene	5 ug/l
xylene	5 ug/l
naphthalene	10 ug/l
acenaphthene	10 ug/l
fluorene	10 ug/l
phenanthrene	10 ug/l
dibenzofuran	10 ug/l
cyanide	1 mg/l
arsenic	1 ug/l
cadmium	0.1 ug/l
chromium	1 ug/l
copper	20 ug/l
iron	30 ug/l
lead	1 ug/l
manganese	10 ug/l
mercury	0.2 ug/l
nickel	40 ug/l

selenium	2 ug/l
zinc	5 ug/l

These analyses are in addition to the measurements to be taken in the field during groundwater sample collection.

- (1) Analytical procedures must be sensitive enough to detect the concentrations specified above.
- (2) An internal proportional counter should be used for the analyses for radiation. Gross alpha radiation should be determined using the EPA approved coprecipitation high solids methodology. Samples collected for radiological testing should be of sufficient size and processed such that testing for Radium 226 using the EPA approved Radon emanation procedure and testing for Radium 228 can be conducted if gross alpha gross beta results indicate that these tests are warranted. The contractor shall maintain the samples for a minimum of 60 days after providing the gross alpha and gross beta radiation results to the government. This contract does not include testing for Radium 226 and Radium 228.

December 17: The results of the chemical and radiological analysis of groundwater samples taken from the four wells on the Folcroft Landfill and the control site well located adjacent to the landfill on October 26, 1993 were received from Northeast Analytical Corporation. While the results of tests for organic and inorganic compounds differed substantially between the control and sample sites the results do not seem to be grossly different from the results of previous years testing. The results of the radiological testing were substantially lower than the 1992 results, most likely due to changes in the testing procedures necessitated by the high suspended solids content of the samples which made the results unreliable.

December 21: A copy of the data was forwarded to the State College Field Office Contaminants Specialist for technical review.

GATX Marine Terminal Spill

March 31: The Coast Guard Marine Safety Office was notified at 00:03 of a severe gasoline odor emanating from the Delaware River. An estimated 20,000 - 27,000 gallons of Cumene was spilled from the vessel Ellen Knutson during loading operations. AFRC Walker was notified by Mike Chesik, DOI Office of Environmental Affairs at 08:10. Walker provided updates to Tim Fannin, R5 and Cindy Rice, State College FWE Field Office throughout the day. No wildlife was known to be directly affected by the spill.

Publicker Superfund Site

This Philadelphia-located former chemical company site has made headlines over the past decade with its suspicious fires and safety-related issues. It's location is on the Delaware River immediately north of the Walt Whitman Bridge. EPA has been involved with the site's remediation for years. The F&WS has recently gotten interested in the site as it pertains to a proposed deep draft vessel unloading site for the Holt Marine Shipping Terminal that wants to extend it's current operations from the south side of the Walt Whitman Bridge. (It also operates on the New Jersey side of the Delaware River, opposite the Publicker site.) Some 20-30 acres of development/dredging is being discussed within certain circles. The end result will be the need for off-site mitigation; that's where the refuge may have a role to play. No serious discussions have occurred with the refuge but folks from Wildlife Enhancement and the Office of Environmental Affairs are broaching the subject with the Manager.

Delaware Bay Hazmat Meeting

March 23: Nugent and Ford attended the "Delaware Bay Hazmat Spill Response Coordination Meeting" at the Bombay Hook N.W.R., Smyrna, DE. Nugent presented a segment on "Preparation for an Oil Spill" and showed a 30-minute video tape of a TV interview that addressed the Presidenta Rivera Oil Spill of June 24, 1988.

1990 Cumene Spill Update:

In March's Monthly Highlights, reference was made to a 14,000 gallon cumene spill that occurred in the Delaware River awhile ago. The regional solicitor's office was considering the Heinz Refuge as a possible recipient of the \$100,000. "damage assessment". On May 17, Manager Nugent received a call from Bill Nugent, Federal Prosecutor, U.S. Attorney Office, Philadelphia. Bill fleshed out the background on the spill: It occurred in March of 1990 when the Norweign-registered vessel "Jo-Rogh" leaked 12,000-15,000 gallons of Cumene a colorless, watery liquid that smells like gasoline. The spill was at Pier 198, north of the Ben Franklin Bridge. Some 150 residents were evacuated for safety reasons. The spiller was cited under the Clean Water Act. An out-of-court plea agreement was reached between the Department of Justice and the ship's insurer for \$150,000. The Department of Justice will receive \$50,000. the remaining \$100,000. is to be "restitution to the victim", i.e., the Delaware River and/or its environs. The Heinz Refuge is being considered as part of the Delaware River's tributary network. Bill Nugent was questioning the Manager on possible "restitution" projects on the refuge. A brief background on the refuge's recent 18-acre marsh restoration project by PADOT was given. Its total cost of \$2 ± million put an initial damper on

expenditure of the "Jo-Rogh's" relatively minor damage assessment settlement at the refuge; Manager Nugent put a different spin on the situation saying that a lot of excavation and hardware/equipment could perhaps be done and/or purchased by force account/from GSA contract suppliers. Bill Nugent was encouraged to visit the refuge with Don Henne, Regional Environmental Officer for the Philadelphia-based Office of the Secretary, for a first-hand look at field potential for various habitat restoration projects. A site-specific restitution project needs to be drafted that will be presented to a Federal judge for final adjudication.

On September 13, a "criminal information" was filed in U.S. District Court, Offjell Shipping of Bergen Norway, was accused of negligently contaminating the Delaware River on March 17, 1990, when more than 15,000 gallons of the chemical cumene - a colorless liquid solvent used to manufacture nail polish and plastics - spilled from the tanker Jo Rogu into waters off Port Richmond. Offjell Shipping faces a maximum \$200,000 fine if convicted of the misdemeanor under the Clean Water Act. The lawyer for the shipping company, Stanley Gorinson, has said that the company had been negotiating with Bill Nugent's office over terms for a possible plea bargain. Bill Nugent told Dick Nugent that a \$100,000. would probably be the settlement fine. This money would go to the Department of Treasury. The State of Pennsylvania, however, will be filing its own suit and in lieu of criminal prosecution, a \$50,000 fine would be levied. Bill said that various conservation groups will end up being the recipients of the fine. The refuge is scheduled to be given \$10,000.00!

October 12, 1993, defendant, Odfjell Shipping A/S, the owner of the vessel "Jo Rogn," appeared before the Honorable William H. Yohn, Jr., United States District Court Judge for the Eastern District of Pennsylvania, and pled guilty to a one count misdemeanor violation of the Clean Water Act. The Court sentenced defendant to pay a \$100,000.00 federal fine consistent with the terms of the plea agreement.

In addition, defendant and the Office of the Attorney General for the Commonwealth of Pennsylvania executed the Disposition in Lieu of Prosecution. Consistent with that disposition, defendant paid the sum of \$50,000.00 by certified check to the Attorney General. The Office of the Attorney General will disburse the \$50,000.00 it recovered in this case to various environmental groups working to preserve the Delaware Valley's rivers and streams, including \$10,000.00 to the John Heinz National Wildlife Refuge at Tinicum.

Assistant U.S. Attorney Bill Nugent advised Ronald C. Stanko, Deputy Attorney General for the Office of Attorney General, Environmental Crimes Section, that he should contact the Refuge

Manager for the John Heinz National Wildlife Refuge at Tinicum when the office of the Attorney General disburses the monies recovered in this case.



(unknown photographer)

Big money!

November 10: The refuge got \$10,000. richer when it became a recipient of the negotiated settlement stemming from the March 1990 cumene spill in the Delaware River. The following material is excerpted from the press release issued from Pennsylvania's office of Attorney General spells out the details:

PHILADELPHIA -- A chemical spill into the Delaware River that closed the Betsy Ross Bridge has opened a \$50,000 opportunity for five Philadelphia area environmental agencies, which today received checks from Attorney General Ernie Preate Jr.

"At a time when it's becoming increasingly difficult for non-profit groups to get dollars from state and federal government, I'm pleased to be giving these organizations a direct financial boost, " Preate said during a ceremony here.

The money was obtained by Preate's office under a negotiated settlement stemming from an investigation of a chemical spill into the Delaware River at Philadelphia in March 1990.

Preate presented \$10,000 checks to the following:

-- Delaware Riverkeeper Network, Lambertville, N.J., a citizen monitoring program that helps protect water quality and habitat in the Delaware River Watershed.

-- Friends of the Pennypack, Philadelphia, a community group involved in improving and protecting the environment of Pennypack Park.

-- Friends of the Poquessing Watershed, Philadelphia, a group dedicated to the protection and enhancement of the Poquessing Watershed.

-- John Heinz National Wildlife Refuge at Tinicum, Philadelphia and Delaware counties, a 1,200-acre Congressionally mandated refuge administered by the U.S. Fish and Wildlife Service. The refuge contains some of the last remaining fresh water tidal marshes in Pennsylvania.

-- Schuylkill River Greenway Association, Wyomissing, which promotes the development of recreational facilities along the Schuylkill River.

Preate said the spill was investigated by the Philadelphia Environmental Task Force, made up of federal, state and Philadelphia agencies involved in enforcement of environmental laws.

Odejell Shipping A.S. of Bergen, Norway, the corporation that owns the tanker, admitted violating the federal Clean Water Act. Earlier this year it paid a \$100,000 fine under a plea agreement with the U.S. Attorney's Office for the Eastern District.

Under a separate agreement with Preate's Environmental Crimes Section, the corporation made a \$50,000 contribution in lieu of prosecution on state charges.

"I'm giving this money to these organizations because it's my policy to us financial penalties in environmental cases to benefit community-based environmental groups, whenever possible," Preate said.

"In the state General Fund, \$50,000 is pocket change. But to grassroots organizations like these, \$50,000 is real money -- and I know it will produce real results."

Since taking office in 1989, Preate's office has awarded \$492,000 to 18 non-profit organizations in eight counties.

In response to a "thank you" note from Nugent, Attorney General

Preate said:

"... I've been over to the Refuge, and jogged the trails from the Visitors Center toward Scott Plaza, and back.

"It's very beautiful and interesting, and it was this visit that inspired me to provide the Refuge with the money I obtained from the Environmental Crimes Settlement.

"Your Refuge provides an awareness and understanding of the environment, and also the action necessary to insure our survival and improve the quality of life."

(Another way to "jog ones memory"!))

Darby Creek Disposal Area (Tracts # 10 & 12)

July 22: Vince Hill and Thiela Hall, EA Engineering, Sparks, Md. travelled to Tinicum a second time (initial visit was on March 3, 1992) to make another on-site inspection of both tracts previously owned by the Department of Defense. It seems as though the DOD left many of its former training and testing sites in hazardous conditions. This does not seem applicable to these particular sites; a Preliminary Assessment of Tracts 10 & 12 two years ago (through the Defense Environmental Restoration Program for formerly used Defense sites) didn't raise any red flags. It appeared that EA Engineering was on a junket this time but that's far better than dealing with a hazardous waste situation.

Celotex/Island Realty Oil Spill

June 21: A 200' x 1/2 mile oil sheen was noted on the Schuylkill River by a tugboat captain. The source of the spill was at the former Celotex asphalt/shingle facility at 3600 Gray Ferry Ave., Philadelphia. The U.S. Coast Guard hired the services of Clean Venture and Clean Harbors to attack this Federally-funded clean up. Gallonage estimates of the spill began at 80 and quickly increased to 1,000. The current owner, Michael Calandrillo from New York was not cooperating in the clean up effort. It was later learned that the site was purchased by Calandrillo a.k.a. Island Realty from Celotex for \$1.00. As EPA and the U.S. Coast Guard investigated the incident and its background, more disturbing information was gathered:

An on-site visit by Federal officials found the ground to be saturated with an unknown product that had leached from metal tanks that had been cut up for scrap material. Some of this product was leaching into the tidal Schuylkill via a bulkhead. Twenty-four holding tanks were evidenced. Twenty-two of them were sampled; a complete analysis won't be available for 2 weeks. A "quick and dirty" on-site analysis did not show any

serious hazards present. Low level benzene and possible PCB's are expected, however. Four tanks were considered unstable and will have their products pumped out. Three tanks contain some 10,000 gallons of "oil" and one contains 92,000 gallons of "oil". Fifty-six, 55 gallon drums of various products was also found. Some containing PCB's.

June 28: The U.S. Coast Guard On-Scene-Coordinator Captain Guldenshire arranged for a conference call that included representatives from the USCG, EPA, PA Dept. of Env. Resources, Dept. of Justice, USF&WS, NOAA, and DOI. The spill site is now considered a "Criminal Site" with certain precautions now in effect... including 24-hour security. Although not discussed in detail, a definite connection with the "underworld" is speculated.

The USCG will fill the On-Scene-Coordinator position until the imminent oil pollution threat to the tidal water, by the unstable tanks, has been alleviated... then the EPA will be the lead federal agency.

No on-site visits have been made by the refuge's FRCs. We receive our updates via the USCG's Pollution Reports, phone calls and conference calls. To date, the only visible wildlife victims have been three oiled rats observed floating belly-up in the Schuylkill River. Some oiling and staining of overhanging tree branches were removed by the clean up contractors. Booming has been deployed along the bulkhead; no sheening is now evidenced. The initial cleanup costs are being paid from the federal Oil Spill Liability Trust Fund; \$500,000.00 has been appropriate at this time.

Sheppard Motor Parts Dumping Incident (Tract 25-A)

(Photo: Nugent)

An urban "drumming site".

September 17: A PA DOT litter crew discovered 10 various-sized containers of oil and various solvents strewn in the high weeds along the Rt. 420 cloverleaf approach to I-95 (southbound). On Sept. 20, Paul Jardal, PA DER's Bureau of Solid Waste, investigated the incident. A shipping memorandum was attached to a 30-gallon drum indicating ownership by Sheppard Motor Parts located in the adjacent town of Prospect Park, PA. The firm was contacted and issued a Notice of Violation. Sheppard stated that it had an unidentified, independent scrap collector pick up various metal containers 3 months prior. The contents of some of the drums spilled into the ground and flowed downhill onto the eastern boundary of Tract 25-a... the larger lagoon that fronts Darby Creek; no water pollution was noted. A chemical analysis of the products found various oil components and solvents present, e.g., tetrachloroethane, xylene, benzene and naphthalene. PA DOT will perform a site cleanup. The refuge was not notified of the incident until Oct. 25th!

December 28: A letter was sent from PADER's Waste Management Specialist, Paul Jardel to PADOT's District Engineer, Stephen Lester regarding the abandoned drums investigation (thought to

be owned by Sheppard Motor Parts).

The letter states:

"The Department's Environmental Crimes Unit is presently undertaking an investigation into the incident, but until such time that a responsible party for this incident is proven, the burden for any waste disposal or site remediation falls upon PennDOT since the site is on the PennDOT right of way. Therefore, the Department requests that PennDOT undertake an expedient remediation of the contaminated area. Enclosed results of soil samples analyzed by the Department show highly elevated levels of tetrachloroethene and the presence of other volatiles. The contaminated soil should be excavated, and post excavation samples taken to insure completeness of remediation."

Chevron's Pipeline (Tract 32)

October 22: Rich Sim, an employee of Chevron U.S.A., Inc. filed a formal Grievance Complaint against his employee. He charged Chevron of violating its environmental policy as it relates to the hazardous wastes within its 200' wide pipeline that traverses the eastern end of the refuge. Sim's original concern originated in 1988 when Chevron installed a valve and valve box (as mandated by the Dept. of Transportation to protect tidal areas) on its pipeline right-of-way property within the refuge. At that same time Manager Nugent had requested that Chevron sample several denuded areas within the valve worksite.

Background

On May 2, 1988, Chevron's consultant: Groundwater Technology, Inc. (GTI) obtained ten samples at various depths at five locations. Additionally, two composite samples were obtained from seven locations within the area of most apparent vegetation dieback.

The discreet samples were analyzed for Total Petroleum Hydrocarbons (Soxhlet extraction, Methods 503D and 503E, Standard Methods for the Examination of Water and Wastes, 16th Edition, APHA, 1985) and Oil and Grease (Soxhlet extraction and infrared spectrophotometry, Methods 503B and 503D, Standard Methods for the Examination of Water and Wastes, 16th Edition, APHA, 1985).

The composite sample I-96-Composite (I-96-1 through I-96-7) was analyzed for Volatile Organics (Purge and Trap GC/MS, EPA Method 8240) and Priority Pollutant Metals (EPA Method 6010, EPA Method 7471 (mercury), and EPA Methods 7060 and 7740 (arsenic and selenium, respectively).

The composite sample I-97-1 was analyzed for chloride and pH.

During sampling, there was no field detection of free-phase hydrocarbons or hydrocarbon odors, and a field Photoionization Device (PID) failed to detect the presence of organic volatiles.

Based on its laboratory's analytical data, the cause of the dieback did not appear to be related to the transmission of petroleum products along the pipeline, as the petroleum related parameters for which the soil was analyzed were non-detectable.

GTI stated that the metals analyses (EPA Method 6010) revealed specifically notable concentrations of cadmium, mercury, zinc, and lead. The relationship among the pipeline, the area of dieback, and the inordinate metals concentrations should not be interpreted as conclusive or causal, however, as ambient sampling and analysis would need to be undertaken to provide baseline information on the native soils in the area.

The Special Use Permit issued on March 8, 1989 specified the requirement of erecting three "Attention Visitor" signs one at the north end of the Chevron wood-chipped trail. At that hole site, on April 12, 1989, a white waxy type material was recovered. Unknown to refuge personnel, this finding was of enough concern to Chevron personnel that it was analyzed at the refinery's laboratory. Its findings are as follows:

Analysis

a: Solubility.

The sample was found to be insoluble in water, sparingly soluble in acetone and chlorinated solvents, and completely dissolved in CS₂ after some time.

b: Gas chromatography

The CS₂ solution was analyzed by gas chromatography on a short (15 meters) capillary column using a flame ionization detector. It shows that more than 50% of the sample comprise of n-hydrocarbons in the C₂₀ to C₄₀ range. The sample is a normal petroleum-derived wax.

c: Infrared analysis

IR analysis confirmed that the sample was essentially paraffin wax.

d: EDXRF

The energy-dispersive X-ray spectroscopy (EDXRF) scan showed essentially background only. Any metals, if present, would hence only be there in very low concentrations.

Discussion

The sample is a normal petroleum-derived refined wax product. It is the same type material used as coating on milk cartons or as bottom liners in water reservoirs or canals where it acts as a water-impermeable barrier. Refined wax is not toxic and in small quantities should not pose a hazard to the environment, because it has a high melting point, is biodegradable on the long run, and does not release metals and/or toxic decomposition products. It is the same material used to make wax candles.

It is not clear where the wax originated. The material analyzed is a refined product. If it had seeped out of the pipeline, -- which is used to transport crude-- the wax would be colored and would contain a higher percentage of non-n-hydrocarbon constituents. Paraffin wax is usually not used for coating of pipelines. It is also a too valuable material to be just dumped away.

Rich Sim was the on-site supervisor for the construction of the pipeline's valve and its box. Initially, he kept his concerns to himself; he later voiced concerns to his boss(es) that the workers were being directed by management to bury waste in Tinicum. Management contended that all waste generated by the valve installation project was analyzed and shown to be non-hazardous. Management further contended that all waste was removed from the refuge site and properly disposed. Sim was so frustrated that he requested and was granted a job reassignment.

It wasn't until recently that Sim approached Nugent with his grievance against Chevron. The company responded by stating that it had not conducted activities that violated the legal requirement or its Company environmental policy.

PRESENT STATUS

It was at that point that Sim, (with his Union's knowledge) approached the Environmental Protection Agency to tell his story. Accordingly, EPA's Region III Hazardous Waste Material Division responded.

Visitor" sign site. A simple CLOR-N-OIL, PCB Screening kit was utilized in the field for a quick analysis of wax; no PCBs were noted. EPAs lab analysis results may take from 30 to 60 days. If tests prove to be of major concern, a grid sampling will be recommended for determination of the extend of contamination (heavy metals/paraffin). Lee Walter will coordinate with Robin Burr, FWS Contamination Specialist, on loan to its Regional Office from Ecological Services' Pleasantville, NJ field office.

Jack Galloway mentioned that Chevron may be selling its Philadelphia oil refinery to the Sun Oil Co. by the spring of 1994. If there is a contamination problem, Sun will be advised. The extent of remediation/removal may be negotiated between Chevron and FWS (the property belongs to Chevron).



(Photo: Nugent)

Same mission, different folk.

December 6: Seven employees of Pennsylvania's Department of Environmental Resources met on-site to duplicate the soil/paraffin sampling performed by EPA on Nov. 19th. Rich Sim, Chevron employee/whistle-blower, contacted PADER to alert them of his concern over the possible contaminated right-of-way that traverses the refuge. David Elm and Paul Jardel, both Waste Management Specialists, headed up the group's effort in obtaining the samples. Manager Nugent and Sim accompanied the entourage.

What spawned Sim's recent concern over what might lay beneath the pipeline's surface was the pending sale of Chevron's 717 acre South Philadelphia refinery to Lincolnshire Management, Inc. a New York investment firm. He wants Chevron to go on record as a potential responsible party for any future remediation. This possible contaminant issue is now on the bargaining table.

December 20: Analytical results of the split soil samples taken on November 19th by EPA and given to Chevron were obtained. One wax sample, one wax/soil sample, and three soil samples were

analyzed for priority pollutant metals. In addition, the three soil samples were analyzed for TCLP metals. Each sample was also analyzed for general chemistry parameters. A superficial, non-professional overview of the results shows high concentrations of lead and zinc in the soil samples. EPA's analytical results of its comparable samples are not available.

Was It Off/On Refuge Refuse?

November 15-18: During that period several calls were received by the refuge concerning the dumping of contaminated soil on the refuge. Reports came from DOI's Office of Environmental Affairs, Philadelphia; EPA Environmental Response Team's Office of Criminal Investigations Philadelphia; EPA's national Response Center, Washington; and EPA's Wheeling, West Virginia office! A quick checking of the facts found the dump site to be approximately 1/4 mile south of Tract 22 on the refuge's western end. We, at first believed the incident to be synonymous with the Sheppard Auto Parts contaminate incident reported in October's Monthly Activity Report. Since there was so much concern about this off-refuge contaminate incident, its November 17th accounting in the Philadelphia Inquirer newspaper is offered.

Tinicum official admits to dumping

The township commissioner has decided to resign. He said the two aren't related.

By Nathan Gorenstein
and Claire Furia
FOR THE INQUIRER

Thomas Giancristoforo Jr. stood up and admitted it to the public: He was the mysterious dumper.

The Tinicum Township commissioner confessed Monday night that he was the offender who had five "small" truckloads of fill — some contaminated with petroleum products — dumped on Nov. 5 in a field near Routes 291 and 420.

Giancristoforo, 39, made the disclosure at the monthly commissioners' meeting after the state Department of Environmental Resources launched an investigation and last week ordered him to remove the fill.

Giancristoforo's admission came the same night he announced that he was resigning from the board. He said the two events were

unconnected.

With tears in his eyes, the commissioner said his resignation was the result of health problems and the expansion of his business.

"I take full responsibility for what has occurred. . . I'm sorry if I caused any embarrassment to fellow board members," he said.

Tinicum Police Chief Robert T. Lythgoe Jr. said in an interview yesterday that Giancristoforo "could" be cited for illegal dumping, but that any decision would await the DER's final report.

According to Giancristoforo, he intended the fill to be used to block off an access road to an undeveloped area near Philadelphia International Airport, an area that dumpers used to dispose of waste illegally. In fact, the fill was dumped more than a mile away.

Giancristoforo is head of the township's highway committee, and would be responsible for blocking the access road used by illegal dumpers.

A complaint from a resident who saw and videotaped the dumping initiated the investigation by the DER and Tinicum police.

Checking on that complaint, Lythgoe said

he learned that Giancristoforo was responsible for the dumping after spotting a truck carrying the material to the site.

Giancristoforo said the contaminated soil material had been removed by a hauling company from his gas station and oil business, Tinicum Petroleum Co., as part of his effort to upgrade fuel storage tanks to meet state regulations. The commissioner said he had no idea the material was contaminated.

A DER official said Giancristoforo had complied with state orders. "Everyone has been very cooperative," said Paul Jardel, a solid-waste specialist. Jardel did say the odor of petroleum was easy to detect when he investigated the incident last week. Now, "the contaminated material has been moved back to the point of origin" — Giancristoforo's business — said Jardel.

Ann Marie Woodall, the township secretary, said Giancristoforo paid for both the dumping and the removal.

Giancristoforo's father was on the Tinicum Board of Commissioners for 25 years, and when he died five years ago, his son was appointed to fill the post.

Presidente Rivera Oil Spill-Update

The owners of a ship which spilled approximately 250,000 gallons of oil in the Delaware River in 1989 have paid \$2.6 million to states of New Jersey and Delaware to restore the river's natural resources.

Under a consent agreement reached earlier in December, 1993 with the owners of the M/V President Rivera, the money will be used to restore areas damaged by the spill, including the Mad Horse Creek Wildlife Management Area in Lower Alloways Creek Township.

On June 24, 1989, the Presidente Rivera spilled between 200,000 and 250,000 gallons of viscous fuel oil into the Delaware River near Marcus Hook, PA, causing damage to natural resources over which both federal and state governments act as trustees.

The money collected from the Rivera's owners, Oriental Republic of Uruguay, will be used to acquire and restore marshlands at Mad Horse and will also be used for a shoreline stabilization project at Pea Patch Island, Delaware.

New Jersey received more than \$1.3 million and Delaware more than \$1.1 million in remaining claims as compensation for injuries to natural resources and reimbursement of \$4 million in governmental costs for the spill. The reimbursement is almost 100 percent.

Checks were distributed to states of New Jersey and Delaware Wednesday by the office of Richard G. Andrews, the U.S. attorney for the District of Delaware.

"While N.J. DEPE (Department of Environmental Protection and Energy), the other governments and Presidente Rivera worked hard to clean this one up, every oil spill presents difficulties," said James Hall, the DEPE's assistant commissioner for natural and historic resources.

"Wetlands, birds, fisheries, and the people who use and depend on the river still suffered impacts, but these funds will go toward restoring the losses."

Tar washed onto the shorelines of Salem County as the result of the spill.

New Jersey and Delaware also asserted claims for natural resource damages, removal costs and penalties under the Federal Clean Water Act and applicable state laws.

New Jersey will continue to address the growing area of natural resource injuries through the department's new Office of Natural

Resources Damages, Hall said. This office will coordinate the restoration activities for this settlement and others and will assess injuries in response to future incidents.

"The message is clear that the natural resource trustees will make sure that responsible parties compensate the public for injury to the nation's natural resources," Hall said.

The largest of the governments' claims included injuries to blue crab and bird populations, and diminished recreational use and enjoyment of the Delaware River and shoreline in areas affected by the 1989 oil spill.

"This case shows what can be accomplished when different levels of government work together," said Steven J. Madonna, the state's environmental prosecutor.

Both the former Tinicum National Environmental Center and Supawna Meadows N.W.R. were impacted by this oil spill. Field Response Coordinators and refuge maintenance personnel spent some six weeks in coordinating clean-up efforts in the Tri-State area. Regrettably, no reimbursement money has been received to cover the refuge's resource damages nor the many hours worked by refuge personnel.

H. PUBLIC USE



(Photo: Nugent)

Eenie, Meenie, Miney & Moe

1. General

This year was a year of growth. In March, Park Ranger Zahm was brought on board to assist in law enforcement and Public Use. In January, a committee of teachers from Delaware County and Philadelphia was organized to assist the ORPs in identifying the needs of area teachers and putting together a strong environmental education program that is "teacher friendly". As you will see in the following pages, the refuge's Public Use program is breaking ground and moving forward.

The refuge and its various programs were listed in several publications including the "Philapride" directory and "Pennsylvania One Day Trips".

June 2-4: ORP Rowand assisted with the dedication ceremony of the new Region 5 Headquarters in Hadley, Mass.

August 12: ORP Rowand attended a meeting of the East Coast Greenway Council. Those attending included state trail coordinators and parks people from Maryland, Delaware and

Pennsylvania. This volunteer-run council plans to develop a trail joining the urban areas from Boston to Washington through already established park trail systems. This meeting was called to look into the feasibility of the trail from Philadelphia to Washington taking a course through Wilmington, DE. It was decided that it was feasible. Looking at the plans, the refuge may provide a crucial link in the trail system. When asked about liability and logistics, the committee did not have much to say.

October 9: ORP Rowand completed the Annual Scout Report and mailed it to Sarah Bevilacqua in the Regional Office.

December 15: ORP Burns completed and mailed (hard copy and disk) the RMIS Annual Public Use Report for John Heinz National Wildlife Refuge at Tinicum. The monthly public use data sheets are being revised to better fit this format.



(Photo: Nugent)

A handicapped individual pushing his
luck/safety in a closed-to-boating area.

504 Compliance - Although the Visitor Contact Station is not handicap accessible, the maintenance building is, so that in the event of an emergency, those facilities may be used. The refuge permits those visitors who are physically challenged or cannot walk distances (due to medical problems), to drive the East Impoundment Trail during normal VCS staff hours.

August 18: ORP Burns contacted the phone company regarding the new PA Hearing Impaired Relay Service. Information about this was then passed on to other staff members. It can also be printed on brochures to let visitors know how to access it.

Below are the year-end visitation figures. Overall, the refuge was up in visitor use and contacts. In January, our traffic counter was stolen, so the figures from January through June may have been low since the traffic was only counted while a staff member was at the Visitor Contact Station.

	avg. 91-92	1993	% Change
Visitors using Visitor Contact Station	11,029	15,395	+40%
Total Refuge Visitors at 86th St. entrance	64,842	66,748	+ 3%

The Visitor Contact Station is open everyday from 8:30am to 4:00pm during eastern standard time and from 9:00am to 4:30pm during daylight savings time. The refuge is open everyday from 8:00am to sunset.

September 23: ORP Burns submitted the revised 504 plans for John Heinz National Wildlife Refuge at Tinicum and Supawna Meadows NWR to the Regional Office.

2. Outdoor Classrooms-Students



(Photo: Nugent)

This type of roadside littering
is encouraged.

The refuge's fieldtrip program continues to grow. More students are coming out for fieldtrips and more workshop participants are returning with their students. In the past, many fieldtrips consisted of teachers bringing their students to the refuge for a walk around the impoundment. Though this still happens, more and more teachers are taking advantage of the refuge's resource library and staff to organized educational fieldtrips that include fun activities and promote learning.



(Photo: Nugent)

Sixteen more reasons for
the refuge's existence.

	average '91-92	1993	% Change
Students attending fieldtrips to the refuge	1,906	5,211	+173%
Workshop graduates returning with students	8	19	+137%
Academy of Natural Sciences*	unavailable	670	---

*The Academy of Natural Sciences continue to lead EE programs at the refuge in the fall and spring. This year, one of their teachers, Jean Doris, retired and was replaced by Carolyn Minor. Frank Marinaro, the other teacher from the Academy, continues to teach children at the refuge despite past health problems.

April 15: ORP Burns led a group of college students in an environmental studies course on a tour of the refuge. They were

from Philadelphia College of Pharmacy and Science. Many were earning education degrees, so we talked about our environmental education program. We also talked about habitat management on the refuge.

May 20: Maintenance man McMenamin gave a talk at the Gayman Elementary School on the importance of wetlands and the history of the John Heinz National Wildlife Refuge.

June 11: ORP Burns co-led a field trip to the refuge with Shirley King from Radnor Middle School. Shirley has attended three out of our four workshops.

June 15: ORP Rowand co-led a field trip to the refuge with Steve Madjeska and Larry Stier from Vare Middle School. Steve and Larry are on the Environmental Ed. Initiative Committee.

June 24: ORP Rowand co-led a field trip to the refuge with Althea Harris from Pepper Middle School. Althea is on the EE Initiative Committee.

July 19: ORP Burns composed an "equipment policy and check-out" form.

October 6: Assistant Manager Walker met with Geoff Pennington, a senior at Archmere Academy, Claymont, Delaware working on an independent study project. Geoff, a resident of Drexel Hill, PA, chose the management of the refuge's 145-acre impoundment as his study topic. Items discussed included the management objectives for the impoundment, considerations in developing the current management regime, problems with pest plant species, the outbreak of avian botulism, and the natural process of eutrophication.

This year (and last) we were very fortunate in receiving the money Congress had set aside for use in Environmental Education in the Fish and Wildlife Service. That money was put to good use to obtain field equipment that could be used by field trip groups. The equipment included water testing kits, Golden Field Guides-which are easy for children to use, identification keys, activity guides and resources for teachers, and binoculars amongst other useful items for the teachers workshops as well.

3. Outdoor Classrooms-Teachers

The refuge's environmental education program currently consists of 4 major parts:

1. Resource Loan Library
2. Teacher Consultations
3. Teacher Workshops
4. Fieldtrips- (see above "Outdoor Classroom- Students")

In September, ORP Rowand was able to "package" our EE program into a brochure entitled "Teaching in the Outdoor Classroom" (see information packet inside back cover). Copies of this leaflet will be distributed at teacher conferences and workshops, off-site exhibits and as requests are received at the refuge.

This was also the first year for the refuge's bi-annual environmental education newsletter for teachers who have participated in a workshop or expressed interest in the refuge's EE program. This newsletter, published in March and September, informs readers of upcoming workshops, new developments in the EE program, and general information on what's happening on the refuge. Both the brochure and newsletter are in-house projects from development to printing.

Resource Library:

The refuge's resource library card catalog system is now nearing completion after 2 years of inventorying when time was available. Many people contributed to this effort including ORPs, interns, and the new Park Ranger. The card catalog system will help to keep track of the books and provide teachers with a systematic way to look for the books or activity guides they need.

Teacher Consultations:

The ORPs offer the following to teachers:

1. Meet individually with any teacher to discuss the refuge's EE program and/or help plan their fieldtrip to the refuge.
2. Co-lead a workshop graduate's first fieldtrip to the refuge.
3. Provide presentations on the refuge's EE program as part of teacher inservice training or a school's staff meeting.

ORPs Burns and Rowand met individually with 18 teachers to discuss the refuge's EE program and/or assist in developing a field trip to the refuge this year.

Below is a compilation of the larger meetings we had with teachers and teacher groups.

April 27: ORP Rowand gave an program to 30 teachers from Penrose Elementary School at the refuge. The presentation explained the refuge's environmental education program and how

to set up a successful field trip to the refuge. It was part of their afterschool teachers meeting for that week.

June 28: ORP Burns led a field trip for teachers attending Darby Creek Valley Associations' course on the watershed. Six teachers and Ann Ackerman spent 2 hours walking through and learning about the refuge and our environmental education program.

August 25: ORP Burns met with Larry Stier, Steve Madjeska and five other teachers from Vare Middle School to orient them to the refuge and our Environmental Education program. Larry and Steve have worked with our Initiative Committee and have arranged for their school to visit the refuge every Thursday from October through the end of the school year. They will have five groups. Each group will visit once every five weeks. Each visit will last one hour. They'll examine a different aspect of our environment with each visit, compare it to their usual environment, and be able to see natural changes here through the seasons.

December 7: ORP Burns met with 4, 5th grade teachers and a counselor from Delcroft Elementary School, Folcroft. The counselor has been encouraging the teachers to visit the refuge and see what we can offer to them. They discussed the refuge staff's role and the teacher's role in refuge field trips, the curriculum library, the help available to them, equipment for use during field trips and what they could expect to see here. They then took a brief walking tour with ORP Burns on the refuge.

December 16: ORP Rowand received a phone call from Ann Guida from Ashland Middle School, Folcroft, PA. A few teachers at the school are working on a grant proposal to develop a student's guide to the refuge. The guide would be developed by 2 classes of 6th and 7th grade students. The teachers were asking permission for the project and any assistance the refuge could provide. Rowand passed the information on to ORP Burns who contacted Guida to express our interest in the project and give our permission to use the refuge as the topic of the guide.

Environmental Education Workshops:



(Photo: Buchanan)

Gamming.

The refuge offers 4 EE workshops for teachers and others who work with children. Philadelphia and Delaware County teachers can receive 1 Inservice Unit Credit for each workshop they take. These credits are required to keep their certification.

The refuge's workshops are listed below.

1. *Keystone Aquatic Resources Education*- sponsored through the PA Fish and Boat Commission
2. *Project Wild/ Project Learning Tree*- sponsored through the PA Game Commission and PA Dept. of Education

3. *Tinicum Marsh: Introduction to Environmental Education*
4. *Tinicum Marsh: Further Studies in Environmental Education*

After completing a workshop, teachers receive certificates of completion from the refuge. Most of the workshops allow time for the teachers to write a lesson plan using the information gained from the workshop or write how they plan to use what they have learned. Copies are made and sent to the participants 6-months later to remind teachers of their plans. In the future, a survey will be included to discover how much the workshop information is being utilized in the classroom.

It has been noticed in the past that fall workshop turnout is low. The ORPs are evaluating the situation and are looking into other options which may include offering our workshops through college education programs. It was decided, however, that our workshop minimum will be 10 participants- anything less than that, the workshop will be cancelled.

Below is the statistical information and a descriptive account of the year's workshops.

Name of Workshop	# of Participants
Introduction to EE (Philadelphia Ranger Corps)	25
Keystone Aquatic Resources Education	14
Introduction to EE	20
Keystone Aquatic Resources Education (Temple University)	15
Further Studies in EE	11
Project Wild/ Project Learning Tree	7
Project Wild (Environmental Education Resource Teacher Training)	33
Introduction to EE	6
Project Wild/ Project Learning Tree	3
Total	134

January 2: ORP Rowand completed the **Project Wild/Project Learning Tree** workshop proposal for the Philadelphia School

District. It was submitted to ORP Burns and a copy given to Refuge Manager Nugent.

January 12-14: ORP Burns and Rowand facilitated an **Introduction to Environmental Education** workshop for Class 5 of the Philadelphia Ranger Corps. Although this program was off-site, these rangers will reach a large number of Philadelphians through school programs and interpretive programs. Any assistance the refuge can supply to other parks and environmental organizations can only support the work being done by the U.S. Fish and Wildlife Service. The workshop included hands-on activities studying habitats and developing field identification skills as well as getting the rangers started on producing a nature program for their site. Participant evaluations were filled out at the end of the course. Written and verbal response from the rangers was favorable and work with this organization is likely to continue.

March 20, 26 & 27: ORP Rowand conducted a **Keystone Aquatic Resources Education** workshop, assisted by ORP Burns and SCA McLean, for 14 teachers from Philadelphia and Delaware county. The 15-hour workshop included pond studies and other hands-on activities to teach the educators the basics of aquatic education. The teachers received 3 activity guides which are part of the KARE program- sponsored by the PA Fish and Boat Commission.

April 17, 23 and 24: ORPs Burns and Rowand with SCA intern McLean presented a 15-hour workshop **Tinicum Marsh: An Introduction to Environmental Education** to 20 teachers from Philadelphia and Delaware Counties. Participants learn basic ecological concepts while investigating wildlife habitats on the refuge. Many of the activities used with the teachers can also be used with their students.

May 1: ORP Rowand facilitated the morning session of a **Keystone Aquatic Resource Education** workshop for 15 education students from Temple University. The afternoon session was led by their professor, Kathy Blouch, who is also a facilitator for the KARE workshop.

May 15, 21 and 22: ORP Burns and Rowand conducted the **Tinicum Marsh: Further Studies in Environmental Education** workshop for 11 Delaware County and Philadelphia teachers. This was a field-intensive course studying the field, forest, impoundment, creek and freshwater, tidal marsh. We looked at the physical features, plants, birds and other animals in each of these habitats.

June 11-12: ORP Rowand presented a **Keystone Aquatic Resources Education** workshop to 6 Girl Scout leaders from Delaware County. The workshop was part of a skills weekend held at the Girl Scout camp in Chadd's Ford, PA.

June 29 - July 1: ORPs Burns and Rowand facilitated a 15-hour **Project WILD / Project Learning Tree** workshop. Seven people, including our interns, completed the course.

July 18-20 and August 8-10: ORPs Burns and Rowand attended training for **Project Learning Tree** facilitators. This training was to introduce the new format for the PLT activity guides. ORP Rowand presented a program on Plant Dyes for the facilitators in both sessions.

July 30: ORP Burns and Rowand facilitated a **Project Wild** workshop for the Environmental Education Resource Teacher Training Institute. This course is the result of the Dwight D. Eisenhower Mathematics and Science Competitive Grant given out through the Pennsylvania Department of Education. The grant, \$115,000, was awarded to Tyler Arboretum and Penn State-Delaware County Campus. The total training for the elementary and middle school teachers will be 3-weeks with an on-going seminar during the '93-'94 school year. The teachers will then go back to their school districts to pass on the information gained in the course. 33 teachers participated in the course which introduced Project Wild and illustrated its use with a class. Unfortunately, during one of the participant-led activities, one of the teachers, Charles Beehler, fell. The injury appeared to be only a bloody nose and bruised face, however, the teacher was taken to the hospital to be examined by a physician. Mr. Beehler called August 1 to report that the hospital tests reported nothing; his sinuses were shaken up and he had a black eye.

October 16, 21, 23: ORP's Burns and Rowand presented an **Introduction to Environmental Education** workshop to 6 area teachers. In an effort to better organize the workshop, the ORPs outlined several different ecological concepts which were taught and illustrated through activities the teachers could use with their students. Also covered in the workshop was a description of the refuge's EE program and suggestions on how to plan a field trip to the refuge. Activities utilized equipment which teachers can borrow during fieldtrips. This equipment was explained and teachers learned how to use and care for it. Five out of the six completing the course, stated on their evaluations that they are planning a trip to the refuge.

November 3, 10, 17, 20: ORP Burns and Rowand facilitated a 15-hour workshop on **Project Wild/Project Learning Tree** for 3 educators. The workshop consisted of 3 Wednesday evenings and 1 Saturday. After the workshop, ORP Burns and Rowand decided that stretching a course over 3 weeks was a little long for both participants and facilitators.

December 15: ORP Rowand contacted the Delaware County and Philadelphia Intermediate Units (IU) to give them the dates of

our Spring '94 workshops. It was discovered that our dates needed to be in to the Delaware County Intermediate Unit by November 1, 1993. ORP Rowand requested the deadlines for each season so that deadlines would not be missed in the future. The Philadelphia IU accepted our dates for their In-service catalog and we requested that 20 teachers be registered from Philadelphia since we would not be receiving any IU registrants from Delaware County.

Environmental Education Initiative Committee:

The concept for the Initiative Committee came after ORP Rowand attended the Environmental Education Methods Training in San Francisco, CA in July of 1992. August of 1992, ORPs Burns and Rowand met with Refuge Manager Nugent to propose the idea of upgrading the Environmental Education program. To do this, the ORPs suggested involving teachers who were already somewhat involved with the education program or familiar with the refuge. Invitations went out in December of 1992 for the January meeting.

To date, there are approximately 24 educators who receive the meeting notes from the committee and a core membership of 7 who regularly attend the meetings.

Below are the monthly reports from the committee.

January 19: ORP Rowand led the first meeting of the EE initiative committee. This committee includes educators from both Philadelphia and Delaware Counties. The participants had received with their invitation, a background survey and the Action Plan which had been developed by the refuge staff. The meeting began with presentations from ORP Burns and Rowand on the refuge, USFWS policy on Environmental Education and what is currently being done at the refuge. A discussion then followed on how the refuge could better serve the area school districts.

The meeting ended with the decision that a small packet of fieldtrip information could be given to teachers interested in leading fieldtrips to the refuge versus a large binder type educators guide (the guide could come at a later date). It was also suggested that classroom activities about the refuge could lead teachers to take a fieldtrip to the refuge. The need to get the EE program at the refuge more publicity was the strongest point which came out of the meeting. Until the next meeting, the committee will be thinking about what they think should go into the packets and what types of classroom activities could be used. The refuge staff will be working on our networking and getting together a program we can take on the road to teacher staff meetings.

February 22: The 2nd meeting of the EE Initiative committee.

Ten educators and ORPs Burns and Rowand attended. This meeting went into more detail concerning the major areas of concern which were discussed at the first meeting. Those areas are: Publicity, Programs, and Teacher Incentive. It was decided that Publicity should be the first priority. Until the next meeting, the committee members are working independently to acquire contacts within their school districts which the refuge could contact for teacher presentation or EE news releases.

March 22: An Environmental Education Initiative meeting was held. In keeping with our goal of networking, representatives from Bartram's Gardens and Fort Mifflin were present. The representatives explained their programs and discussed how we might work together. ORP Rowand updated the committee on staff progress with the EE program, efforts to get the word out, etc. It was decided to begin work on site-specific activities that will enable teachers to feel more comfortable teaching here. Committee members will come to the next meeting with ideas for themes that fit into school curriculum and can benefit by a fieldtrip to the refuge.

May 10: The Initiative committee met at the refuge classroom to discuss on-site activity themes for the refuge that would also correspond to what was being taught in the area schools. Five themes/concepts were decided on: 1) Freshwater tidal marsh; 2) Urban Wildlife Refuge; 3) Five Habitats for Study- (pond, creek, marsh, field, wooded areas); 4) History of Marsh- (i.e., man altering the environment); 5) Birds. The committee members chose to begin with Five Habitats for Study. They are currently setting up field trips with their own students to try some activities that could be used by other teachers on that topic. The committee will meet again at the end of June to see what worked and what didn't.

Throughout the month of June, committee members were bringing their students to the refuge for fieldtrips based on the theme of "5 different habitats of study: pond, creek, marsh, woodlands, and field". These initial fieldtrips will give the committee an idea of what works and what doesn't.

June 28: The committee met to discuss the fieldtrips and provide input as to what needs to be in the fieldtrip packet for the theme "5 different habitats". It was decided that the committee would take July and August off and plan to meet again in September to review the first draft of the "5 different habitats" field trip packet, which will then be field tested. The committee will decide which theme to work on next and begin development of that packet in the fall.

September 13: After a 2-month break for summer, the committee met to review the orientation and "5 Habitats to Discover"

packets, catch up on refuge happenings, and get back to business. Part of the meeting was used to compile the refuge's EE newsletter mailing. The committee made suggestions on both packets after a brief review. They will take the packets home for further review and will return in October with their suggestions.

October 25: The committee met to review the orientation packet and the "5 Habitats to Discover" fieldtrip packet. Suggestions were made which will be incorporated into the revisions of the orientation packet. The "5 habitats" packet will be further developed for review in November. Marlene Robinson of the Peopling of Philadelphia program has joined our committee and explained what "Peopling" is all about and how the refuge may participate.

November 29: This was the last meeting for 1993. During the meeting a revised version of the "5 Habitats to Discover" fieldtrip packet was discussed and fleshed out. It was decided that January would be a good time to get some new people involved in the committee to replace those that cannot make the Monday evening meetings or have stopped coming for reasons unknown. ORP Rowand distributed refuge lapel pins to committee members for their devotion to the refuge's EE program over the past year. It is felt that the task the committee has undertaken is coming along at a good pace with the hopes of having both the orientation packet and the "5 Habitats to Discover" fieldtrip packet in final form for field testing during the Spring fieldtrip season.

Pennsylvania Alliance for Environmental Education:

This non-profit organization's mission is to "promote and support environmental education activities and efforts throughout the Commonwealth of Pennsylvania." The refuge ORP staff have been a part of this organization for a number of years, participating on committees and conferences. Below is a compilation of the work the refuge staff did as a part of PAEE.

January 21: ORP Burns and Rowand attended the monthly PAEE meeting held in Phoenixville, PA. On the agenda, was organizing committees for the April 3, 1993 **5K Run for the Environment** to raise money for PAEE. ORP Burns is helping get volunteers together for registration and help the day of the event. ORP Rowand is working with Heather Mueller on soliciting exhibitors and vendors for the event.

February 17: ORPs Burns and Rowand attended the PAEE meeting to discuss further the planned 5K run set for April 3, 1993. ORP Rowand has created a mailing for exhibitors at the run. ORP Burns is recruiting PAEE volunteers to help the day of the event.

April 3: ORPs Burns and Rowand helped at the PAEE's 5K Run for the Environment. Approximately 100 runners with their families participated in the event. ORP Burns organized the volunteers while ORP Rowand helped with exhibits and staffed the refuge exhibit at the event. Unfortunately, the "fund-raiser" lost money.

September 28: ORP Burns attended a Pennsylvania Alliance for Environmental Education regional meeting. We discussed the pro's and con's of continuing to work with the Environmental Fund for Pennsylvania (a fund-raising coalition similar to United Way), new developments in state EE regulations, whether or not to hold an 'event' this year, and how to structure future meetings. In the past few years' meetings have basically been held to plan an 'event'. We decided not to sponsor an 'event' this year. Instead we will provide programs at our regular meetings that will be beneficial to teachers and 'Nature Center staff'. They will be held every other month and will be open to all educators. ORP Burns will help to coordinate the programs.

November 11-14: ORP Burns and Rowand attended the annual Pennsylvania Alliance for Environmental Education (PAEE) conference. This year's conference was held at Shawnee-on-the-Delaware, PA. This conference is a chance to meet with other naturalists and environmental educators throughout the Commonwealth of Pennsylvania and share ideas and learn about what is happening in environmental education in Pennsylvania.

Other Associations:

June 29: ORP Burns attended a meeting at Camden Aquarium, Camden, NJ. This was a preliminary meeting for people that are considering forming an organization of nature center administrators in the tri-state area (PA,NJ,DE) to encourage "networking". We are presently networking through Pennsylvania Alliance for Environmental Education. Burns asked the group to consider networking by having various state organizations co-sponsor activities instead of forming a whole new organization. Of the 200+ organizations invited, about twenty attended the meeting. A survey will be done to assess the need for such an organization to decide how to proceed. All agreed that it would be nice to foster contact between nature centers in the three states along the Delaware River.

September 29: ORP Burns attended a meeting at Bartram's Gardens to discuss their Environmental Education Program. There is a staff-led program with a variety of offerings, depending on the time of year and the age of the students. ORP Burns will be forwarding information to them regarding common winter birds and PA Department of Environmental Resources' new grant program.

Contact was made with Sharon Taylor, a retired teacher that brings school groups to the refuge to do volunteer projects, and Marlene Robinson from "Peopling of Philadelphia".

"Peopling of Philadelphia" would like to work with the refuge, Bartram's Gardens, Fort Mifflin and several other area centers to develop a program to bring students to these locations to study the environment. They have done a similar collaborative project with area historical sites. At the semester's end, the students produce a newspaper about their experiences. It sounds like an interesting program. We'll need to do some work to see how it will fit with our program, since most sites have guided programs, while ours are teacher-led.

October 7: ORP's Burns and Rowand met with Marlene Robinson, coordinator of the Peopling of Philadelphia program. Robinson is interested in including the refuge in the "Peopling" program. The program partners classes from different ethnic neighborhoods so that the students can learn to work together as well as meet on a social level. The classes visit museums/nature centers together and write letters to one another. The program in the past has worked with historic sites. They are currently expanding into environmental education. They will look at man's impact on the environment through visits to several locations. At the end of the year, they produce their own newspaper about their experiences.

December 20: ORP Burns attended a meeting at the Philadelphia Horticultural Society of organizations interested in 'networking' about environmental education. We encouraged them to look into Pennsylvania Alliance for Environmental Education (PAEE). They will meet again in January; hopefully with another PAEE representative, to discuss how PAEE facilitates networking and how they can work with PAEE.

The group also discussed possibilities for joint sponsorship of an event, possibly a City-wide scavenger hunt. We decided that there was not enough time to plan such an event for the spring. Perhaps an event could be planned for the fall for Environmental Education Week.

4. Interpretive Foot Trails

The refuge is visited not only by school groups but adult exercise groups, youth organizations and environmental groups. Below are the statistics from the organized groups who visited the refuge this year.

	91-92 average	1993
Number of groups and participants	74 965	72 1699

Interpretive Exhibits and Demonstrations: January 14: ORP Rowand and Assistant Manager Walker reviewed and approved 2 interpretive panel blueprints (Wading Birds and Keep it Clean) from Wilderness Graphics. The Wading Birds display will be placed along the East Impoundment Trail. The Keep it Clean display will be placed at the Rt. 420 area.

January 28: ORP Burns, ORP Rowand and Assistant Manager Walker reviewed and approved the Waterfowl and Wetlands interpretive panels from Wilderness Graphics. These displays will be placed along the East Impoundment Trail.

February 13: ORP Rowand put up the new display for the observation tower. The display entitled "All My Life's' A Circle" discusses two of the many cycles found in nature- the Water Cycle and Food Chain.

March 26: Four interpretive displays arrived at the refuge from Wilderness Graphics. They included: "Wetlands"; "Keep It Clean"; "Wading Birds"; and "Waterfowl".

May 2: ORP Burns and volunteer Jennifer Kauffman set up and staffed an exhibit at Earth SunDay in the Park, Fairmount Park, Philadelphia. The fair was smaller and turn out was lighter than the last two years. This year the organizers did not accept contributions from groups that they consider 'polluters'. They also emphasized activities, rather than just exhibits. So, for our section we had a display about the refuge and a felt board activity regarding land use planning. This tied in with another activity, called "Map Your Environmental Neighborhood", in our area. Our activity went very well.

May 7: ORP Rowand set up and staffed a refuge exhibit at the Tinicum Township Health Fair. Approximately 75 to 100 people visited the health fair that day.

June 25th: The announcement for bid selection for five different interpretive display panels was submitted to the regional office. The panels will include such information as a refuge map, refuge regulations, history of the refuge, and history of the wildlife refuge system. The panels have been designated for the soon-to-be completed kiosk and the bulletin board at the refuge's Rt. 420 entrance.

June 26-27: ORP Rowand, Park Ranger Zahm, SCA Brown, and Volunteers Buchanan and Brawley operated a booth at the \$500,000,000 Pennsylvania Convention Center's grand opening. Vice-President Al Gore was the master of ceremony and other city officials were in attendance. The theme of the event was "Pennsylvania for Families" with each organization providing some sort of activity for children. The presentation on behalf of the John Heinz NWR at Tinicum included, the aerial overview of the refuge, a wetland diorama incorporating four-stuffed wildlife specimens and wetlands vegetation, a tactile sensory activity commonly referred to as a "feely box", and brochure table. In spite of a bomb threat and evacuation, an estimated 5,000 contacts were made during the course of the two-day event, total attendance was placed at 120,000 folks.

August 24: ORP Burns prepared and replicated a display about avian botulism for four locations on the refuge.

September 30: ORP Rowand staffed an exhibit for the Philadelphia Area Science Teachers Resource Roundup at the Academy of Natural Sciences in Philadelphia. This exhibit was to let area teachers know what resources are available in the area. Total contacts through the exhibit was 50.

October 2: ORP Burns set up and staffed a display at the Delaware County Environmental Fair. Our exhibit was adjacent to that of Karen Day, Delaware Estuary Program. Attendance was not great, but those that came were interested. They got involved in our activities and in conversations about our programs.

October 10: ORP Burns and Rowand set up and staffed an exhibit about the refuge at Super Sunday in Philadelphia. The exhibit included a marsh diorama, a "touch box", an aerial photo collage of the refuge and brochures. The ORP's interacted with visitors and, through the use of puppets, demonstrated caterpillars turning into butterflies and tadpoles to frogs for the children. Attendance at the event was high (the radio reported 200,000). Of course, not everyone stopped at our booth. Still the day went well with a steady stream of visitors, despite the damp, chilly weather.

October 14: ORP Rowand submitted a concept plan for the Observation Tower Bulletin Board to ORP Burns.

October 26: ORP Rowand submitted a concept design for the Route 420 Bulletin Board to ORP Burns.



(Photo: Nugent)

Doesn't Milton Berle recycle
old lines too?

October 29: Maintenance McMenamin and volunteer Steffen Fleischman installed a newly constructed monofilament fishing line display. The display was installed near one of the heavily used areas for fishing in the impoundment. The display shows the harmful impact that fishing line has on the wildlife. Also, included with the display is a box that the fishermen can stuff their old lines into for recycling.

December 29: ORP Rowand completed the new display for the Observation Tower entitled "Common Winter Visitors". This

display shows several animals commonly seen around the refuge during the winter months and illustrates that not all wildlife migrates or dies during the winter.

5. Interpretive Tour Routes

June 7: McMenamin and Mitchell installed 15 signs to mark the new Darby Creek Canoe Trail on the Refuge.

July 30: ORP Burns completed the graphics request form for the Canoe Trail brochure and placed it on Manager Nugent's desk for final review. The editing and re-editing by Nugent and Burns has significantly improved the wording of this draft brochure.

August 18: McMenamin and Mitchell placed a rock-hazard buoy at the site of an old rock dam in Darby Creek. The buoy was purchased and placed as part of the project to establish a canoe trail through the refuge on Darby Creek. The buoy will be maintained by the Pennsylvania Fish and Boat Commission's contractor as part of their Aids To Navigation Program in Delaware County.

November: Through the month, ORP Burns and Manager Nugent have been reviewing and commenting on the maps for the Canoe Trail and for the general brochures. This effort is nearing completion.

7. Other Interpretive Programs

This year, the refuge offered 7 general programs about the refuge to a total of 214 people. Other programs are listed below.

May 4: ORP Burns was interviewed about the refuge, spring and our programs for a 15-minute radio show called *Speaking of Pets* that was aired Sunday, May 9th at 6:15 am.

May 28: ORP Burns completed and sent an article about the annual drawdown to the Delco Resourcer for inclusion in its annual environmental supplement. This will be printed at the end of June.

September 27: ORP Rowand completed the 1993 Supawna Meadows NWR Waterfowl Hunt brochure. This brochure will be distributed to hunters at a nearby boat ramp through a self-serve kiosk and mailed to those interested.

August 12: ORP Burns gave a 2-hour presentation about careers within the U.S. Fish and Wildlife Service to 15 inner city youth involved in a 6 - 8 month training program called *City Conservation Corps*. The purpose of the group is to train the

youth for entry level positions in environmental fields. The presentation covered: the various divisions of the Service and what they do; positions available from Maintenance Workers and Administrative Assistants, through Biologists and Outdoor Recreation Planners, to Managers and Supervisors; the background required for and typical duties of each position; possibilities for financial help with schooling and how to apply for federal positions. It concluded with a land use planning activity to illustrate the considerations and people involved. Despite the sweltering heat and short attention spans often encountered in groups like this, the group was reasonably attentive throughout the presentation. Questions from the group were numerous. They seemed to get a lot out of it.

September 7: ORP Rowand completed a brochure entitled "Teaching in the Outdoor Classroom". This leaflet explains the refuge's environmental education program. It will be distributed to teachers who request information about the program, teacher and environmental events in which we have an exhibit, and through our teacher workshops.

October 13: ORP Burns gave a presentation about wetlands restoration on the refuge to approximately 30 members of the Association of Retired Men of Yeadon. We had provided a general refuge presentation to the group about two years ago. She utilized the new video "Turning the Tide at Tinicum" about our recent mitigation project. The reception was good, with many questions following the presentation.

November 13-14: ORP Rowand presented 2, 1-hour-long presentations entitled "Dyeing to Learn about Plants" at the annual Pennsylvania Alliance for Environmental Education conference held at Shawnee-on-the-Delaware, PA. 53 educators and naturalists took part in the plant dyes seminar which illustrated how using simple plant dyes such as walnut hulls or goldenrod can not only teach students about plants and plant identification but also history, math, english, home economics, and art. Overall, the presentation was well received.

November 10: ORP Burns participated in a panel discussion on Women in Non-traditional Careers at Delaware County Community College. Approximately 50 women attended. It was part of a day of activities for women who are returning to the workforce after raising a family, etc. to help them explore career opportunities.

November 17: ORP Burns presented a program at Friends Central School to the students and teacher that volunteered at the refuge the following two days. The program was designed to orient the group to the refuge, our mission and goals and their role as volunteers. The group was a lively crew with a lot of good questions. The presentation went well.

9. Fishing

The Delco Anglers and Conservationists

January 9: With a Special Use Permit, this piscatorial group undertook a project to provide additional habitat for fish in the refuge's smaller lagoon west of Route 420. The intent of the group is to help fish in the lagoon by providing underwater structures that will attract small bait fish, ultimately producing larger, healthier game fish. In 27 degree temperatures and with snow falling, seven members of the angler's groups installed 31 structures.

Beginning the day before, they placed Christmas trees (donated by Cannon's on Rt. 420 in Folsom) in cinder blocks (donated by Fizzano Bros. on Chester Pike in Crum Lynne) and wired the base of the trees to the block (wire donated by Yaskins Hardware in Tinicum). They then, on January 9th, strung the trees together in a line and submerged them into the lagoon. Belks Marina provided access to the water by letting group use their boat ramp as a staging area.

April 17: Fishing activity responded to the appearance of the shad in Darby Creek. Sixty-eight fisherman were observed.



(Photo: Nugent)

Ready to wipe away tears
of joy/disappointment.

June 5: Park Ranger Zahm coordinated the refuge's annual "Take a Youngster Fishing" day in honor of National Fishing Week. 23 children and 14 adults participated in the program which ran from 10:00am - 1:00pm. Philadelphia District Waterways Conservation Officer John Sebaitus and one of his deputies answered questions, handed out information and assisted fishermen during the program. Jim Taylor, of Taylor's Bait and Tackle, provided rods, handlines, bait and assistance to the fishermen.



(Photo: Nugent)

"He was this big before the
fight to land him!"

11. Wildlife Observation

May: The warblers were out in full force, particularly in early May, and the birders responded in kind. According to the checklist in our Visitor Contact Station 125 different species of birds were observed this month on the refuge. We also began seeing young goslings and ducklings about the refuge. Nesting behavior also continued. So, while the things seen were not unusual for the time of year and location, there was lots to see.

September: Despite this summer's problems with botulism and the resultant halt to the impoundments drawdown, the refuge continues to be a great place to view migrating shorebirds. A peregrine was sighted often, perching in the impoundment's dead oak tree.



Boy! What a Koi!

(Photo: Nugent)



Two Large Mouths!

(Photo: Nugent)

16. Other Non-Wildlife Oriented Recreation

Johan Printz Canoe Challenge

January 15: Nugent and ORP Burns met at the Visitor Contact Station with Dave Anderson, Race Chairman (and member of Friends of the Swedish Cabin), to discuss the event scheduled for June 12th. A Special Use Permit will be issued at a later date for this canoe/kayak race. The race is one of many different events scheduled by various local groups to mark the 350th Anniversary of the founding of the first seat of government by Johan Printz at Tinicum in 1643. The "flatwater race" for two man teams will traverse the "watery highways" used by the Swedish and Finnish Colonists to penetrate the wilderness areas in the early days of the New Sweden Colony. The event will start at 9:30 A.M. (at high tide) at the canoe launch behind the Visitor Contact Station and proceed down stream to the mouth of Darby Creek and then upriver to the Governor Printz Park. The Pennsylvania Fish Commission and U.S. Coast Guard have also been approached by Dave Anderson for approval and coordination. Some thirty canoes handled by sixty canoeists are expected to enroll for this "challenge".

June 12: The "Johan Printz Challenge" began at our canoe launch at 9 am; The dozen canoeists went down Darby Creek into the Delaware River and up river to Governor Printz Park in Essington, PA. There, other family events topped the celebration. Governor Johan Printz was the first governor of the colony.

17. Law Enforcement Non Sequitur



1993 Year in Review

During 1993, the most serious law enforcement incidents were the disappearance and search for Mark Himbaugh, the two drownings in Darby Creek, the illegal tree-topping operation along Rt. 291, and two deer poaching incidents. In addition, the refuge continued to experience sporadic acts of vandalism to refuge property, trash dumping, and ORV operation within the refuge.

This year, thirteen federal citations were issued and sixty-seven cases referred to the Pennsylvania Fish and Boat Commission for prosecution. Most of the cases turned over to the State involved individuals fishing without a license.

Significant law enforcement concerns occur adjacent to refuge property, and continue to negatively impact refuge operations. The three most significant problems are:

- 1) On-going drug usage at the Rt. 420 "car poolers" parking lot which is owned by Pennsylvania Department of Transportation.
- 2) Individual and commercial dumping along the refuge boundary within Philadelphia County.
- 3) Hunting/trespassing within the Eastwick area.

Major 1993 Law Enforcement Incidents

I. The Drowning of Paul Harvey Lysek

January 24: The body of Paul Lysek, a 40-year-old Drexel Hill resident was found in the Tinicum Marsh. He was reported missing since before Thanksgiving.

Paul Harvey • Lysek was positively identified through fingerprints, tattoos and physical description, according to police and a medical examiner's office investigator.

Cause and manner of death are pending further investigation following an autopsy performed yesterday, said Walter Hurst,

chief investigator for the medical examiner's office. Toxicological test results are pending, said Medical Examiner Dr. Dimitri L. Contostavios. There were "...no obvious signs of foul play on the body when we recovered him," said Tinicum Township Police Chief Robert Lythgoe.

Lysek was last seen by his mother Margaret Lysek on November 20th, when he left on a fishing trip to the Darby Creek on Creek Road. Lysek, who lived with his parents, told his mother he was going to return early for dinner that same day.

Seven days after he failed to return home, a missing person report was filed with township police. An avid fisherman and hunter, he had been known to go away for several days for trips to the mountains or the shore, according to his mother. Lysek didn't drive and was employed doing odd jobs.

He suffered from an injury from a gunshot wound to the leg and was taking medication for the level of lead content in his system, his mother said.

His partially decomposed remains were discovered floating in the waters of the John Heinz National Wildlife Refuge around 3 P.M. Sunday by boaters, police said. He was floating face down in murky water clad only in his undershorts and socks, police said. Members of the Tinicum police and Essington Fire Co. responded by boat and brought the body to shore.

The FBI was notified but deferred investigation to local authorities.

II. Mike Gallagher's Drowning Incident

August 27: A drowning occurred that involved a refuge canoeist, Mike Gallagher. Mike and friend John Doyle, both Philadelphia residents and in their mid-thirties, launched a canoe from the refuge's floating dock behind the Visitor Contact Station (VCS) at around 11:00 A.M. Mike's springer spaniel accompanied the canoeists. An ice cooler, containing several six packs of beer, was also loaded into the canoe. The high tide in Darby Creek had peaked at 10:23 A.M. At approximately 1:00 A.M. Mike exited the canoe in knee-deep water to retrieve his paddle and to play with the dog. The location was near the concrete and metal bridge extending over the eastern channel of the mitigation site. John was laid back relaxing in the canoe and drifted downstream oblivious to any problem. Some 45 minutes passed before John realized that something was awry. The canoe had drifted close to the Folcroft boat club where John questioned a youth playing basketball as to the time and his location. John then paddled back to the bridge site where he found Mike's dog on the Folcroft side of the Creek. John was observed by three young men on the bridge. John searched the area without finding

Mike. John approached Jackie Burns, Outdoor Recreation Planner, at the VCS at around 5:30 P.M. and explained the situation. Burns called Tom Walker, Assistant Refuge Manager, at his residence. Walker requested Burns to Notify the rescue squads of Delaware Co. and Philadelphia Police since the actual jurisdiction at the time was in question. Delaware County and Philadelphia Fish and Boat Commission officers were later notified. Manager Nugent was also notified at his New Jersey residence. Tinicum and Folcroft search and rescue units searched from 6:30 P.M. until 8:15 P.M. Calls were also placed to both Mike's and John's residences thinking that Mike might have found his own way home. By night's end, John was questioned at length by the Folcroft Police. Mike's dog had been released to his fiancée and the canoe with its miscellaneous contents had been secured in the refuge's storage building.

August 28 - 6:45 A.M.: Nugent met with Walker for a more thorough briefing and to receive copies of various reports and statements. A call was made to the Folcroft Police to request a copy of their report. At that time it was learned that Mike's body had been recovered at 6:00 A.M. by the search and rescue team. The body was found further upstream and within Tinicum Township. The Delaware County Coroner's office had been notified and a field investigator was dispatched. Nugent proceeded to attempt to find the recovery site. En-route he met the stepmother and a friend of Mike's fiancée. They were not told of the unconfirmed report of the body's retrieval. Mike's fiancée, her dad and Mike's springer spaniel were also observed walking towards the accident site; no interaction between Nugent and them was made. Walking two miles along the dike/trail/system, Nugent was unable to find the body-recovery site. The search and rescue team was observed from a distance heading west on Darby Creek near the Delco Marina. Nugent spoke with George Gedrimas who was constructing a billboard who had earlier observed Tinicum Township Police and the County Coroner's van exit the area via the refuge's parking area along Rt. 291. A search was made by Nugent and Park Ranger Zahm to find someone involved with the search and rescue effort for confirmation of the body's identification so that Mike's fiancée and friends could be notified. The day being a Saturday made it especially difficult. Contact was finally made with Dr. Contostavlos, County Coroner, who was about to perform an autopsy on the drowning victim. The coroner described the features of the male to Nugent over the phone. It matched the description, down to the tatoos, given by others of Mike Gallagher. Nugent called the Folcroft Police for updates and found that they had notified the next of kin at 11:00 A.M. Nugent placed a call to his supervisor, Tom McAndrews, to notify him of the drowning incident. The FBI was also notified by Zahm. Preliminary findings of the autopsy indicate that a cigarette stub, suspected of containing PCP (Angel Dust), was

found in the stomach. Such a drug could cause severe disorientation... perhaps a contributing factor in this tragic incident involving an experienced diver.

September 23: The canoe used by Gallagher and his companion was released to the owner, after receiving concurrence from the Folcroft Police Department. Gallagher had borrowed the canoe the morning of the accident. The owner of the canoe was not with Gallagher and his companion.

III. The Disappearance and Search for Mark Himebaugh

On November 25th, 1991, eleven-year old Mark Himebaugh was abducted from the Cape May, New Jersey area. There were no witnesses to the event. Two years later, the New Jersey State Police are still investigating and coordinating the search for Himebaugh.

In late March of this year, a criminal investigator from Haverford Township contacted Refuge personnel concerning an individual named Thomas Butcavage who was suspected of sex crimes involving children. The investigator stated that Butcavage had used John Heinz NWR on almost a daily basis. The investigator left a photograph of Butcavage.



(Photo: Nugent)

A nonsense search.

April 20: A search and rescue operation was performed on and adjacent to the refuge in an effort to find the remains of Mark. Certain leads led New Jersey State Police and Philadelphia Police to the refuge-area. Three volunteer canine units from southern New Jersey and approximately twenty law enforcement officers spent the day looking for evidence of the crime. A buried dog was found on the east side of Route 420; otherwise, the search was uneventful. Tinicum Township Police provided its headquarters as the command center.

On July 11th, Philadelphia and New Jersey newspapers carried front page stories focusing on the Himebaugh case. A sketch of the suspect was included. The sketch was almost identical to the picture of Butcavage. Refuge personnel made calls to both the New Jersey State Police and Haverford Township reporting the possible connection.

On July 22nd, local news articles on the on-going Himebaugh investigation reported that Butcavage was their primary suspect and that two searches had been conducted of his residence in Haverford. As of this date, no formal charges have been filed.

General:Refuge

January 3: Tract 25- While on patrol, McMenamin noticed a 60' section of Penn Dot fencing (which borders the refuge boundary along the south bound land of I-95 knocked down by an out-of-control vehicle (Penn Dot was notified.)

January 10: Walker responded to a call from Sonitrol at 6:07 A.M. that the silent alarm in the Visitor Contact Station had been activated. Philadelphia police were notified but did not respond. The culprits seemed to be boxelder bugs.

January 24: McMenamin received a call from Sonitrol at 4:05 A.M. that the silent alarm in the Visitor Contact Station had been activated. Once again, the culprits seemed to be boxelder bugs.

January 27: The traffic counter located on the refuge entrance road was stolen between closing of the gate on January 26 at sunset and opening of the Visitor Contact Station at 08:30 on January 27.

During the month of March, six individuals were contacted for having pets off leash and all were given verbal warnings.

During the month of April, seven individuals were given verbal warnings for dog-of-leash violation.

April 3: Signs of "after hours" activity were noted in the Long Hook Creek area. Observations included two fresh campfire rings, a large number of empty Budweiser beer cans, and one trash can... contents which had been set on fire.

April 18: A visitor gave descriptions of two fishermen at the impoundment dike's water control structure who were observed smoking marijuana. The individuals were contacted and a voluntary search conducted, no marijuana was found.

April 22: At 0935 hours, a United States Postal Service mailbox was discovered at the northwest end of the impoundment, adjacent to the lower parking lot. The large blue mailbox which showed signs of tampering, had been stolen from the MacDade Boulevard area. The U.S. Postal Service Inspectors office was notified of the incident, but failed to investigate the crime scene. Postal Service Maintenance Division removed the mail box.

During the month of May, nine written warnings were issued for parking violations in the Visitor Contact Station's lower parking lot. Three individuals were given verbal warnings for having dogs off leashes.

May 5: Three individuals were contacted and given verbal warnings for an open fire violation. The party was preparing to cook over a small grill. The incident occurred on the Impoundment road, west of the lower parking lot.

May 9: A Taylor Drive resident reported observing three individuals with bows and arrows on Tract 34 of the refuge during the afternoon of May 3.

May 12: A letter of solicitation was sent to the Superintendent of the NPS' Independence National Historic Park, in Phila., requesting accessibility to a crime information terminal to support our four law enforcement officers in the field when patrolling without backup support and/or off-hours. A positive response was received from the Park's Law Enforcement Chief. Since its NCIC is hooked up via the State Police communication network, the refuge may have to apply for its own identification number (cost unknown). A check with Special Agent Kelvin Smith also showed promise for the refuge to hook up to a driver's license and vehicle identification communication network via the Valley Forge National Park.

May 15: At approximately 1233 hours, Refuge Officer Zahm heard several gunshots coming from the west side of the Maintenance Compound area. He observed two white males standing across Darby Creek, shooting a black semi-automatic pistol. The individuals were contacted and identified as employees of Salerno Tire. This apparently was the second incident.

May 16: At approximately 1600 hours, two explosions were heard coming from the Lindbergh Boulevard/Eastwick boundary of the refuge. Investigation of the explosions suggested that M-80's were ignited and then thrown at visitor's cars driving on the Visitor Center road. Zahm was unable to contact the suspect(s).

May 23: Foot patrol conducted in the Tract 34 area revealed two beer party sites. Numerous amounts of empty beer cans, fire rings, and miscellaneous other litter was observed. Both sites appeared to have been used within the last 48 hours. An adjacent landowner indicated that the party sites are used by teenagers almost every Friday night.

May 23: Unknown individuals dumped a large stove adjacent to refuge property. Neighbors reported seeing a new blue Dodge Ram pickup truck in the area. The dump site is located at the end of Lindbergh Boulevard and has a history of repeated illegal dumping.

May 23: During the issuance of a verbal warning for illegal parking at the lower Visitor Center parking lot, Zahm observed a vehicle with an altered VIN number and expired registration. Before Philadelphia Police could respond, the vehicle left the

area.

May 23: At approximately 1604 hours, visitors reported a white male using a compound bow and arrow to hunt. The individual was last seen in the woods along the east side of the impoundment and along the Chevron pipeline right of way.

During the month of June, four written warnings were issued for parking violations in the Visitor Contact Station's lower parking lot. One verbal warning was given for dog-off-leash violation. Two verbal warnings were given to minors in possession of alcohol.

June 12th: Visitors reported observing a hysterical female on the dike road, past the observation tower. Upon contacting the individual, it was learned that her dog had broken free, chased some geese into the impoundment, and then had become entangled in the spatterdock. This woman thought that her dog was drowning. Refuge officers McMenamin and Zahm, using a canoe, were able to rescue the dog.

June 24th: Fourth grade students on a field trip turned in a single black-capped vial of crack cocaine which they found near the canoe launch ramp. This is the second incident this year.

July 3rd: Large numbers of fishermen. Five fishing violations and one warning for littering.

July 16th: Two of the Refuge's extra Smith & Wesson model 66 .357 revolvers were transferred to the National Park Service's, Richmond National Battle Field, VA.

July 29th: The Visitor Contact Station's intrusion alarm system was upgraded due to obsolescence. The upgrade includes a wireless remote "panic/hold up alarm". The system was tested and functioned properly. The inclusion of the panic alarm in the system up-grade was out of concern for employee safety, and was originally brought up at one of the monthly safety meetings.

During the month of August, two individuals were contacted for having a pet off leash and both individuals were given warnings.

During the month of September, five verbal warnings were given for pets off leash.

September 12: At approximately 1350 hours, Officer Zahm observed the cable gate down and two vehicles parked at the Highway 291 parking lot. This area is typically closed to the public, but used by other agencies to access Conrail, Penn DOT, and Chevron right-of-ways. Owners of the one vehicle were contacted and escorted out of the closed area. Zahm was unable to locate the owners of the second vehicle. The cable gate was

secured and a note left on the pickup truck. A short time later, Zahm was able to locate and contact the owner of the vehicle: Brett R. Roe. Roe was initially evasive concerning what his purpose was on being on the refuge. Eventually, Roe admitted that he was an agent for Interstate Billboard Company and he was in the process of clearing trees which were blocking the view of the newly placed billboard off of highway I-95 and highway 291. Roe had been directed by his supervisor to "act dumb" if he would be contacted by Refuge personnel.

September 15: Working closely with Special Agent Bob Garrabidian out of the Newark office, significant progress has been made on obtaining NCIC terminal access and having an specific ORI number assigned to the refuge.

September 19: At approximately 1040 hours, visitors reported three juveniles armed with slingshots, shooting at birds on the refuge. Officer Zahm contacted the juveniles and two slingshots were confiscated.

September 30: Officer Zahm observed two juveniles driving in a reckless manner on the Visitor Center entrance road. Upon contacting the driver, it was learned that neither juvenile had a driver's license, nor was the vehicle registered or insured. The vehicle was impounded and afterward turned over a family member.

During the month of October, one warning was issued for parking after hours in the refuge visitor contact station's parking lot.

Working in cooperation with Bob Garabedian, Fish and Wildlife Service Special Agent, Lieutenant Weir of the Pennsylvania State Police, and Independence National Historical Park, The John Heinz NWR has gained access to an NCIC computer terminal and also limited afterhours dispatching. Having access to the NCIC system will allow Refuge Officers the ability to complete criminal records checks of violators while in the field. Independence NHP's Dispatch will be providing the services and communication will be by cellular phone.

October 21: Refuge Officers Nugent, Walker, Ford, Zahm and McMenamin attended a semi-annual firearms qualification and drug training session held at Patuxent NWR. Firearms instructors Kessler and Gormley conducted the training. All five officers requalified.

November 11: SPCA Investigator George Bengle called regarding reports of pit bull terriers running free on the Refuge after regular business hours. Refuge neighbors have made several reports to the SPCA concerning individuals releasing their dogs for the purpose of chasing wildlife.

During the month of December, two individuals were contacted and given a verbal warning for failing to have their dog on a leash.

December 27: Extremely cold temperatures beginning on December 20 resulted in freezing of the impoundment and the creeks. Refuge staff put up "No Ice Skating Signs" to advise visitors of the refuge regulations.

Philadelphia County/Eastwick Area

As a result of the backgrounding of the refuge's involvement with illegal activities occurring on the City's adjacent 100 acres of undeveloped property (offered in the November 1992 Monthly Highlight Report), refuge officers were notified by the Regional Office to cease all activity due to the apparent lack of authority except for enforcing the Migratory Bird Treaty Act. The memo was responded to, to clarify the concern of "authority" (Refuge Officers are considered Peace Officers in Pennsylvania) and to express the difficulty in determining target species of the hunter's activity from afar. A request to revise the 1988 Law Enforcement Management Plan to include limited law enforcement by refuge officers on this adjacent problem-area was made.

January 4: Nugent and Walker observed a recently abandoned vehicle in a heavily vegetated field approximately 50 feet from the refuge boundary. Historically, burning of such vehicles has resulted in fires on the refuge. An insurance card found near the new vehicle indicated that it was owned by Budget Rent-a-Car. The owner was notified of the vehicle's location and it was removed on January 5.

May 6: In an effort to become better acquainted with the Philadelphia police who respond to calls from the refuge, LE officers Nugent, Walker and Zahm met with District's top brass. They met with Lieutenant Jardine to discuss mutual concerns of the greater Eastwick area including the refuge. Items on the agenda included: Sonitrol's monitoring service, access to refuge after gates are locked, radio communications, surveillance activities, illegal hunting adjacent to refuge, response to a soon-to-be installed push-button security system at the VCS and booking procedures for drunken drivers. Refuge maps were given to Lt. Jardine. A follow-up visit to District 12 was made when a dozen gate keys were issued for police entry after gate closure.

June 18th: Philadelphia Police found and recovered a stolen car. The car was parked on Lindbergh Boulevard, adjacent to the entrance gate. According to police, this is the third car recovered from this area in the past month.

During the month of October, six separate incidents were documented concerning individuals hunting adjacent to the Refuge in the Philadelphia Redevelopment Authority / Eastwick area. Of primary concern is for visitor safety; particularly for the weekend nature walks. In addition to Refuge Officers, both City of Philadelphia Police and Pennsylvania Game Commission Officers became involved at various times.

None of the six incidents involved hunters within the refuge. However, several groups were observed hunting directly on the boundary. Reportedly, two private residences adjacent to the Eastwick area have had their homes hit by gunfire. It is still somewhat unclear as to the current regional policy of prohibiting Refuge Officers from contacting hunters in the Eastwick area during the dove hunting season.

December 13: Two names of trespass/hunters on Philadelphia's Redevelopment Authority's Eastwick Project Area (contiguous to the refuge's eastern boundary) were forwarded to the Authority's Legal Division. Both hunters were approached during the open dove season, by refuge law enforcement officers. Adjacent neighbors periodically complain to refuge personnel about this trespass/unsafe practice. Refuge personnel do not, respond unless the infraction takes place during a migratory bird hunting season. The Authority plans on issuing a "letter of warning" to the trespassers.

Tinicum Township

January 2: The suspected perpetrator of last month's refuge deer jacking was arrested on multiple vehicle violations. Local police from four communities pursued and finally apprehended Robert Allen Dewees, 28 yrs. older, from Folsom, PA. Dewees was observed driving in an erratic manner in Eddystone; Eddystone police pulled suspect's vehicle over and started to approach the vehicle; Dewees placed his car in reverse and attempted to run over the cop; a high speed car chase ensued that covered 3 miles and involved cops from Tinicum Township, Prospect Park and Ridley Township. The car chase ended when Dewees dead-ended on 15th St., Prospect Park. Dewees exited the car and jumped a four-foot fence; the pursuing Eddystone cop severely injured his left lower leg in attempting to scale the fence. Dewees was subsequently apprehended by Ridley Park police in Folsom, at 2:03 A.M. When officers inspected Dewees vehicle in the back seat was found a compound bow with three hunting tipped arrows and a shotgun (Mossberg 12 gauge). It was later learned that Dewees told an investigating officer that he was poaching deer along Route 291. He was cited for numerous traffic violations along with endangering the life of another and property destruction.

Upon collaboration with local police, the PA Game Commission

plans on citing Dewees for attempting to take game out-of-season. The vehicle was returned to Dewees, thus, there was no opportunity by the Conservation Officer to inspect the vehicle for further incriminating evidence. Although inconclusive and highly speculative, this apprehension has somewhat defused the current concern about deer jacking on the refuge.

February 18: Tinicum Township police notified Assistant Manager Walker that they had apprehended a 13 year old juvenile attempting to start a fire adjacent to the east parking lot at PA Route 420. The following is an excerpt from the police report: "This officer received a call from Officer Kienzle Prospect Park. He stated that he was stopped by a motorist who said she saw a juvenile trying to put out a field fire by stamping on it..... Upon my arrival I observed a juvenile known to me as with a blue lighter in his hand setting a bunch of weeds on fire that were in his hand. He dropped the weeds on the ground to watch them burn. I then confronted the juvenile and placed him under arrest." The juvenile was charged with arson and disorderly conduct and released into the custody of his grandfather. Because of the defendant's age he will be prosecuted in the State's juvenile court system by the local authorities.

November 30: Fifty empty crack vials and two beer cans used as crack pipes were found in the trash can at the Route 420 parking lot. This has been an on-going drug problem which indirectly affects the refuge.

Pennsylvania Fish and Boat Commission

During the month of March, 16 fishermen were contacted for fishing without a license and 11 were referred to Pennsylvania Fish & Boat Commission for prosecution.

During the month of April, 20 fishermen were contacted for fishing without a license, two individuals were contacted for bow fishing within the refuge, and two juveniles were contacted for an open fire violation. Sixteen individuals contacted for fishing without a license and the two individuals (juveniles) involved with open fire violations were referred to the Pennsylvania Fish & Boat Commission for prosecution.

April 24: Assistant Manager Walker met with Pennsylvania Fish and Boat Commission Waterways Conservation Officer Loretta Bednarchick and individuals apprehended by Refuge Officers for fishing without licenses. A total of ten defendants were invited to the informal get-together. Four attended and opted to settle their cases by payment of the fines to the Commonwealth. The other six defendants will be issued citations by the Fish and Boat Commission through the magistrate's court.

During the month of May, 10 fishermen were contacted for fishing without a license. Four individuals contacted for fishing without a license were referred to the Pennsylvania Fish and Boat Commission for prosecution.

During the month of June, 4 fishermen were contacted for fishing without a license, with one being turned over to the State. Two fisherman were issued written warnings for bow fishing in refuge waters from the Conrail right-of-way adjacent to Bartram Avenue, and one individual was referred to the State for prosecution for creating a wake in a "no wake" zone.

During the month of July, twenty individuals were contacted for various fishing violations, and ten individuals were referred to the Pennsylvania Fish and Boat Commission for prosecution.

During the month of August, nine individuals were contacted for fishing without a license, five cases were referred to the Pennsylvania Fish and Boat Commission for issuance of citations after the individuals failed to produce a valid fishing license.

During the month of September, thirteen individuals were contacted for fishing without a license. Seven subsequently produced valid licenses, four cases were turned over to the State, and two individuals were given verbal warnings.

September 29: Municipal court was convened, Magistrate SCHAFFER presiding. One refuge fishing-related case was called, and the defendant forfeited his collateral after failing to appear.

During the month of October, four individuals were contacted for fishing without a license and all cases were referred to the State for prosecution.

October 29: While Refuge Officer Zahm was checking fishing licenses at the Rt. 420 tidal lagoon fishing pier, he observed a canoe tip over and heard calls for help. The canoe was approximately 45 yards from shore and had contained three occupants. One individual who could not swim started panicking; she was rescued with a throw bag. That individual suffered from exposure and hypothermia, but made a complete recovery on scene. It was later learned that all three had been drinking alcohol prior to canoeing. The party had access to life jackets, but choose not to take them because they were wet. The owner/operator of the canoe was turned over to the Fish and Boat Commission and charges filed for not having the required number of personal flotation devices.

During the month of November, three individuals were contacted for fishing without a license. Two cases were referred to the Pennsylvania Fish and Boat Commission for prosecution.

November 14: Nugent cited a transient Texan construction laborer for fishing without a license. The following day, Alan Moyer, PA District Waterways Conservators Officer, was briefed on the matter and was able to make a field citation at the laborer's worksite at Widener University, Chester, PA. The violator was cooperative and volunteered the fact that he was leaving for the Lone Star state on the 15th.

Federal

February 17: Walker received notice from RO LE Coordinator Ward Feurt that attempts to contact Scott High of Lynn, MA regarding an NOV and subsequent warrant issued for fishing without a license were unsuccessful. An attempt will be made to locate Mr. High through his employer and other information obtained at the time of the violation.

March 5: A refuge neighbor reported observing an individual pointing a .22 caliber rifle at a pheasant on the refuge from the window of a car travelling on Lindbergh Blvd. The individual then drove into the refuge, parked the car and walked in the direction where the pheasant had last been observed. Walker contacted the neighbor and found that the neighbor had contacted the Philadelphia police, obtained the vehicle license number and followed the car until the police arrived. Officer's from the 12th precinct arrested the suspect for possession of a loaded firearm in a vehicle. Walker interviewed the suspect at the Southwest Detectives Division. The suspect admitted driving into the refuge with the rifle in his car. The witness heard no shots, no spent cartridges were found in the car or on Lindbergh Blvd. The suspect denied aiming the rifle at a pheasant. A Notice of Violation was issued for possession of a firearm on a National Wildlife Refuge.

April 28: A visitor reported a motor scooter parked on the impoundment road near the water control structure. Upon arriving at the scene, a 1974 yellow and white Vespa motor scooter, PA license plate number OHX4N was observed, and the owner contacted. The individual was advised that he would be cited for motorized vehicle outside of a designated route of travel.

May 15: Zahm contacted a party of four males suspected of fishing without licenses, littering, and minor resource damage. The individuals were advised of the various regulations and requested to clean up after themselves. Inspection of the area during the next day indicated litter which was not collected. One individual was mailed a citation for littering.

May 23: Two fishermen were observed fishing on the east side of the impoundment. This area is posted and closed to fishing. The fishermen were contacted, advised that they would be cited,

and then escorted off refuge property.

May 23: Refuge LE staff helped coordinate between the Pennsylvania Game Commission's Conservation Officer Chris Heil and Special Agent Kelvin Smith in the senseless killing of a Canada goose gosling. The incident involved three males in their early to mid-twenties who horrified a family at a local MacDonalds a Painters Crossing, PA, when they drove by holding a young gosling out the window. As they passed the family the gosling's head was ripped off and thrown from the car. The exact outcome of the incident is unclear at this time but all three defendants have been identified and a fine totalling \$1,200.00 has been levied.

June 5th: An anonymous phone call was made concerning possible violations of the Endangered Species Act regarding the sale of elephant ivory. The information was passed along to Special Agent Smith.

June 6th: One individual was observed and cited for littering. His partner was given a verbal warning and both individuals cleaned up the area.

June 20th: Two individuals fishing in the impoundment adjacent to the first water control structure were observed in possession of marijuana. A small amount of marijuana was seized, along with other drug paraphernalia. Both individuals were cited for possession and escorted off refuge property.

July 4th: A second day with large numbers of fishermen. Three violations were turned over to the State for prosecution and one individual was cited for fishing in a posted closed area.

July 11th: A citizen called to report a farmer shooting hawks and owls. The incident reportedly occurred in the Lake Minsi/Monroe County area. The information was passed on to S. A. Dick Gritman's office.

July 30th: At approximately 10:50 am, an individual was observed driving a motorcycle past the Impoundment Road entrance barricade. The individual was contacted a short time later as he attempted to leave. The individual was cited for operating a motor vehicle outside of a designated roadway and was given verbal warnings for an unregistered vehicle, failure to provide financial liability (auto insurance), not wearing a helmet, failure to have functioning turn signals and a functioning break light.

August 26: Special Agent Bob Garabedian, Newark, NJ advised that the individual from Lynne, MA issued an NOV in September of 1992 had finally paid the \$100.00 fine on August 13 after being advised that Agents and Refuge Officer's from the Boston area

would be serving the warrant. Thanks is owed to the staff at Parker River NWR for checking driver's license and address information, to the Regional Law Enforcement Coordinator's Ward and Stan for coordinating with the Regional LE Office, and the NJ LE Office for proving that the long arm of the law "can reach out and touch someone" without leaving the office.

September 2: Federal court was convened at 6th & Market Streets Philadelphia, Magistrate Judge Rapaport presiding. Four petty offense cases were presented resulting in one dismissal, one warrant being issued and two cases settled with guilty pleas.

September 11: In responding to a visitor report of a tent and campsite just off of the Haul Road area, Officer Zahm contacted Frederick W. Richards and an adolescent. The individuals reportedly had entered the refuge late Friday afternoon, set up a blue dome tent, built a fire to cook over, and stayed the night. Additional violations noted included minor resource damage and littering. Officer Zahm supervised the breakdown of the campsite and then escorted the individuals off the refuge.

November 10: A letter inviting Magistrate Judge Arnold C. Rapaport for a tour of the refuge was sent. It was felt that, a tour of the refuge focusing on current law enforcement concerns would allow the Judge a better understanding of on-going Refuge concerns.

December 6-8: Refuge Officer McMenamin assisted Wallkill NWR in patrolling newly acquired and recently posted tracts during the deer hunting season on adjacent off-refuge areas. No notices of violation were issued during the three-day period.

Wildlife Related

February 28: A refuge visitor reported observing a large amount of deer hair on the trail near the observation blind in tract 15. This is an area where a large ten point buck had been observed by several visitors and refuge staff during the fall rutting season. Walker investigated the area finding deer belly hair which had been cut with a knife indicating that a deer may have been cleaned at the site. The hair was well weathered. There was no evidence of blood or entrails in the immediate vicinity; however, the evidence indicates that a second deer may have been taken on the refuge this winter.

April 16: Pennsylvania Game Commission Deputy Miller reported discovering a fresh doe carcass located near the eastern border of the refuge. Refuge Officers Zahm and McMenamin conducted a field autopsy of the deer. A tumorous growth was observed on the doe's right lower mandible. Nothing suspicious was observed which would indicate that the deer had been shot.

September 1: Walker provided transportation to Little Tinicum Island in the Delaware River for Pennsylvania Game Commission Wildlife Conservation Office Chris Heil and his Deputies. This was the opening day of PA's second special September goose season. No hunters were contacted.

September 4: Walker checked the blinds on Little Tinicum Island for hunter activity. Two goose hunters were checked in a field on the mainland shore of the Delaware River. No violations were observed and no birds had been harvested.



(Photo: Nugent)

Olfaction dissatisfaction!

October 9: Nugent found a dead buck deer on Tract 25. It was laying on its left side and had its antlers sawed off. No visible signs of foul play were noted. A couple of weeks prior, an illegal tree stand was found within the same tract. Officers Walker and Zahm performed a more thorough exam a few days later but found no cause of death. A bag of apples, however, was found close by; any relationship between the deer and apples is conjecture.

October 18: McMenamin and Philadelphia County Pennsylvania Fish and Boat Commission Waterways Patrolman, Leo George checked on waterfowl hunters on Tinicum Island. A total of 15 hunters was

checked and several verbal warnings were given by the Pennsylvania Fish Commission for unsafe floatation devices.

October 23: McMenamin and Ford checked waterfowl hunters near Supawna Meadows National Wildlife Refuge. Two citations were given; one for an unattached, unsigned Federal Duck Stamp the other for not having a New Jersey Waterfowl Stamp.

November 17: Pennsylvania's second half of the goose season opened. Walker patrolled the Delaware River shoreline in Tinicum Township. No hunters were observed on the main land or on Little Tinicum Island.

November 18: A dusk patrol of the refuge was conducted and 26 white tail does were observed.

Trespass/ATV's

January 17: Walker observed ATV tracks entering the refuge from the Philadelphia Redevelopment Authority property. ATV tracks were evident along the trolley bed, the mitigation site haul road and the Texas Eastern pipeline right-of-way at Route 420.

May 16: Two adolescent males were observed operating a quad 4 X 4 ORV just within the refuge boundary, adjacent to the Philadelphia Housing Redevelopment Authority property. Zahm obtained information from the individuals, escorted the vehicle off refuge property, contacted the adolescent's father and advised him of the regulations concerning ORV's.

October 6: ORV tracks were found entering the refuge from the Eastwick/Philadelphia Redevelopment Authority area. Similar tracks were also found in the Hoy's Pond area and appeared to be several days old.

During the month of November, two off-road vehicle (ORV) incidents occurred. Both times the entry point was the Philadelphia Redevelopment Authority / Eastwick area. The first incident was reported by visitors who had observed two dirt bikes and one 4-wheeler. The second incident, involved the observation of fresh tire tracks that corresponded to the tracks from the first incident.

During the month of December, there were four separate incidents of ORV's entering the refuge. The incursions occur primarily in the Eastwick/Trolley Bed road area. ORV tracks were also observed in the Folcroft landfill site.

December 28: ORV tracks were observed entering the refuge from the Eastwick area. The tracks were several days old, but appeared to be similar to the previous ORV incursions.

Vandalism

February 2-3: Mitchell and McMenamin repaired the gates along the Refuge's patrol route which had been removed from their hinges by A.T.V. riders.

March 29: The cable gate access on the east of Route 420 was found down and the padlock destroyed. The padlock was replaced and the gate secured.

The interpretive sign located in the visitor contact station's upper parking lot was found pushed over. The sign has since been repaired.

April 9: The west gate to the PADOT road was found vandalized. One of the hinges was tampered with and the gate pulled off its foundation. Tracks suggest access was limited to foot traffic.

June 25: The plexiglass cover on the new marsh interpretive panel installed on the observation blind was broken by vandals.

September 12: At approximately 1410 hours, Officer Zahm found the Highway 420 east gate to have been forced open. Parts of the padlock were found on the ground and the cable gate had been pulled out of the way. Inspection of the area accessed by the road revealed nothing out of the ordinary.

B.C.



I. EQUIPMENT AND FACILITIES

1. New Construction

November 1: The emergency eyewash and shower purchased with the maintenance building funds were installed in the automotive bay's battery charging area.

2. Rehabilitation

April 13: McMenamin and volunteer Steve Fleishmann removed graffiti from the observation tower.

April 16: Mitchell McMenamin repaired pot holes along a mile stretch of the dike's service road.

May 11: McMenamin and Mitchell repaired the uprights to the railing on the footbridge near Long Hook Creek.

May 14: Mitchell and McMenamin cut a 10' wide section (approximately 300 yards in length) behind the residences that border tract 34. This break serves as a fire break and keeps our boundary signs in clear view.

June 28: McMenamin and Mitchell replaced the broken plexiglass of the marsh interpretive display with Tuffex.

September 22: The Philadelphia Water Department provided three truck loads of clean concrete rubble suitable for use as rip-rap along eroding portions of the Darby Creek dike within Tract 22.

October 12: McMenamin and Rowand constructed a new waterfowl hunting regulation sign which will be installed at the Pennsville Salem Marina in Pennsville, NJ.

November 4: A bench along the impoundment dike trail which had been damaged by vandals and a trash can on the East Impoundment Trail were replaced.

November 15: The loose top course of ceramic blocks of the retaining wall outside the maintenance building office was repaired.

November 18: Building Concepts, Inc. replaced two damaged sheet metal panels on the storage building.

November 30: A new chainlink gate was installed in the impoundment's fenced water control structure on the Darby Creek side of the dike.

December 10: McMenamin replaced siding on one of the refuge's

observation blinds which had been damaged by vandals.

Observation Tower Rehabilitation

Six thousand dollars was included in the refuge's FY93 budget for rehabilitation of the observation tower located on the refuge's 145-acre impoundment. The tower, formerly the headquarters of the City of Philadelphia's Tinicum Wildlife Preserve, had been damaged by fire prior to establishment of the refuge. The concrete decks were cracked and the concrete spalling.

August 20, 31: Purchase orders were issued for the Sika concrete patching compounds and water sealing compound required to repair the upper and lower concrete decks of the observation tower.

September: McMenamin and Mitchell repaired the observation tower. The decking was disintegrating and the concrete slabs needed to be formed up and filled with a concrete-bonding material. When the concrete work is completed the surface will be sealed with a coat of water-proof sealer.

October 14-21: McMenamin and Mitchell applied 2 coats of a waterproof concrete sealer to the top level of the observation tower. They continue to patch holes and exposed reinforcing rods to the underside of the top deck.

November 9: Maintenance men Mitchell and McMenamin completed repairs to the upper and lower concrete decks of the observation tower.

3. Major Maintenance

June 3: McMenamin and Mitchell replaced two floats on the canoe launch damaged during storm flows by floating debris from Darby Creek.

August 25: A purchase order was issued to obtain replacement floats for the refuge's floating dock at the canoe launch on Darby Creek.

August 3, 16, 17, 19, 20: Volunteer Fleischman, Bozman and Cardell cut and cleared brush and small trees from the main dike of the refuge's 145-acre impoundment to maintain the grass cover essential to prevent erosion.

September 14: Refuge staff applied a herbicide around the perimeter of the maintenance compound to keep weeds away from the fence for both security and fire prevention.

September 15: McMenamin replaced wheel bearings, and races on the John Boat trailer to help prepare it for upcoming Law Enforcement patrols.

September 17: McMenamin and Mitchell removed the drawdown equipment from the impoundment which was used to drain the Impoundment.

October 18: Maintenance worker Mitchell mowed the sides of the dike on the west end of the 145-acre impoundment. This not only keeps a clear view of the impoundment but also reduces the number of trees on the dike.

October 28: Staff members took notice of some vandalism that took place on the refuge. A directional sign at Route 291 was ripped from its upright. A bench was uprooted from the side of the dike area and a few blue goose signs were missing. Maintenancemen McMenamin and Mitchell replaced the signs.

December 3: C & S Heating and Cooling Services performed the first of two routine maintenance services of the heating system in the maintenance building. It is hoped that performing routine maintenance will lower fuel oil consumption. C & S also rebuilt one of the two circulating pumps and repaired the heater control unit.

December 3: The maintenance staff made repairs to the fishing pier, removed downed trees, and removed flotsam from the canoe launch which had resulted from the high water and high winds of the November 28 storm.

4. Equipment Utilization and Replacement

January 6: McMenamin and Mitchell repaired approximately 100' of the dike road (adding gravel to the existing surface.)

January 23: Our new Konica copier began blurring part of the image. It appeared that something was loose in the tracking mechanism. Konica was contacted on Monday, January 25 and repairs were made on Wednesday, January 27. It was, indeed, a loose joint in the tracking mechanism that caused the problem.

January 26: McMenamin and DiDomizio pick up file cabinets, desk and chairs from GSA excess property center in Philadelphia. The office furniture will be used at both John Heinz NWR and Supawna Meadows NWR.

January 26: Ruggieri and Sons Fuel Company serviced the maintenance building's heater for the first time - the service charge was \$38.00.

January 27: DiDomizio and McMenamin picked up a new Hotpoint

refrigerator at the Aberdeen Military Base in Maryland to be used at the new maintenance building and EE room.

March 15 & 24: The office's Savin copier (Model 9250) needed its thermo fuse replaced twice; the thermistor was adjusted during the second repair visit. Total cost: \$200.00.

March 24: Mitchell and McMenamin replaced the wheel bearings on the 17' Boston Whaler Boat. They also painted the bottom and made needed repairs to its fiberglass.

June 25: McMenamin and Mitchell replaced a broken hydraulic line on the Turner Hydromower.

July 21: The traffic counter was returned from the manufacturer after repair and a new infrared sensor was received to replace the one stolen.

August 5: McMenamin and Mitchell repaired an oil leak on the David Brown 995 tractor.

McMenamin, Bozman and Cardell repainted the divider lines in the Route 420 parking lot.

August 24: The two-year-old Savin photocopier required \$514.90 worth of repairs bringing the total for the year to \$1,061.50. So much for the economy of not purchasing a \$400.00 maintenance service agreement!

November 12: The three point hitch, tie rod ends, and tail light on the Case tractor were repaired.

Motor Vehicles

January 12: McMenamin took the Plymouth Reliant and the Dodge Ram pick-up truck to a state Certified Service Station for their annual safety inspection.

January 13: McMenamin repaired leaking exhaust pipe on the Plymouth Reliant by replacing the bad section with a new section of pipe.

January 14: The new Ford 800 dump truck went in to have alternator and fan belts replaced. All the work was under warranty.

January 18: The new 4 X 4 Dodge Caravan van wagon purchased for the environmental education program with FY92 Environmental Education Initiative Funds was delivered.

February 16: Our excess vehicle, the 1982 Chevy Pick-Up, officially went up for sale and inspection. The inspection

continued through February 22nd and was awarded through GSA to Equipment World of Cleveland Tennessee on March 2nd the selling price was \$791.00.

May 14: A 1993 Chevrolet S-10 Blazer was received to replace the 1987 CJ-7.

May 19: McMenamin tuned up Supawna Meadows Dodge Dakota and changed the oil and filters in the new Dodge Caravan.

May 19: McMenamin and Mitchell picked up the new Ford Dump truck and Kruger 25' trailer from Keeslers Heavy Equipment repair shop. The Kruger trailer had all new brakes lights, brake drums (which were resurfaced) and a new break away system installed the total for repairs was \$1797.50.

May 24: The 1993 Dodge Caravan's transmission was adjusted to eliminate noise during shifting and vibration in the transmission during idling. The work was covered under warranty.

May 25: The "clutch slave" cylinder on the 1991 Jeep Cherokee was replaced.

May 26: The 1993 Ford F250 4 x 4 pickup to be assigned to Supawna Meadows to carry the fire pumper was received. A 1993 Chevrolet S-10 Blazer was received from GSA to replace the 1987 Jeep Cherokee leased from GSA.

June 2 - 23: The 1993, S-10 Blazer was returned to a local Chevrolet dealer for repair of the air conditioning and anti-lock brake systems. The air conditioner/heater fan motor was replaced. The anti-lock brake system wiring harness was replaced. All repairs were covered under warranty, however, the impact of the three-week down time was significant.

June 13 -17: Purchase orders for radios, a winch, a chain saw and other fire equipment needed to equip the new F-268 pickup (purchased to carry the slip-on fire pumper) were processed.

July: Throughout the month, purchase orders were issued to obtain a winch, bed liner, tool boxes, fire fighting tools and cargo protector for the new F250 pickup which will be assigned to Supawna Meadows NWR to carry the slip-on fire pump.

September 10: Pat DiDomizio and Mike McMenamin installed a new brush guard, bumper, wench, tool boxes etc., to Supawna's new F250 Ford pick up truck which will serve as the refuges new fire truck.

October 7: McMenamin completed an oil change and tune-up on the Plymouth Reliant.

October 7: The 1986 Chevy pick-up truck (which was sold through GSA) was removed from the maintenance compound by the new owners.

October 14: McMenamin install a new tail light on the 1989 Dodge Ram pick-up.

October 21: A purchase order was issued for a snow plow which will be mounted on the 1992, 8-ton dump truck.

November 8: A new Meyer's 10-foot snow plow for the 1992, 8-ton dump truck was delivered. The plow replaces a six foot plow used on the 1984 CJ-7 which has been turned over to GSA for disposal.

November 30: The new plow and dump truck were taken to Triangle Trucking for installation of the plow.

December 14: The new 10' Meyer's snow plow was installed on the Ford 800 dump truck by Triangle Trucking Co. Installation cost was \$820.00.

December 17: McMenamin performed tune ups, oil changes and other routine maintenance on the 1992 Dodge pickup and 1993 Dodge Caravan.

December 21: Two new rear tires were installed on the 1989 Dodge pickup.

December 27: McMenamin performed oil changes and routine maintenance on the 1993 S10 Blazer and the 1991 Jeep Cherokee.

December 29: The 1984 CJ7 which had been turned over to GSA for disposal was awarded to Christopher Koban for a high bid of \$1679.00.

5. Communications Systems

January 22: The refuge was advised by AT&T that installation of FTS 2000 Service for the John Heinz NWR office at Scott Plaza II had been completed on its three exchanges.

May 17 - 18: Low Band radios were installed in the 1993 S-10 Blazer and 1993 Dodge Caravan. The radio was removed from the 1987 CJ-7 which will be turned into GSA for disposal.

July 26: The Motorola low band and high band radios purchased for the new Ford F250 pickup were received.

August 25: A purchase order was issued to AT&T to upgrade the Refuge's telephone system to touch-tone service.

September 27: Bell of Pennsylvania upgraded the refuge headquarter's telephone service to a touchtone line in preparation for installation of the new telephone system.

September 28: The new AT&T telephone system was installed in the refuge headquarters. This system was required to provide sufficient phones for the Park Ranger's Office and SCA intern. The new system replaced the existing rotary dial phones with touchtone phones.

6. Computer Systems

May 20: The Leading Edge 386 Laptop computer's hard drive controller failed. It was returned to the vendor for repair under warranty.

August 19: A purchase order was issued to replace Supawna Meadows NWR's 286 computer, which has been out of service for several months due to a hard drive failure, with a Swan Technology 486/33 MHZ computer with a Colorado tape backup system.

September 8: ORP Rowand set up the new 486 Swan computer for Supawna Meadows NWR.

September 24, 27: In response to a request from Refuges and Wildlife, Budget and Finance, a purchase order was prepared for two Swan Technologies Inc. 486/66Mhz computers. Considerable time was required to obtain competition and evaluate the quotes. Information on vendor quotes was traded with Great Swamp NWR in an effort to meet the deadline for this exercise.

October 2 - 4: The station's 286, PC's Limited computer experienced a hard drive access failure. This computer is used by the Office Assistant for most of the Refuge's correspondence, plans and fiscal management programs. With the help of Mary Conser from IRM and some not-so-gentle readjustment of the hard drive heads, the system was brought back into operation.

October 15: Assistant Manager Walker was advised by Dawn Comish that the refuge would be receiving two 486/66MHZ computers purchased with end-of-year funds.

November 4: The two Swan Technology 486, 66MHZ computers ordered with end-of-year funds from the Regional Office arrived.

December 1: ORP Rowand installed Pagemaker 4.0 and WordPerfect 5.1 software into one of the new 486 computers.

December 9: The new Swan Technologies 486/66MHZ computer with tape backup system obtained through the Regional Office's end of year purchase was setup as the Refuge's primary computer to be

used by the Administrative Assistant. The PC's Limited 286 computer was setup in the Supawna Meadows maintenance and SCA intern's office.

8. Other

March 16: Mitchell and McMenamin, by using both a bulldozer and a front-end loader tractor, reopened the entrance road and the upper and lower parking lot which had been closed due to the Blizzard of '93.

March 25: Joan Lohse and Maurice Graham of GSA conducted the biennial physical security survey of the Refuge headquarters leased office space at Scott Plaza. The list of emergency contacts was updated to reflect current staffing.

June 17 - 25: McMenamin, Mitchell, Cardell and Volunteer Steve Fleischman trimmed over-hanging branches along the refuge service roads.

June 9: A group from the Environmental Protection Agency used our EE Room for a day-long meeting.



(Photo: Nugent)

"Where's my harness?"

July 22: The 6' x 8' utility trailer purchased to transport lawn mowers and other equipment to remote sections of the refuge

was received.

August 18: Chevron checked their pipeline.

August 18: A Sonitrol Technician came to check the alarm system battery and to arrange for the telephone company to remove the audible beep from the phone.

August 24: William Oliver, Conrail, requested and was granted vehicular access to our trail/roads in order to repair signals along their track adjacent to the refuge.

August 6: Maintenceman Mitchell completed and erected two new interpretive signs: one sign explains the Refuge's project on biological control of purple loosestrife. The other sign (purchased from Wilderness Graphics, Inc.) explains the importance of wetlands and how they should be kept clean.

August 9: Maintenceman Mitchell installed the repaired traffic counter and new infrared sensor. To prevent vandalism/theft the counter was enclosed in a 1/4" plate steel box which was held in place with four bags of concrete. To conceal the unit, woodchips were placed around and on top of the box.

August 11: Mitchell and High School Co-op Students Cardell and Bozman replaced the protective covering on the Refuge's entrance sign. The plastic-like covering called "Tuffex" apparently was not tough enough to stand up to a good-size rock thrown against it.

August 15: Mitchell rebuilt the carburetor of the Refuge's slip on 100-gallon tank sprayer.

September 29: The refuge's environmental education room served as a meeting site for six attendees of PA DER's Division of Coastal Programs' Grantsmanship Training Session.

Maintenance Facility Equipment

January 11: A requisition for power equipment including a drill press, sander, radial saw, and router to be purchased with the value engineering savings from the maintenance building construction funds was forwarded to CGS and the Associate Manager, Refuges South.

March 10: The drill press, belt/disc sander, radial saw, builders saw, table saw, scroll saw and pin router purchased with the "value engineering" savings from the new maintenance building construction project arrived.

March 16, 17, & 18: Mitchell and McMenamin began setting up the Center's Carpentry shop. They assembled the table saw, pin router, scroll saw, drill press and belt sander. Safety precautions were taken by anchoring all equipment into the concrete floor.

July 28: A Purchase Order was issued for a wood shaper and jointer for the carpentry shop in the new maintenance facility using funds from the construction value engineering cost savings.

September 8: The jointer and wood shaper purchased with funds from the maintenance building construction project cost savings arrived. Both machines were assembled and bolted to the floor of the carpentry bay.

October 22: A gasoline-powered air compressor purchased with the maintenance complex value engineering savings was delivered.

October 28: A purchase order was issued for cutter heads for the wood shaper purchased with the maintenance building funds.

December 16: Bell Telephone donated ladders, angle iron, channel stock and storage racks which can be used by the maintenance staff.

Environmental Education Room

May 24: The refuge received 20 metal-encased thermometers and 20 petri dishes for use by students during fieldtrips to the refuge.

August: Throughout the month audio visual equipment stands, storage cabinets, display cases, and a 20-inch color TV monitor purchased with the Special Environmental Education Initiative Funds arrived.

August 17, 18, 26: McMenamin, Mitchell, Bozman, and Cardell assembled furniture purchased for the Environmental Education Room purchased with the Environmental Education Initiative Funding and the parts-cleaning machine for the automotive bay purchased with the construction contract cost-savings, allocated to furnish the maintenance facility.

November 15: At long last, the first of the furniture ordered for the Environmental Education Room with the FY92 EEI funds arrived. Two five-draw, lateral files were delivered. Unfortunately one of them was damaged during shipping.

November 30: Two new book shelves for the environmental education curriculum library, purchased with FY93 EEI funds,

were delivered.

December 1: The two library book shelves purchased with the FY93 Environmental Education Initiative Funds were received, assembled and placed in the Visitor Contact Station. The shelves will be used for the curriculum library which is made available to teachers visiting the refuge.

December 10: The ten tables ordered from GSA with 1992 Environmental Education Initiative Funds were delivered to the refuge, assembled and placed in the EE room.

Self-serve Kiosk

September 1: CGS notified the refuge that competition for the display's to be placed in the new kiosk purchased in FY92 was complete. The apparent low bidder was Wilderness Graphics, Inc. However, the bid exceeded the funds originally allocated for the project. Additional funds were made available and the contract was awarded.

J. OTHER ITEMS

1. Cooperative Programs

Mid-Winter Waterfowl Survey

January 14: Walker conducted the Midwinter Waterfowl Survey of a 35 mile stretch of the Delaware River for the Pennsylvania Game Commission. Three attempts to conduct the survey on January 8, 11, and 13 were cancelled due to the weather. Nine species totalling 1,695 ducks, geese and swans were observed. This is substantially less than observed during the last survey conducted by refuge staff in 1989. It is presumed that the low count is in part the result of open water conditions on many of the adjacent ponds and marshes resulting in dispersal of the waterfowl population.

January 15: A Hooded Merganser Questionnaire was completed and submitted to the University of Missouri's Gaylord Memorial Laboratory.

U.S. Forest Service Environmental Awareness on Refuge Program

April 4: A meeting was held at the VCS to begin discussion on the possibility of an environmental venture awareness between the Refuge and U.S. Forest Service's Radnor Regional Office. A couple of weekends prior, Eric Won, USFS's Assistant Director of Administration, had visited the refuge for the first time and was impressed with the potential for the signing of interpretive trails. Eric tasked some of his staff to look into the specifics for involving the USFS at the refuge. At the first meeting was: Ann Bohnet, Perry Fox and David Hughes representing the USFS and Nugent and Burns representing the refuge. After a general discussion on the refuge and its on-going programs and objectives, a tour was made. There appear to be several areas of interest and expertise where the USFS can assist the refuge, i.e., access to interpretive signs and environmental education material. Possible funding (up to \$5,000.00) might also be available from the USFS. The USFS folks will mull over various ideas suggested by Nugent and Burns before making its commitment. The potential for a synergistic liaison definitely exists.

May 12: We received a letter from the U.S. Forest Service as a follow up to our April meeting. Basically it said that while they would like to develop a cooperative interpretive or educational program with us at some point, it isn't going to happen this fiscal year.

New Jersey Cooperative Programs

May 19: Carrie Shershanovich, NJ Division of Fish, Game & Wildlife, requested information on waterfowl surveys conducted on the refuge during August, September and October for the period 1983 - 1992. The information will be used in the evaluation of a proposal for a September teal season.

June 9: Nugent, Walker and DiDomizio attended the second annual coordination meeting between Refuges located in New Jersey and representatives of the NJ Division of Fish, Game & Wildlife to discuss hunting programs, public access, waterfowl banding and other topics of mutual interest.

June 10, 11: Nugent and Walker attended the Pleasantville ES Field Office's Working Together for Wildlife in New Jersey Workshop. A number of opportunities for closer coordination between Refuge staffs and the ES staff were identified.

3. Item of Interest

January 3: The refuge received some unfair criticism by Bonnie Healy, a columnist for the Delaware County Daily Times. The article shed a double negative light on the Township's tax-cutting 1993 budget and the refuge's renaming and inherent safety concerns for its visitors. Nugent responded by writing a rebuttal letter to the Daily Times' editor as did former staffers of the late Senator Heinz and a refuge volunteer.

Penn Dot Highway Signs- Update

January 6: As promised, an explanation for the deletion of "at Tinicum" portion of the updated refuge I-95 highway directional signs was received. It originated from U.S. D.O.T.'s Federal Highway Administration and was signed by Phil Ouellet, Division Administrator. It read in part:

To comply with the Manual of Uniform Traffic Control Devices (MUTCD), due to the need for "Cargo City" on the same supplemental guide sign as the "John Heinz National Wildlife Refuge at Tinicum". Also, in the southbound lanes, due to the number of messages already displayed and the existence of the Collector-Distributor Roadway adjacent to I-95 southbound lanes, it was not feasible to display the refuge signs until the off-ramp intersection Bartram Avenue.

ALL ROADS LEAD TO:



(Photo: Nugent)



(Photo: Nugent)



(Photo: Nugent)

July 20: One year after ordering three refuge directional highway signs, they were finally erected. These signs were needed to reflect the November 1991 refuge name change. A 3' X 10 1/2' sign was placed along Route 291 at the Bartram Ave. intersection; a 4 1/2' X 11 1/2' sign was placed at the I-95 airport off-ramp leading to Bartram Ave; and a 9' X 16' sign was erected along northbound I-95, 1/2 mile north of Route 420. Construction and erection of the three reflective signs cost \$9,500.00.

Delaware Estuary Program

January 13: Manager Nugent attended the airing of the Delaware Estuary Program at the Penn State Campus in Lima, PA. Representation of DELEP were on hand to present and field questions about the program. Two public meetings were held.

The first was targeted for county officials and land use planners while the second was geared more toward the general public. Turnout was sparse, but those present were vocal.

The meeting centered on the precursor to DELEP's Comprehensive Conservation and Management Plan (CCMP), the Preliminary Conservation and Management Plan (PCMP).

Prime targets of the program are: habitat conservation, point source pollution, non-point source pollution, sustainable development, public access and education.

A key issue is cost. The program was funded by the government, but its implementation funding is uncertain.

James Tabor, chief of the Division of Coastal Programs with Department of Environmental Resources, said, "This is very important to address. We can't move programs without funding."

James Walsh, DER coordinator for DELEP, said, "A contractor is now looking at that aspect."

The Delaware Estuary Program was compared to the already well established Chesapeake Bay program. While the Chesapeake is primarily a recreational resource, the Delaware is a working estuary system. The impact of business, shipping and industry on the Delaware is much different from the more bucolic nature of the Chesapeake.

But the program is trying to remold that image, officials said, as more people are utilizing the Delaware water for recreational purposes. Much of this due to recent progress in cleaning up the waters of the system.

DER's Walsh said, "This theme of the program is 'Discover Its

Secrets and we want people to rediscover it."

Fish Passageways Presentation

January 21: Nugent was invited by EPA's Philadelphia Regional Office to attend the Fish Passageways: How to Build on a Successful Program presentation. The seminar was hosted by Jay O'Dell, Manager of the Fish Passage Program Maryland Department of Natural Resources. Topics included:

- o current technology
- o passageway selection and design criteria
- o building blocks for a sound program
- o Maryland program and the Chesapeake Bay Initiative
- o regulatory requirements and funding sources

Approximately twenty folks attended. Most were EPA but the F&WS and ACE was also represented.

After the formal presentation EPA's Lorraine Urbeit, Bill Muir and Ed Ambrogio discussed the possibility of a fish passageway prototype for Philadelphia's Cobbs Creek with F&WS' Nugent and Robin Burr. The major concern of water pollution affecting the natural resource and ultimately people was raised. Additional discussion will follow with F&WS as initiated by the EPA.

February 2: Jim Amon, Executive Director and Jan Holmes, Administrator of the Delaware and Raritan Canal Commission met with Nugent and Burns for a refuge tour and discussion of the background and the growing pains of this urban refuge. Many similarities exist between the refuge and the DRCC-managed Trenton Marsh:

The 1250-acre Trenton Marsh includes tidal and non-tidal marshland, forested swamps, upland second-growth forests and an oak forest with hemlock, rhododendron and mountain laurel covering a steep bluff. There are ponds and five separate creeks, one canal and the Delaware River. This diversity of habitat supports 550 species of plants, 280 species of birds, and many mammals, reptiles, and amphibians. This kind of wetland is one of the most productive ecosystem in the world--as productive as a tropical rainforest. John Heinz National Wildlife Refuge at Tinicum, has received national recognition as a critical natural area. No such designation has yet been given to the Trenton Marsh; it has, however, been recognized as one of the most important pre-historic archaeological sites in the Mid-Atlantic states. A 1500-acre portion of the marsh known as the Abbot Farm has been included on the National Register of Historic Places.

February 23: Nugent and Walker were interviewed by Ilene O'Shawnee, Penn State University student at the Lima campus. She was doing a project for her professional report writing course.

Satellite Educational Resources Consortium (SERC)

March 8: Russell Soucek, Assistant Director of Education, NJ State Aquarium at Camden, visited the refuge with a camera crew from New Jersey Network to video tape a segment of SERC's Electronic Field Trip #1: "The State of the River". The refuge (unnamed in the film) was one of three sites visited for this educational program. Water sampling of the 145-acre impoundment was video taped as was a site in Trenton and at the Camden Aquarium. The 1-hour show was geared toward secondary students and focused on the physical and chemical aspects of a river, using the Delaware as an example. Water quality and water quantity issues were explored. Students saw demonstrations of a variety of water sampling techniques and heard discussions and analyses of the data by scientists and environmentalists. Mathematical modeling and the applied sciences, particularly engineering, were also stressed. The diversity of careers associated with conservation and river use were addressed. The program was aired on March 18th via this SERC course. Such courses are produced each day in public television studios. Daily lessons are beamed up, live, to a satellite. The satellite signal is then beamed down to satellite dishes located at participating schools throughout the county. Students communicate directly with the teacher using a speaker telephone in the classroom. In 1990, SERC served over 3,800 students in six for-credit high school courses. Approximately 30,000 students participated in noncredit student seminars.

March 26: Walker gave a one-hour presentation on management of nuisance urban wildlife to a group of 30 Department of Defense civilian employees attending a mandatory one week course in oversight of pest management operations held at the Sheraton Post Hotel in Cherry Hill, NJ.

Civil Aviation Administration of China



(Photo: Zahm)

"No, we don't cater to the Pekin duck."

March 26: Nugent gave an introductory talk and tour of the refuge to 18 members of the Civil Aviation Administration of China (CAAC). These folks are part of a program to better the Chinese airline.

By its own admission, China's state-owned CAAC Airlines is a mess with chronically late flights and lousy on-board service.

But in the coming years - with the help of Drexel University and Philadelphia International Airport - the airline should be more competitive as its service gets better and its management smarter and more efficient.

At least that is the hope of Chinese officials who struck a unique agreement with Drexel last year and the airport to teach CAAC middle and upper level management, marketing, international trade and American-style airport and airline operations.

The one-year-old program consists of three, 10-week terms of classroom training. The classes are followed by three months of

internship at the airport, where the aviation professionals concentrate on specific aspects of the operations of the terminal, air field or individual airlines. The talk and tour on the refuge was geared towards the group's specific interests. Nugent, through an interpreter, explained the possible hazards of having a refuge in close proximity to an airport (i.e., bird strikes) and the refuge's relationship with the Federal Aviation Administration in permitting it to maintain a wind shear monitoring instrument on the refuge.

NWRS Management and Policy Act

Congressional interest in Congressman Sam Gibbons' National Wildlife Refuge System Management and Policy Act of 1993 Bill (HR 833) is apparently high: During April, legislative aides from the offices of Congressman Weldon (D), Foglietta (R), and Congresswoman Margolies-Mezvinsky (D) have solicited the manager's thoughts on the bill. Interest was also expressed by the same individuals in the Service's "Refuge 2003 - A Plan for the future of the National Wildlife Refuge System".

Darby Creek Clean Up



(Photo: Nugent)
"Didn't we begin with seven kids?"



(Photo: Nugent)
Tireless toilers.

April 24: The ninth annual Darby Creek Clean Up took place on the refuge during the low morning's low tide. Approximately 40 individuals took part in the trash removal campaign. Many groups were represented: The Nature Conservancy, the Sierra Club, Girl Scouts of America, Lodge of Prospect Park, Bell Pioneer Club and Delaware County Juvenile Restitution Program. Four large dumpsters were donated by J&K Trash Haulers and Uptanaker Trash Removal. As is becoming a custom, Don Amie, of Bell Pioneers, provided the fine vituals at noontime at the maintenance compound.



(Photo: Nugent)

Sanitation engineers along Route 420.

Tinicum Township Water Control Structure (Tract 22, a)

April 23: Aston Construction Company excavated around one of the 24" diameter culverts that passes thru the dike separating the tidal Darby Creek from the storm drainage waterway know as Long Hook Creek. (Located between Tracts 22 and 22a.) Tinicum Township is very protection of this drainage system subsequent to the Township's major flooding back in the 1950's. Upgrades were made to two of the culverts about a decade ago; tidal flap gates with protective reinforcing bar "cages" were installed. A long time, insidious problem has been that of erosion on the western culvert. A major leak had been created, making Long Hook Creek a tidal area as influenced by Darby Creek. Aston Construction was making repairs. In the process of excavating, the headwall was cracked. Tinicum Township engineers decided to fill and cap the culvert with concrete. A slurry was also poured into the excavated hole for good measure. The flowage rate has thusly been reduced by $1/3 - 1/2$. The immediate leakage problem has been resolved but the long-term impact of the culvert's filling will not be known until a major rainfall.

In April's Monthly Activity Report, it appeared that the culverts' leakage problem had finally been resloved. Au contraire! The Township engineers thought that if the deteriorated 36" culvert was filled with concrete and backfilled the two other culverts (a 36" pipe and a 27" X 43" boxed pipe with flap gates) would suffice in draining the township's area via its Long Hook Creek in to Darby Creek. Wending its way through the eastern portion of the township (Lester) Long Hook Creek passes under I-95 through 3 culverts: two, six-foot diameter pipes and one, three-foot diameter pipe. Such was not the case. It was shortly learned that the two other culverts were also severely corroded; the sixty-year old corrigated metal pipes were serving as two-way seives.



(Photo: Nugent)

Frustrated township officials lurking in shade... waiting for an unsuspecting scapegoat to walk the plank.

Aston Construction Company was re-hired by the Township (for a purported \$20,000. contract) to extricate the old pipes and to replace them with new pipes. Makeshift coffer dams and metal sheeting were driven around worksites. After several days the work was complete. The leakage problem was resolved but ironically another problem has surfaced! The pipe repairs produced a marked drainage of Long Hook Creek and its associated waterways. Within a week, fishermen started drawing attention to the lowered waters. The refuge office received a call of concern from a Lester resident who claimed that the Township was, in effect, draining wetlands without a permit. Water levels had receded a couple of feet in some of the fishing areas where fish were gasping at the surface. Calls were referred to Township engineers and Pennsylvania Fish Commission.

July 26: A meeting was convened at the Tinicum Township Boro Hall to discuss the legality of the recent repair work performed on the deteriorated water control structures that provide flood control protection via Long Hook Creek. Resident/watchdog Wayne

LaMar encouraged other concerned citizens to call the Army Corps of Engineers to investigate the legality of upgrading the leaking pipes. (The end result of the upgrade was that the flood control structure was working as originally intended, i.e., a one-way flow of water existed the Township area... drastically lowering the scenic, water and fish-filled storm drainage basin.) The ACE's Surveillance and Enforcement Section quickly realized that something was awry in the Township. The ACE had received many calls within the preceding two months, prompting Wade Chandler, ACE, to meet with Nugent on July 13th at the WCS site to take notes and photos. The drastic drainage situation was aired at a monthly Township Boro Committee Meeting on July 19th; Wayne LaMar requested that a separate meeting involving the various special interests be scheduled... thus, the July 26th meeting was arranged. In attendance were:

Jeffery Stein - ACE - Surveillance and Enforcement Section
 Wade Chandler - ACE - Surveillance and Enforcement Section
 Albert Marcantano - Tinicum Township Committee Member
 Joseph Rizzo - Tinicum Township Committee Member
 Ralph Slatter - Tinicum Township Committee Member
 Herb MacCombie - Tinicum Township Engineer
 Alan Moyer - PA Fish Commission
 Dick Nugent - FWS
 Wayne LaMar - Concerned Citizen
 Carmine Inanieri - Concerned Citizen
 Walt Mudryk - Concerned Citizen

MacCombie gave a historic background to the need for flood control in the Township and the various steps taken in constructing the controversial water control structure. The ACE questioned MacCombie as to the structural integrity of the original pipes and how much leakage (as caused by tidal fluctuating) had been documented in Long Hook Creek prior to its remedial work. It appeared that the Township was justified in making the WCS repairs and restoring it to its original working condition. The Township was also covered under an umbrella ACE "Nationwide Permit". Some attendees missed the objective of the meeting and requested the water levels of Long Hook Creek be raised to eliminate the "stench" and prevent some areas from completely drying up. Some folks speculated that the wetlands might someday be considered non-wetlands; thusly, becoming prime-candidate areas for filling and development. It might be a valid point but the ACE folks were not prepared to discuss that side-issue. No formal opinion was offered by the ACE representatives at the meeting. A formal ACE response will be directed to the Tinicum Township Committee Members once discussed and reviewed in-house.

During the month, the recently rehabilitated WCS experienced a temporary problem when a large branch became lodged in the tidal

flapgate. The Long Hook Creek then became tidal once again... making some folks pleased and others concerned. By month's end the branch was dislodged and final repairs were made to the roadway that passes over the WCS. The guard rails were re-erected and gravel was added to the ruts, making for safer vehicle passage over the narrow roadway.

PA Bureau of Forestry

April 26: Assistant Manager Walker provided boat transportation to Little Tinicum Island for Commonwealth of Pennsylvania, Bureau of Forestry employees Warren Ely, Ted Kelly, and Doug DeMoore. The Bureau of Forestry manages the island for the Commonwealth. This was the first visit by these employees to the island. Six nesting pairs of Canada geese were observe around the pond at the North end of the island.

May 1: The change from franked envelopes to using postage stamps has not given us any problems so far. The station received a postage scale through the regional office. The postage scale only allows us to weigh mail up to five pounds, therefore, we had to purchase a scale that would allow us to weigh heavier packages. After weighing a package over five pounds, the post office quotes the amount of postage that is needed. We haven't had to wait more than five days when ordering stamps from the post office. With any luck the conversion will continue to be hassle free.

July 12-23: The refuge took part in its second "postage survey" to see if the Complex qualifies for a meter.

"Mercy Missions"

We receive many calls from distressed citizens requesting assistance in the handling of stressed wildlife. Attempts are made to minimize staff time in responding to such off-refuge calls; referrals are made to the PA Game Commission, Fish Commission or to various wildlife rehabilitation centers. There are exceptions, however, as listed below:

May 3: Refuge staff responded to several callers from support businesses of the Philadelphia International Airport regarding a dozen mallard ducklings trapped in a grate-covered storm sewer. All ducklings plus their mommy were netted, transported and released on the refuge.

Throughout the month of May many calls were received and many office "drop-ins" occurred as related to a Canada goose with an injured wing that was observed within a small flock of resident geese utilizing Scott Paper International Headquarter's man-made pools. The bird was observed swimming, feeding and actively taking part in the group's activities. Its right wing appeared

injured, i.e., it wasn't folded tight against its body. Attempts in trying to mollify the concerned public proved futile. In an attempt to regain favor amongst our neighbors, several half-earnest "wild goose chases" ensued. the flightless goose always ended up in the pool. The well-intended captors didn't follow the subject into the shallow pool because of its thin-membrane rubber liner. (Scott has had past problems with the liner's leaks and "marsh gas" bubbles.) The gimby goose remains with its buddies and we've regained some esteem amongst Scott's many concerned employees/tenants.

June 22,23,25: After several phone calls from the caretaker of the historic Morton Mortonson House adjacent to tract 35, Nugent and Walker visited the site to investigate the report of an injured goose. No goose was found. On the 25th, Walker and Cindy Rice, State College ES Field Office, encountered an injured goose on the adjacent tract 24i. The bird's left wing was broken in two places and the left leg was injured and seriously infected. The bird was dispatched.

Regional Office Engineering Visit

May 10: Rich Yee, R.O. Engineer and Simone Hung, Engineer of Bayside Associates, visited the Refuge Complex while en route to the Bombay Hook N.W.R. At the Heinz Refuge, a cursory inspection was made of the impoundment's observation platform which has \$6,000. assigned to it this fiscal year for upgrading. Material types and sources for upgrading the safety aspects of the platform were requested and subsequently received. Two water control structure sites were visited and inspected at the Supawna Meadows N.W.R. Both WCS are slated for corrective funding this fiscal year. The impoundment's WCS has \$50,000. allotted and the Refuge Hdqts. has \$10,000. scheduled. Engineering specifics from local sources will be solicited for both sites, shortly.

"Bird-A-Thon"

May 14: Between 1:00-3:00 A.M., five birders led by Biologist Bob Schutsky made a nocturnal visit through the refuge as part of the 10th Annual World Series of Birding.

Eastlake Park, Ridley Park Lake

May 27: Pat Patterson, Staff Assistant for Congressman Curt Weldon's Upper Darby District Office, called Nugent re the longstanding problem in getting funding for replacing a bridge and upgrading a dam for this 10-acre body of water that serves as a park. The unsafe bridge was demolish by the National Guard a few years ago, thusly, creating two cul-de-sacs. Many meetings have been held at the local level and State level in an attempt to obtain adequate funding to reconstruct both the

bridge and twenty-foot high dam. Patterson asked whether the Service saw any potential in the pond as an attractant for migratory waterfowl or anything else that might lead to Federal funding to enhance the water levels in the leaking dam. Nugent made an on-site visit and could not justify the expenditure of Service monies for the urban park pond with its resident Canada geese and Pekin ducks. He suggested that the PA Fish Commission be approached to see if any Dingell-Johnson Act money could be justified by improving the pond's public fishing opportunities or to enhance the freshwater habitat for the State-threatened red-bellied turtle that might inhabit the area.

FAA Electrical Connection at the VCS

It has been a year since Chevron Oil Co. became aware of its tie-in with FAA's wind shear monitoring instrument that is electrically powered at the refuge's Visitor Contact Station. Since Chevron supplies the VCS electricity, it also supplies FAA with its electrical needs. Chevron has tried to ameliorate what they consider to be an inherent liability problem, i.e., if due to future electrical outages an plane accident happens because of an unmonitored wind shear incident. (Notwithstanding FAA having an on-site backup, battery-power source for such outage situation.)

June 10: a letter was sent to FAA from Chevron directing it to "... take immediate action to disconnect the power...". Excerpts of the letter are offered:

"As you know for quite some time we have been working with your legal staff to develop a "License Agreement" to allow the FAA to continue using the power supply from our Darby Creek Tank Farm for the operation of the FAA's wind shear equipment located at the Tinicum National Wildlife Refuge Visitors Center. The electrical connection was installed without our approval some years ago and we continue to be very concerned about Chevron's position should electrical power be lost to the equipment due to a problem caused by Chevron."

"The most recent proposals submitted by your counsel, Mr. Zachary M. Berman, do not address any indemnification or liability concerns we have. After my telephone conversation with you this date, it appears that the U.S. Government is unable to provide such indemnification to Chevron. Since we are unable to arrive at an agreement, please take immediate action to disconnect the power from our electrical service at the Visitors Center and provide an alternate supply as necessary."

June 15: A letter of response was sent from FAA's Walter Bramkamp, Contracting Officer, to Chevron's Barrie Bunner, Project Manager. It said:

"This will confirm our conversation of June 14 concerning the establishment of an alternate electric service for the Northwest Sensor of the Philadelphia Low Level Wind Shear Alert System (LLWAS) due to the fact that the FAA cannot agree to the indemnification required by Chevron. Once this service becomes operational we will no longer require our tie-in to the Chevron line between the Chevron Tank Farm and the Tinicum National Environmental Center."

"We are proceeding as quickly as possible with this project, although we do not anticipate that it will be concluded in the very near future. We must coordinate with Philadelphia Electric in designing and scheduling this run as well as in securing any necessary easements. We also will most likely have to go through a competitive bidding process to have the actual work done. Finally, we must secure emergency funding to accomplish this work. We hope to furnish you with a detailed schedule for the project within the next few weeks."

September 14, 15: FAA and Philadelphia Electric Company representatives visited the Refuge to evaluate the feasibility of providing power to the FAA's wind sheer monitoring instrument. In order to provide electric power the underground line would have to follow the Refuge entrance road for a distance of approximately 400 yards. The cost for this line is estimated at \$100,000.00. Placement of solar panels to power the system is another option being investigated. The Refuge visitor center roof was suggested by FAA as a potential site for the panels provided the structure is sufficient to support them. Another option may be to relocate the instrument to the Refuge's maintenance compound where electrical service is already available.

November 23: Assistant Manager Walker met with Dale Bryan of Raytheon, FAA's consultant for design and installation of wind sheer monitoring equipment. In addition to attempting to solve the problem of providing electrical power to the existing equipment, Raytheon is designing a new wind sheer monitoring system for the Philadelphia International Airport. The location of the present equipment, the Visitor Contact Station, is not suitable for the equipment associated with the new system due to the spacial relationship with the locations of other devices making up the system. A location along the Philadelphia Electric Company's (PECO) power line between the maintenance compound and 84th Street appears to be more suitable. The new system would be installed on a metal pole approximately 80 feet in height. The pole would be equipped with a winch system to raise and lower the equipment for maintenance. Direct power from PECO is available for this site and access can be gained from outside the maintenance compound security fence.

December 20: A copy of Raytheon's report to FAA regarding

siting of the Low Level Wind Shear Alert System (LLWAS) was received by the refuge. The report recommends relocating Remote Station 5, currently located behind the refuge's visitor contact station, to a location along the Philadelphia Electric Company's (PECO) power line between the maintenance compound and 84th Street. The new system would be installed on a 90-foot metal pole. Direct power from PECO is available for this site and access can be gained from a refuge access road outside the maintenance compound security fence.

Seminar

June 5: Manager Nugent was invited to serve as a speaker at the 1993 Spring Delaware County Environmental Seminar at the American College in Bryn Mawr, PA. the seminar was sponsored by Congressman Curt Weldon (R-7th); it attracted approximately 100 local environmental leaders. Topics covered were an overview of activities at the refuge; the implementation of an employee trip reduction program, as part of the Clean Air Act; re-authorization of the Endangered Species Act; and implementation of the Oil Pollution Act of 1990.

Refuge Profiling

July 7: Nugent was contacted by Karen Hollingsworth, professional photographer specializing in wildlife, regarding her pending visit to the refuge with her co-photographer husband, John. The Hollingsworth's have produced "Our National Wildlife Refuges" the calendar on the refuge system. They are now in the process of completing the photography for a book depicting the beauty and diversity of habitats and species within the NWRs. They wish to include the John Heinz NWR. An August/September refuge visit is expected.

August 19: John Hollingsworth, national wildlife refuge photographer, visited the refuge to become better familiarized with the setting prior to returning in the fall for photographing various aspects of this urban refuge for his contract with the FWS. PAO is particularly interested in obtaining photos dealing with our environmental education activities. McMenamin toured John around the refuge after he discussed his photographic objectives with Nugent.



(Photo: Nugent)

October 22: Hollingsworth returned to the refuge to complete his photographing of the refuge for possible inclusion in the 1995 "Our National Wildlife Refuges calendar."



(Photo: Nugent)

Jim and Mildred railing/rallying
refuge support.

December 17: Following up on Nugent's invitation, Jim and Mildred Clark editor and of Refuge Reporter, visited the refuge for a day-long interview/tour and photo session. The refuge is scheduled to be highlighted in the 1994 spring issue. The Refuge Reporter, is devoted exclusively to news and commentary about the National Wildlife Refuge System. Its purposes are to explain the role of the system and individual refuges and their management practices and proposals, to provide information for enhancing refuge visits, and to broaden a constituency that will be motivated to act in support of this natural resource.

PA Environmental Education Program

June 22: A Statewide environmental education program will be created under legislation unanimously approved by the State House and Senate and signed into law. Senate Bill 181 will bring formal environmental education into public school classrooms across the State Department of Education and Environmental Resources in developing and implementing environmental education programs, supporting teachers and

education agencies, and recognizing exemplary environmental education curriculum. The bill will also create an Advisory Council on environmental education and require DER and Department of Education to issue periodic reports on the achievements and future needs of environmental education programs. Programs created under SB 181 would be funded by 5% of the annual collections from DER fines assessed to individuals and companies which violate State environmental regulations.

Special Achievement Award



(Photo: Walker)

August 25: Mike McMenamin, Automotive Mechanic was officially recognized for his major role in planning and carrying out Region 5's first Maintenance Workshop that was held at the

Patuxent Wildlife Research Center, April 19-23. Mike received a Special Achievement Award and shared \$5,000. with his six co-planners.



(Photo: DiDomizio)

Norm Abram , of "This Old House" fame,
tries to ignore McMenamin's table-shaking
antics as he signs autographs for everyone 'cept Mike.

Interstate Outdoor Advertising

In April, several contacts were made by Interstate Outdoor Advertising (I.O.A.) for access through the refuge gates along Route 291 to the Conrail Railroad easement near Bartram Ave. I.O.A. is purchasing rights to erect two 14' X 48' billboards that would be obvious from both the I-95 and Route 291 overpasses in that area. Construction on both billboards should begin in May. (It is expected that airline companies will be the major advertisers.)



(Photo: Walker)

Chief Crazy Feathers accepts a donation/
bribe from ne'r' d'well-wishers from Interstate.

July 28: Interstate Outdoor Advertising, Inc. contributed \$200.00 to the refuge for "being a good neighbor". The money is "...too help with all the great work being done at the refuge".

What a difference a month makes! Last month the refuge was lauded by this billboard firm for its cooperation and being a good neighbor. No problem was suspected until the site preparations began on August 10th. Little was it realized that both sites were located within a storm water drainage ditch along the northern side of Conrail's right-of-way. Culverts had been haphazardly dropped into the water-filled canal and backfilled with crushed stone and modified gravel.

INTERSTATE'S BILLBOARD SITE NORTH OF I-95

Initial filling.

(Photo: Nugent)



Quench filling.

(Photo: Nugent)

INTERSTATE'S BILLBOARD SITE SOUTH OF I-95

(Photo: Nugent)

Initial filling.



(Photo: Nugent)

1st paying customer at \$1,000±/mo.

Nugent approached the contractor, Buckley Co., Inc., the following day. Nine, 30' long creosote-treated posts were stockpiled at each billboard sites. They were soon to be pile driven for stabilizing the billboard's bases prior to encasing them in a 18' X 20' X 5' concrete block. Nugent's concern centered on the wetlands impacted and alteration in the water flowage since the 2' culvert placed haphazardly on the north side of I-95's overpass was backfilled and not functional. The water-filled ditch that extends in an east-west direction for approximately two miles along Conrail's trail and along the refuge's boundary was now flowing in an easterly direction. A 16" culvert that drains the Bartram Ave./Scott Plaza watershed area was observed discharging a large volume of water that could only flow eastward. This water was now blocked from any westward flow. The impoundment's water level for better or worse, is now influenced much more by this one directional water flow. Only a temporary alteration to water flowage was perceived at that time; in an effort to prevent permanent flowage change, Nugent notified two billboard construction employees that the pile driving should be delayed until the "wetlands issue" was resolved. Nugent also notified Herb Mac Combie, the Tinicum Township Engineer; Wade Chandler, ACE's Surveillance and Enforcement Section; and Ken Anderson PA DER Water Quality Division. All folks seemed concerned. The pile driving, however, took place on August 19th. ACE's Chandler put Joe Moderski, IOA owner, on notice to stop the billboard's construction... saying that if he was not able to obtain an after-the-fact Nationwide permit, the material would have to be removed from the water. Moderski said that he understood but would proceed nonetheless. Nugent continues to document the day-to-day construction activities and has FAXed requested material and photos to Chandler.

September 16: A meeting was held on-site to discuss the removal of fill and culverts placed in wetlands for access to both billboard sites. In attendance was:

Wade Chandler - ACE, Surveillance and Enforcement Section
 Jeff Kopko - Delaware County Soil Conservation District
 Ed Altieri - Interstate Outdoor Advertising, Inc.
 Robert Buckley - Buckley Construction Co., Inc.
 Wayne Lamar - Tinicum Township resident
 Dick Nugent - Manager

Both distrubed sign sites were to be returned to pre-construction conditions as best as possible via excavation of fill/culverts, resloping of the water-filled ditch, hydro-seeding the areas with a wildlife pasture seed mix of Kentucky #31 fescue, ladino clover and rye grass. The work was completed within a week. It appears that Interstate will receive an after-the-fact Nationwide permit from the ACE. No illegal activity seems to have been performed by Interstate as far as

the ACE is concerned. It may be a different matter with the PA DER's Water Quality Division; no review of the matter has been performed by that division. It is speculated that fines may be imposed by the State for altering its wetland without required permits. ACE will also approach EPA with Interstate's wetland filling incident; a possible "Administrative Penalty" may be assessed by them.

Another legal matter, associated with Interstate's signs, surfaced on September 12th when Park Ranger Zahm contacted two individuals who were hired by Ed Altieri of Interstate, to top trees blocking view of the billboards along Rt. 291 and I-95. Both individuals initially gave bogus information to Zahm. They had been instructed by Alteri to keep a low profile because of recent "tough times" with ACE and the refuge. At least a dozen trees had been topped. The following day Nugent contacted PA Dot to see if any permits had been issued for such tree trimming activities within its right-of-ways (along I-95 and Rt. 291). A "Highway Beautification Program" permit had been issued but no tree-cutting permit. Nugent contacted Kevin Munley, Roadside Development Supervisor of PA Dot, to find out what should be done. Kevin was quite upset about the situation and had knowledge of previous clandestine tree trimming by fly-by-night operators who did their deeds during weekends to minimize attention. He was elated to learn that two such folks were caught in the act. An on-site meeting is planned for early next month when Nugent, Zahm and Munley will assess the natural resource damage and discuss possible legal action/revocation of permit with Interstate.



(Photo: Nugent)

Note the topped trees in background.

October 7: Nugent and Zahm had an on-site meeting with PADOT's Kevin Munley, Roadside Specialist Supervisor; Rick Cantrell, Roadside Development Specialist; and Nick Martino, contract consultant for roadside crews. The PADOT folks took photos and measured easement distances to document the tree-topping damage and extent of incursion. Munley plans on citing Interstate and revoking its permit that allowed them to construct both billboards within PADOT's area of influence vis- a-vis the "Highway Beautification Program".

December 10: Rob Walbert, PADOT, dropped off highway right-of-way maps that delineated subject-area, as it relates to the tree-topping incidence. There is no question in PADOT's mind that an illegal activity took place on its property.

December 15: Kevin Munley, PADOT Roadside Specialist Supervisor, informed Nugent that he had a earlier conversation with Robert Orlando, Transport Displays, Inc. of Philadelphia. (Orlando is affiliated with Conrail as a licensing agent who deals with various billboard sign companies.) Munley had called Conrail the day before to express concern over its non-

compliance with PADOT's Highway Beautification permit requirements that had been issued for Interstate Sign Company's two billboards. The word traveled quickly to Orlando. Orlando called Munley to express his displeasure. Munley advised Orlando that PADOT was pursuing revocation of Conrail's permit. Orlando challenged him. Munley asked Nugent to send a summary witness statement that may be used in State Court against Conrail. Park Ranger Leigh Zahm prepared his witness statement on letterhead stationery that documented his observation and conversation with the tree toppers on September 13, 1993. Nugent and Zahm may be called upon to testify at the hearing (date unknown at this time). Munley wants to prosecute this case to the end. It is very rare that these fly-by-night tree toppers, hired by unscrupulous billboard sign companies, get caught. Even if PADOT cannot revoke the permit (thus necessitating the dismantling of the two \$35,000+ billboards), PADOT will, at a minimum, levy a fine for double the amount of the natural resource damage, i.e., tree topping.

Folcroft Borough's Storm Sewer Line Problem (Tract 34)

September 17: Manager Nugent met with Folcroft Borough Councilmen John Collins and Charles Catania. Collins is a resident of Taylor Drive, an area adjacent to the Refuge's northern Tract 34. Collins has expressed concern over the faulty storm sewer behind his row home. During times of heavy run-off, the grating of the sewer is lifted off its base and gushes water down onto the refuge. The run-off has eroded the western side of a silver maple, thusly, exposing its roots. Collins is concerned that the tree may fall and crash into his garage. The tree appears quite sturdy. Although the storm drain and tree are off the refuge, Collins wanted our recommendations on bettering the situation. It was suggested that the storm sewer be cleaned out and that large stores be placed on the few exposed roots of the silver maple to lessen future erosion. Catania said that they would attempt to find the blueprints for the Borough's storm sewer system and determine the underground flowage route that may go on to the refuge. Coincidentally, the 60" force main Delcora pipeline traverses Tract 34 and its unknown as to the impact it might have had on the Borough's drainage system when it was buried back in the early 1980's.

GSA Lease

Nugent was advised during the month by Scott Paper Company's realtor Bob Herd that GSA's lease for the refuge's headquarter' is to expire in February 1994. He suggested that we contact GSA's lease space managers to advise them. Nugent contacted Jim Snyder who was aware of the upcoming lease termination. Jim said that GSA had leased 40,000+ sq. ft. at the Tinicum Industrial Complex (formerly the Westinghouse plant) for the

Navy. Due to the defense cut-backs, much of the lease space was vacant. He had plans of moving our office to T.I.C. Nugent mentioned the fact that the Service was soon to be the recipient of a bequest that might fund a new Hdqts./EE Center and that our current lease at Scott was great because of its central location... giving us quick and equal access to the refuge. A few days later Snyder informed Nugent that GSA will re-negotiate a one year lease with Scott Paper Co.

Fairmount Park Art Associate - Epilogue

What began in September of 1991 with great expectations for the refuge to be the selected site for a commissioned sculpture known as the "Pavilion" ended with great fanfare on October 26th. On that date the "Pavilion" was officially dedicated via a ribbon-cutting ceremony in Philadelphia's Fairmount Park. The refuge ended up serving as one of three potential sites for the "Pavilion in Trees" designed by sculptor Martin Puryear. The \$180,00 structure looms some 24' over a ravine and the canopy adds another 11' to its height. The structure is supported by four main posts and is built out of three kinds of wood - Pennsylvania White oak, red cedar from Washington State and redwood from northern California. The pavilion is one of several works conceived by the Association in 1980 in a program called "Form and Functions: Proposals for Public Art for Philadelphia".

4. Credits

To assign credit for the writing of various portions of this narrative would be more confusing than enlightening. Why? This report is, for the most part, a "cut and paste" collage of the multi-authored, 1993 Monthly Highlight reports. Staff assigned to compile various Sections of this report are not, necessarily, the original writers.

K. FEEDBACK



History

Tinicum marsh, the largest remaining freshwater tidal wetland in Pennsylvania, measured over 5,700 acres when the Swedes, Dutch and English first arrived in the 17th century and began diking and draining the marsh for farmland. The diking and draining continued slowly until World War I, when rapid urbanization caused an increase in the destruction of the marsh.

A diked, non-tidal area of 145 acres, adjacent to Tinicum marsh, was acquired in 1955 and administered by the City of Philadelphia. In 1969, the adjacent marsh was threatened by the construction of I-95. This prompted the efforts of area residents, private and public organizations to persuade authorities to preserve this area and reroute the interstate. Under legislation passed by Congress in 1972, the US Fish and Wildlife Service acquired the Tinicum National Environmental Center.

In November, 1991, through an act of Congress, the name was changed to John Heinz National Wildlife Refuge at Tinicum in honor of the late Senator who helped to preserve the marsh.

For further information, please contact the Outdoor Recreation Planners at:

Refuge Headquarters
Suite 104, Scott Plaza II
Philadelphia, PA 19113
Telephone: (215) 521-0662*
(215) 365-3118

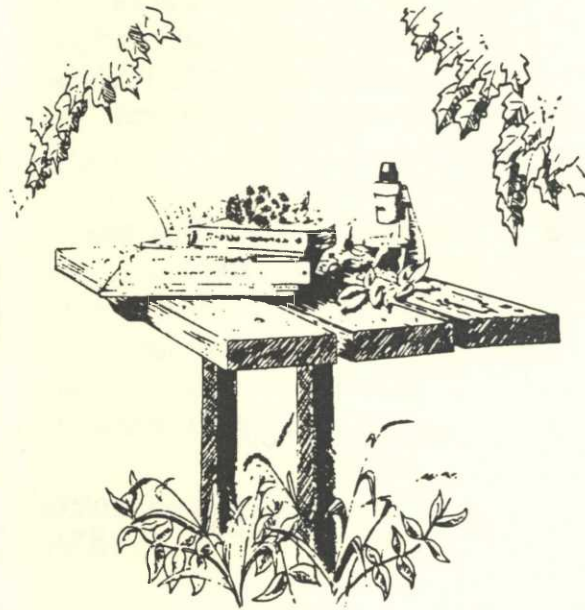
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Department of the Interior
U.S. Fish and Wildlife Service



Teaching in the Outdoor Classroom



John Heinz National
Wildlife Refuge at
Tinicum



The John Heinz National Wildlife Refuge at Tinicum was established in 1972 with 3 Congressional mandates: Protection and preservation of Tinicum marsh; Wildlife-oriented recreation and observation; and Environmental education (EE).

The EE program at the refuge currently consists of four main parts:

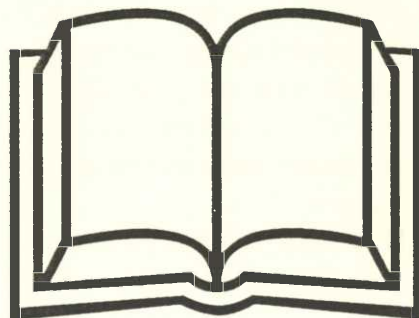
- refuge's curriculum library
- teacher workshops
- field trip consultation
- field trips

All services provided by the refuge and activities at the refuge are free of charge.

Curriculum Library

The refuge's curriculum library contains over 100 activity guides and resource materials. These can be used to prepare a classroom lesson or a field trip. Some reference materials are available to help teachers gain more information on particular subjects. A variety of field guides may be borrowed and used during fieldtrips.

There is also a collection of videos and 16mm films. These may be borrowed for classroom use.



All materials may be borrowed for a 2-week loan period with 1 renewal. Three items may be borrowed at a time. The library is located at the refuge's Visitor Contact Station at 86th Street and Lindbergh Blvd. and is open 7 days a week from 9am-4pm. Please call ahead to plan a time to visit.

Teacher Workshops

We offer 5 workshops to educators, free of charge. Delaware County and Philadelphia teachers may receive 1 IU credit for all courses except the Field Trip Orientation.

Tinicum Marsh: An Introduction to Environmental Education

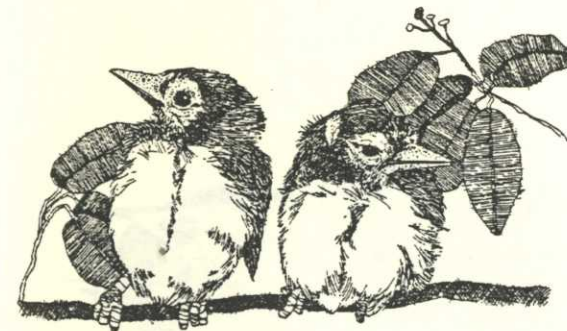
Explore the refuge's 5 habitats through a variety of "hands-on" activities that you can do with your students. Find out how the outdoor classroom can work for you. Learn how to integrate EE into your daily teaching to make lessons fun and educational.

Participants will gain a basic understanding of ecological concepts through instructor-led activities and experience by leading activities they choose from the refuge's EE library.

Tinicum Marsh: Further Studies in Environmental Education-

This follow-up course to the Introduction to Environmental Education centers on three themes: Tidal marsh ecology, ornithology, and, plants and places. Participants must have previously completed the "Tinicum Marsh: Introduction. . ." course, or have some background in environmental science from college courses or nature centers.

By the end of the course, participants will have been exposed to three complete "inter-disciplinary projects" which could be used with students.



Tinicum marsh: Field Trip Orientation (New in 1992)-

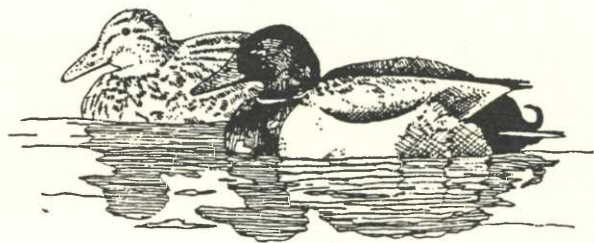
A brief introduction to the refuge and the Environmental Education program. Participants learn several field trip options and activities that they can incorporate into their own field trip.

Project Wild/ Project Learning

Participants will become familiar with the Project Wild and Project Learning Tree activity guides and be able to integrate these materials into their curriculum and lesson plans. Project Wild is sponsored by the PA Game Commission. Project Learning Tree is sponsored by the PA Dept. of Education.

Keystone Aquatic Resources Education (KARE)-

Participants will become familiar with the four components of the KARE program: Aquatic Project WILD, Living in Water, Water Resources of PA and P.L.A.Y (PA League of Angling Youth) and be able to integrate these materials into their curriculum and lesson plans. This program is sponsored by the PA Fish and Boat Commission.



Field Trips

All field trips are teacher-led. Our staff can provide a brief introduction to your group when they arrive. Equipment such as hand lenses, binoculars, field guides, nets, trays, etc. may be borrowed for fieldtrips to the refuge. Equipment must be requested at the time of reservation. All materials and equipment will be returned at the end of the field trip in the same condition it left the Visitor Contact Station. Teachers and students are responsible for damaged or lost equipment.

For field trip reservations, call 365-3118 at least two weeks in advance.

Consultation

Our refuge has 2 Environmental Education Specialists ready to meet with you to help plan a trip to the refuge. They can suggest activities that would coincide with what is currently being taught in the classroom and provide helpful insight into the best areas of the refuge for class activities.

For refuge workshop graduates, we offer to co-lead the first field trip to the refuge.



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
JOHN HEINZ NATIONAL WILDLIFE REFUGE AT TINICUM
CENTER HEADQUARTERS
SUITE 104, SCOTT PLAZA 2
PHILADELPHIA, PA 19113

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
UNITED STATES DEPARTMENT
OF THE INTERIOR
INT 423



John Heinz

National
Wildlife
Refuge
at Tinicum

Philadelphia, PA



History

The history of Tinicum Marsh, the largest remaining freshwater tidal wetland in the Commonwealth of Pennsylvania, goes back to the first settlements in the region in 1634 when the Swedes, Dutch and English diked and drained parts of the marsh for grazing. At that time the tidal marshes measured over 5,700 acres, but with the advent of rapid urbanization since World War I this area was reduced to about 200 acres located approximately one mile north of Philadelphia International Airport.



A diked, non-tidal area of 145 acres, adjacent to the eastern end of Tinicum Marsh, was acquired in 1955 and administered by the City of Philadelphia. This was known as Tinicum Wildlife Preserve. The areas of open water along with the adjacent heavily vegetated tidal wetlands, form an ideal habitat for thousands of migratory waterfowl.

In 1969, the remaining area was threatened by plans to route Interstate 95 through it and by a sanitary landfill on the tidal wetlands. These activities started a long series of injunctions, public hearings and extraordinary efforts by private and public groups to secure rerouting the highway and termination of the landfill operation. Under legislation passed by Congress during 1972, authorization was given to the Secretary of the Interior to acquire 1,200 acres to establish the Tinicum National Environmental Center.



In November 1991, in a bill sponsored by Congressman Weldon, the name of the Refuge was changed to John Heinz National Wildlife Refuge at Tinicum to honor the late Senator who helped preserve Tinicum marsh.

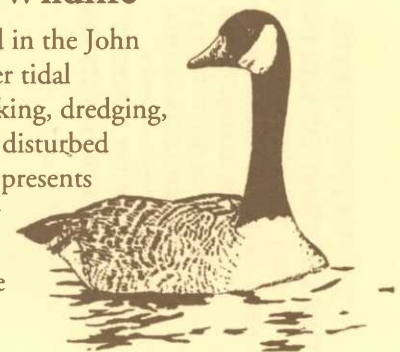
Objectives

The planning objectives and principles used to prepare our Master Plan based upon the mandates of Public Law 92-326, as amended. These, in summary, are as follows:

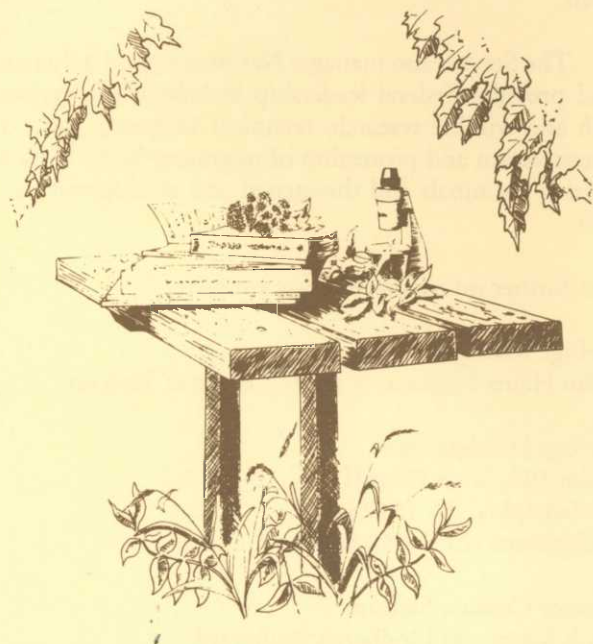
- To acquire lands necessary for the purposes of preserving, restoring and developing the natural area known as Tinicum Marsh.
- To construct, administer and maintain a wildlife interpretive center for the purpose of promoting environmental education.
- To provide visitors an opportunity for the study of wildlife in its natural habitat.

Wildland and Wildlife

Much of the land in the John Heinz NWR is former tidal wetland altered by diking, dredging, or filling. The highly disturbed condition of the area presents a unique opportunity to restore former wetlands and preserve remaining ones.



Birdwatchers have recorded more than 280 species of birds in the Refuge and its immediate environs. Over 85 bird species nest here. Migratory birds such as Canada geese, great blue herons, egrets, killdeer, sandpipers and a large variety of ducks, within the Atlantic Flyway, use the Refuge as a resting/feeding spot during spring and fall flights. In addition, opossums, raccoons, muskrats, and other small animals take refuge here. The marsh is one of the few places in Pennsylvania where the State-endangered red-bellied turtle and southern leopard frog can be found.



Environmental Study

Environmental education is intended to promote an awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to insure our survival and to improve the quality of life. The natural resources of the Refuge as well as teacher workshops, activity materials, and a curriculum library are provided for area schools, colleges, and scientific organizations. Advance reservation is required. Collecting any plant or animal life requires special permission.

Visitor Activities

The John Heinz National Wildlife Refuge at Tinicum is open year-round from 8:30 a.m. to sunset, free of charge. The main entrance at 86th Street and Lindbergh Boulevard, in southwest Pennsylvania, leads to the Visitor Contact Station and all public use activities. The foot trails, wildlife observation platform, and boardwalk provide unique opportunities to see and study wildlife in its natural habitat within metropolitan Philadelphia and adjoining Delaware County.

The Visitor Contact Station is open daily from 9:00 a.m. to 4:00 p.m. Naturalist-led activities are available on weekends. A canoe-launch to Darby Creek is near the Visitor Contact Station. Fishing is permitted with a State license except where posted. Bicycling and photography are also popular activities. Specific regulations are posted. Motorcycles, hunting and trapping are not permitted.

A parking area located in Delaware County, just north of I-95 on Route 420 is provided for hiking and fishing on the western end of the Refuge.



U.S. Fish and Wildlife Service

John Heinz National Wildlife Refuge at Tinicum is one of nearly 500 Refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys and include small islands in the Caribbean and South Pacific. The character of the Refuges is as diverse as the nation itself.

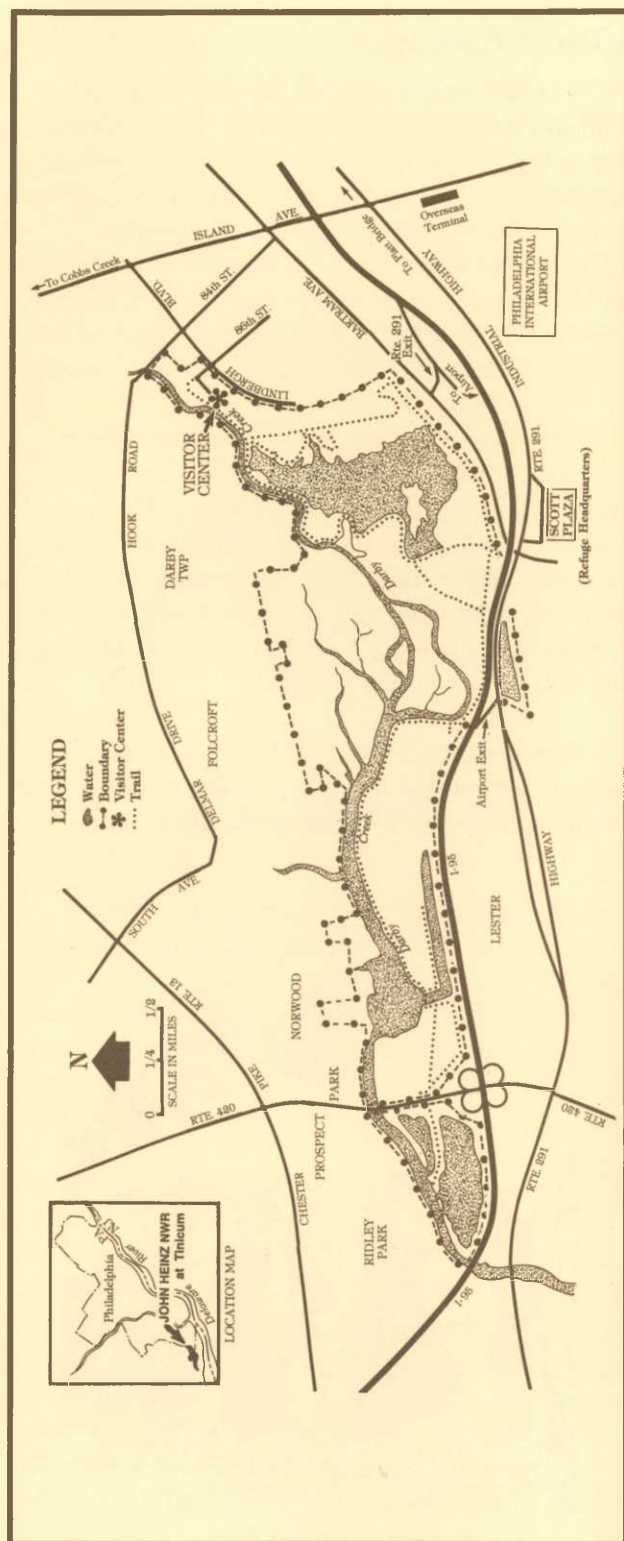
The Service also manages National Fish Hatcheries, and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals and threatened and endangered species.

For further information please contact:

Refuge Manager
John Heinz National Wildlife Refuge at Tinicum

Refuge Headquarters
Suite 104, Scott Plaza II
Philadelphia, PA 19113
Telephone: (215) 521-0662

Visitor Contact Station
86th Street and Lindbergh Boulevard
Philadelphia, PA 19153
Telephone: (215) 365-3118



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

RL-52570-1

August 1992

About the Refuge...

The John Heinz National Wildlife Refuge at Tinicum is administered by the Department of Interior's U.S. Fish and Wildlife Service. When acquisition is complete, it will consist of 1200 acres of varied habitats. It includes the largest freshwater tidal marsh in Pennsylvania.

Over the years, the refuge has become a resting and feeding area for more than 280 species of birds and a nesting area for another 50 species.

Birds are not the only wildlife you may observe at the refuge. Fox, deer, and muskrat as well as a wide variety of wildflowers and plants call the refuge "home".



John Heinz NWR at Tinicum
Scott Plaza II, Suite 104
Philadelphia, PA 19113
(215) 521-0662

NATURE PROGRAMS



at

JOHN HEINZ
NATIONAL
WILDLIFE REFUGE
AT
TINICUM

Spring
1994

SAMPLE

Calendar of Nature Programs

March

Saturday, 5th
Early Spring Birding
9am - Mike Brawley

Sunday, 6th
Early Migrant Waterfowl
9am - Bill Church

Saturday, 12th
Beginning Birding
9am - Doris McGovern

Sunday, 13th
Spring Wildlife Food
9am - Carol Ann Naylor

Saturday, 19th
Wildflowers of Tinicum
11am - John Ballas
Bring a lunch or snack.

Sunday, 20th
Rt. 420 Walk
9am - Doris McGovern

Saturday, 26th
Ducks and Early Spring Migrants
9am - Tom Reeves

Sunday, 27th
An Early Spring Nature Walk -
9am - Mike Brawley

April

Saturday, 2nd
An Easter Season Bird Walk
9am - Bill Church

Sunday, 3rd
Easter -- No Walk

Saturday, 9th
A Frog and Woodcock Walk
7pm - Skip Conant
An Evening Walk

Sunday, 10th
Wildflowers of Tinicum
11am - John Ballas
Bring a lunch or snack.

Saturday, 16th
Nesting Materials and Sites
9am - Carol Ann Naylor

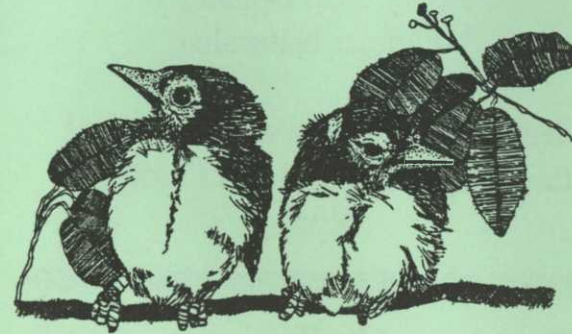
Sunday, 17th
Spring is Busting Out All Over
10am - Julia Stirl

Tuesday, 19th
Tuesday Wildflower Walk
1pm - John Ballas

Saturday, 23rd
Early Spring Migrants
9am - Robert Confer

Sunday, 24th
Birding and Botanizing
9am - Mike Brawley

Saturday, 30th
Route 420 Walk
9am - Tom Reeves



May

Sunday, 1st
Spring Warblers and Other Migrants
8am - Skip Conant

Saturday, 7th
Spring Warblers and Other Migrants
8am - Skip Conant

Sunday, 8th
Migrants, Migrants and Migrants
8am - Bill Church

Saturday, 14th
Wildflowers of Tinicum
11 am - John Ballas
Bring a lunch or snack.

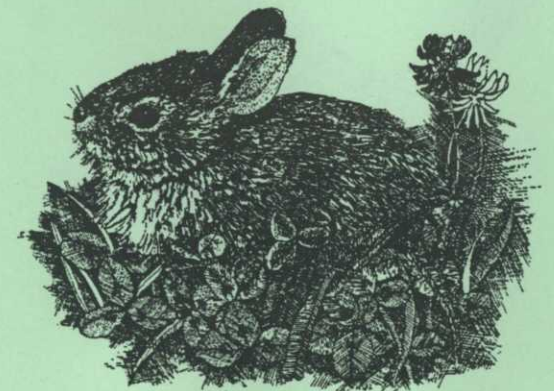
Sunday, 15th
Spring Warblers
8am - Tom Reeves

Tuesday, 17th
Tuesday Wildflower Walk
1pm - John Ballas

Saturday, 21st
Tinicum's Birds
9am - John Miller

Saturday, 28th
Bird Banding - A slide program
9am - John Miller

Sunday, 29th
Family Nature Ramble
1pm - Julia Stirl



REMEMBER. . .

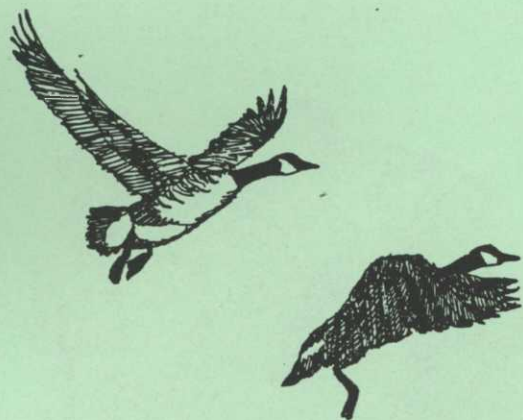
For Walks:

- . . . Wear comfortable walking shoes;
- . . . Bring binoculars and/or field guides;
- . . . Be aware of weather conditions and dress appropriately.

All walks begin at the Visitor Contact Station at 86th and Lindbergh Ave.

Walks and program are free of charge and generally last for 2 to 3 hours. They are led by volunteers from the community who are very proficient in their subject area.

If you are interested in becoming a volunteer, give us a call at, 365-3118.



Spring Special!

An Evening Frog and Woodcock Walk

April 9, 1994

7:00pm

led by Skip Conant,
Volunteer Naturalist

Meet at the refuge's Visitor Contact
Station at 86th Street and Lindbergh
Blvd.

Help Clean Up Tinicum Marsh at the

10th Annual Darby Creek Cleanup

Saturday, April 23, 1994

8:00am - 1:00pm

Bring boots and gloves
Lunch provided

Meet at the refuge's Visitor Contact
Station at 86th St. and Lindbergh Blvd.



UNITED STATES DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

John Heinz National Wildlife Refuge at Tinicum
Suite 104, Scott Plaza 2
Philadelphia, Pennsylvania 19113



"PHENOLOGICAL EVENTS"

This calendar is meant to provide visitors with a general guide to seasonal wildlife events. Time of day and weather conditions are factors influencing sightings. For further information, call the Visitor Contact Station between 8:30 AM and 4:00 PM daily, (215) 365-3118.

Mid-November to March: Red-tailed hawks, marsh hawks, and sparrows are common winter visitors. During periods of open water, Canada geese, pintails, black ducks, green-winged teal, ruddy ducks, and great blue herons can be seen.

Mid-March to May: Northbound waterfowl migration. Frogs and toads begin their mating choruses. Mourning cloak butterflies emerge from hibernation.

April: Northbound hawks, herons, egrets, and sparrows pass through. Tree swallows return. Carp begin spawning in shallow water.

May: Peak of the warbler migration occurs during the first two weeks. Northbound sandpipers pass through. Monarch butterflies migrate north.

May and June: Goslings, ducklings and pheasant chicks leave their nests. Turtles seek upland sites for egg-laying. Purple loosestrife and spatterdock flourish in the impoundment all summer.

July and August: Young herons and egrets leave their nests.

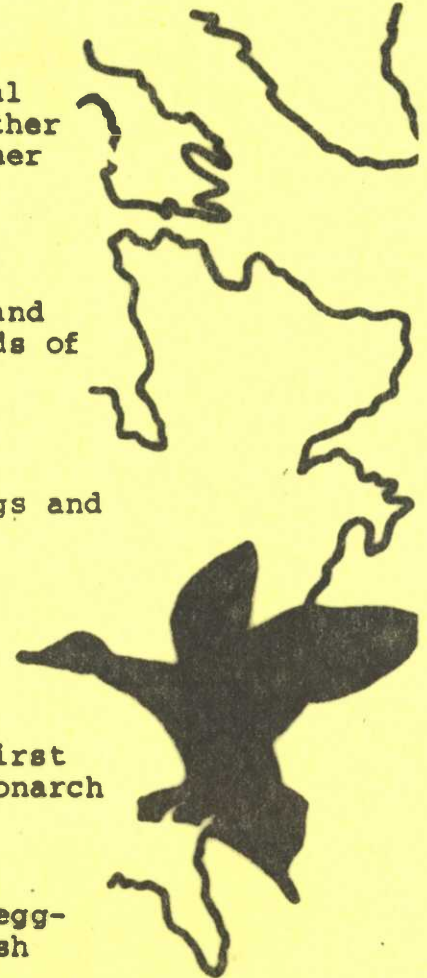
August and September: Peak populations of herons and egrets are at Tinicum. Southbound sandpipers pass through. Marsh Mallow is in bloom. The rare wild rice is in seed.

September to Mid-October: Gulls, terns and warblers migrate south.

October: Muskrats construct their reed shelters (if cattails were productive during the summer).

Mid-October to Mid-November: Southbound migration of waterfowl, hawks and sparrows.

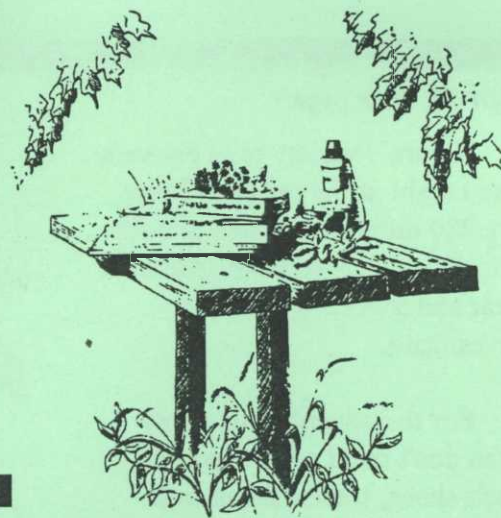
* Phenology deals with the relations between climate and periodic biological phenomena (such as bird migration or plant flowering).



The Tinicum Teacher



A bi-annual newsletter published by the John Heinz National Wildlife Refuge at Tinicum for educators



March, 1994

Variety is the Spice of Life- and Learning

Imagine, if you will, a world without variety. Everyone looks the same. Everyone has the same opinion. Haircut. Background. Every movie- the same plot.

Does this sound like a 1950's horror flick or an episode of the *Twilight Zone* to you?

Variety is an important part of life. It allows expression, creation, and change. Without it, even the most unusual becomes commonplace and . . . *Boring!*

Nature without variety, becomes *Deadly*. Plants and animals rely on each other for population

Nature's variety is easily seen and taught at the refuge.

management and survival. There would soon be no wildlife, if there was no variety.

Luckily, Nature is full of variety. Varieties of plants, animals, and habitats. And there are a variety of ways to learn about them.

continued on page 2



Inside. . .

Variety is the Spice of Life- and Learning	1
1994 Workshops Announced	1
Notes from School	3
What's Going On?	4
Refuge Notes	5

1994 Workshops Announced

Want to find out the answers to those questions you have about the outside world? Want to spend a couple of days outside enjoying the sun while discovering all the neat stuff that can be found right outside your door? Want to earn an IU credit at the same time? You can do this and more by just signing up for and attending one of the 4 workshops offered through the refuge.

*For more information,
check out page 3*

Spice, from page 1

Nature's variety is easily seen and taught at the refuge. There are 280 different species of birds which can be seen throughout the year and five ecosystems to investigate.

For the adventurous types who don't mind a little mud on their shoes, there's the largest remaining freshwater-tidal marsh in Pennsylvania. Called Tinicum marsh, it is home to many types of animals and plants, including muskrat, red-winged blackbirds, arrowhead, cattails, and several different types of waterfowl.

To see an aquatic habitat without getting wet, then the boardwalk over the impoundment, our pond, is for you. Throughout the year, ducks, herons, turtles, fish, spatterdock and duckweed can be found here. A more in depth survey of the mud bottom will reveal insect larvae, like dragonfly and mosquito nymphs eating the decaying plants and sometimes each other.



Darby Creek, which runs through the refuge, offers yet another aquatic habitat for discovery. Catfish and snapping turtles are just a couple of the animals living beneath its surface, while willows and alders line its banks. Overhead, kingfishers are commonly heard and occasionally seen.

The refuge also has upland habitats like woodlands and fields. Ring-necked pheasants, songbirds, fox and deer feed and make their homes in these areas. Trees, wildflowers and, yes, the dreaded poison ivy and stinging nettle make their place here too.

How can you learn more about this unique area located within the Philadelphia city limits? It's easier than you might think and extremely reasonable in cost- as a matter of fact it's free!

You might start by taking a guided walk. The refuge's volunteer naturalists lead walks every weekend on a variety of topics. What you learn on the walk, will help you be better prepared if you decide to lead a fieldtrip to the refuge with your students.

You may also want to stop by the Visitor Contact Station and talk to a staff member about what your class could do on a trip to the refuge. They will discuss your ideas for a topic and provide suggestions and assistance to make your fieldtrip fun and educational. You may also wish to look into the new field trip packet entitled "5 Habitats to Discover".

So, don't settle for teaching the same boring stuff, the same boring way! Spice it up with some **NATURAL VARIETY!**☺

Free Refuge Field Trip Packets!!

A New field trip packet on the 5 Habitats of Tinicum will be ready for field testing in June.

Contact Jackie or Julie at 365-3118 to reserve your copy.

Refuge EE Notes is a bi-annual environmental education newsletter from the John Heinz National Wildlife Refuge at Tinicum.

The John Heinz NWR at Tinicum was placed under the stewardship of the United States Fish and Wildlife Service in 1972 with 3 Congressional mandates: 1) to preserve and protect Tinicum marsh; 2) to establish an environmental education center, and, 3) to provide opportunities for wildlife observation.

*John Heinz NWR at Tinicum
Scott Plaza II, Suite 104
Philadelphia, PA 19113*

*Refuge Manager: Dick Nugent
Asst. Manager: Tom Walker
Outdoor Rec. Planners: Jackie Burns
Julie Rowand
Editor: Julie Rowand*

Notes from School

Vare Middle School, Philadelphia, PA. The L.I.V.E. team (Living In the Vare Environment) has been bringing one of their five classes of students to the refuge each Thursday for a lesson. Every 5 weeks the lesson changes. Below are excerpts from articles the students wrote.

"... At Tinicum you will see the Meadow, Forest, Pond, and a Creek and a Boardwalk. . . . After seeing this beautiful sight it is hard to leave it. And, another thing, you can't bring anything home." - Andrew Weber

"Tinicum is an Environment with animals, water, trees, etc... People go there to see the scenery and animals. Often people take pictures. We walk around and find different kinds of trees, seeds, animals and other such interests... I liked when I went and so did everyone else. It's a great trip to go on. I hope we could go again." - M.J. Keefe

"... Not only is Tinicum a learning trip but it's also a fun trip. Most every student in the L.I.V.E. team has learned and had fun at the same time. Keep up the good work L.I.V.E. team!"
- Latoya Christian

continued from page 1

Below is the list of workshop dates so you can pick the one that best suits your schedule. Contact your IU for credit availability.

Keystone Aquatic Resources Education (KARE)
April 9, 13, & 16

Tinicum Marsh: Further Studies in Environmental Education
(Prerequisite: Intro to EE)
May 14, 18, & 21

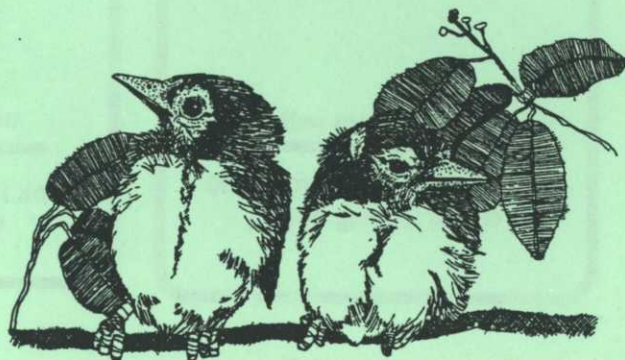
Tinicum Marsh: Introduction to Environmental Education
July 12, 13, & 14 or
October 15, 19, & 22

*Project Wild/
Project Learning Tree*
November 12, 16, & 19

All workshops are 15 hours in length. Spring and Fall workshops run 8:45am - 4:15pm the first and third sessions and 5:00pm - 8:15pm the second session.

The summer workshop will run 8:45am - 3:15pm each session.

If you are interested in the course but not the credit or for more information, just call the refuge at (215) 365-3118. ☼



What's Going On?



April

9th, 13th, 16th
Keystone Aquatic
Resources Education
Workshop

22nd
Earth Day 1994

23rd
Darby Creek Clean Up
8am - 1pm

weekend guided walks*

Look for: Migrating hawks,
herons, egrets, and sparrows.
Tree swallows return. Carp
begin spawning in shallow
water.

May

National Wetlands Month

8th - 14th
International Migratory
Bird Week

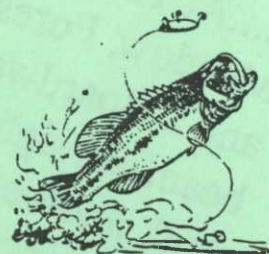
14th, 18th, 21st
Tinicum Marsh: Further Studies
in Environmental Education

weekend guided walks*

Look for: migrating warblers,
sandpipers, and monarch
butterflies

June

4th
Pathway to Fishing
1pm - 3pm



weekend guided walks*

Look for: Goslings and ducklings
to leave nests, turtles looking for
sites to lay eggs.

July

12th - 14th
Tinicum Marsh: Introduction to
Environmental Education

weekend guided walks*

Look for: young herons and
egrets leaving nests.

August

18th -21st
Northeast Youth
Environmental Summit-
Widener University
Chester, PA
(215) 474-1433

weekend guided walks*

Look for: Peak populations of
herons and egrets

Coming in the Fall

October:
Tinicum Marsh: Introduction
to Environmental Education

November:
Project Wild/
Project Learning Tree
weekend guided walks*

* Guided Walks are offered every weekend. Call
(215) 365-3118 for a schedule.

Refuge Notes

- Jackie Burns

Feathers in the News

Wood Duck Success

When refuge staffer, Mike McMenamin, cleaned and repaired the refuge's wood duck boxes this fall he found evidence of wood duck use in 12 out of 32 boxes. Eleven showed evidence of successful hatching. This is a new high in wood duck nest box use, up from six in 1991 and four in 1992.

Christmas Bird Count

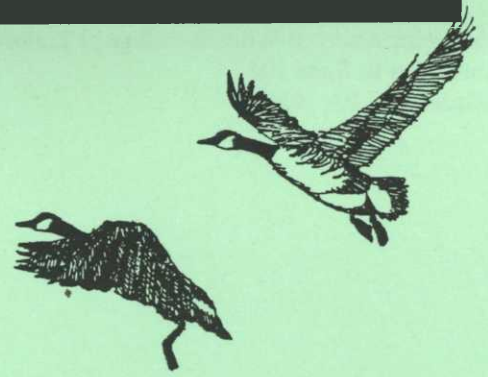
Sixty-five species were recorded on the refuge during this Audubon Society-sponsored, annual count, compared with sixty-seven in 1992. Unusual sightings included the Virginia rail, redpoll, pine warbler and barn owl. Contributors included refuge volunteers Mike Brawley, Skip Conant, John Miller and friends John Freiberg, Rob McGraw, and Ray Miller.

Jogging a memory

The refuge received \$10,000. this fall when it became a recipient of part of a negotiated settlement stemming from a March 1990 cumene spill in the Delaware River.

In response to a "thank you" note from Refuge Manager Nugent, Attorney General Preate said:

"... I've been over to the refuge, and jogged the trails from the Visitors Center toward Scott Plaza, and back. It's very beautiful and interesting, and it was this visit that inspired me to provide the refuge with the money I obtained from the Environmental Crimes Settlement. Your refuge provides an awareness and understanding of the environment, and also the action necessary to insure our survival and improve the quality of life."



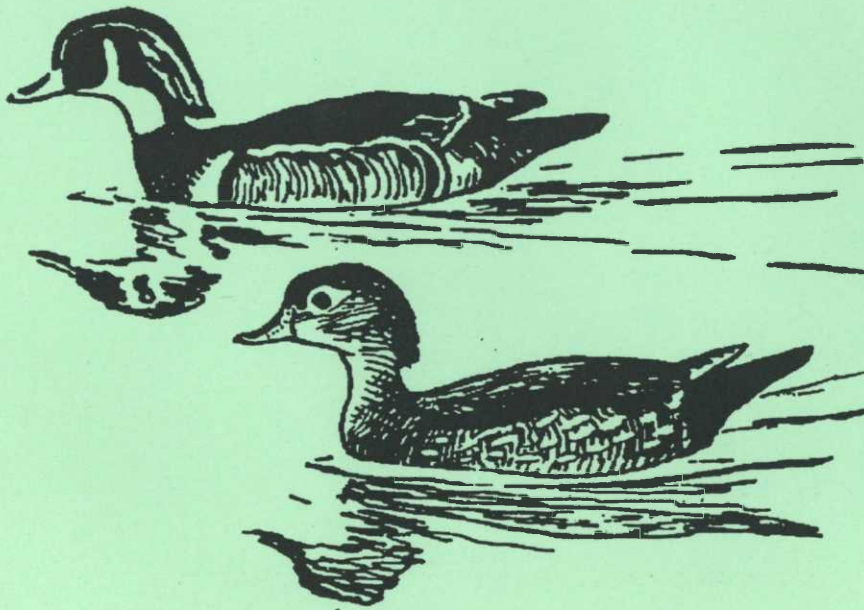
Adding on

In December, Philadelphia's City Council passed a resolution that authorizes the Redevelopment Authority to convey 17.8 acres of wetland property, surrounded by Bartram Ave., I-95 and the I-95 on-ramp, to the U.S. Fish and Wildlife Service. Once the City Solicitor coordinates with the Service's Regional Solicitor to determine the proper method for the property's dedication the process will be complete.

Visitors and Volunteers

The refuge had about 78,000 visitors in 1993. Over 5,000 of those visitors were students on field trips to the refuge. Through group presentations and exhibits, we contacted approximately 6,300 people off of the refuge.

Volunteers contributed approximately 2,360 hours (excluding prep time for walks/slide shows). Most of the help occurred through interpretive programs and refuge maintenance (clean-ups, trail clearing, etc.). "Thanks" to all of you who helped out. ☺



John Heinz National Wildlife Refuge at Tinicum
Scott Plaza II, Suite 104
Philadelphia, PA 19113

