



**US Army Corps  
of Engineers®**

Pittsburgh District

August 2006

---

**Draft  
Detailed Project Report  
And  
Integrated Environmental Assessment**

**APPENDIX 9**

**PENNSYLVANIA MODIFIED  
HABITAT EVALUATION  
PROCEDURE**

**North Park Lake  
Allegheny County, PA  
Section 206 Aquatic Ecosystem  
Restoration Project**

**APPENDIX 9**  
**U.S. Army Corps of Engineers**  
**Results of Wildlife Population and Wildlife Habitat Evaluations**  
**Potential Dredge Disposal Areas**  
**North Park Lake Section 206**  
**Kirk Piehler and Mike Fowles, Fish and Wildlife Office**

**Introduction and Results Summary**

Wildlife populations and habitats at 6 proposed dredge disposal areas at North Park Lake were evaluated during the 2-month period, 6/2/03 - 7/25/03. Breeding bird fixed plot surveys and live trapping were used to characterize avian and small mammal populations, respectively. Habitat quality was assessed using the Pennsylvania Modified Habitat Evaluation Procedure (PAM-HEP). The 6 sites included in the study were Bull Pen, County Site, Deer Pen, Latodami, Round Top and Wildwood. An ad hoc team, consisting of John Smith, representing the Pennsylvania Game Commission (PGC), Meg Scanlon, representing Allegheny County, Cheryl Neuendorffer, representing Friends of Latodami, and Mike Fowles and Kirk Piehler, representing the U.S. Army Corps of Engineers, Pittsburgh District (COE), conducted the PAM-HEP. Additionally, a representative of the U.S. Fish and Wildlife Service (USFWS), Rick McCoy, was consulted regarding the organization of the PAM-HEP. However, Mr. McCoy did not participate in the collection of field data. The team conducted PAM-HEP fieldwork on 6/16/03 and 6/17/03. COE personnel completed the data analysis and summarized the results. COE personnel conducted small mammal live trapping and breeding bird surveys during 3 time periods in 2003: 6/1 - 6/4, 6/15 - 6/18, and 7/22 - 7/25. Breeding bird surveys consisted of standard fixed-radius point counts conducted by 2 observers. Line transect sampling, with Sherman live traps, were used to document information regarding small mammals.

Project area boundaries consisted of 5 sites on North Park property and 1 site on private land adjacent to the park. The dominant vegetation cover type was herbaceous rangelands with scattered shrubs. Cool season grasses and several legume species dominated this vegetation type. Uneven-aged woodlands bordered all sites with an assortment of deciduous trees in the canopy and a moderately diverse understory. A variety of invasive exotic plants are established at all sites, appearing in both herbaceous grasslands and in the surrounding woodlands, especially in the understory. Round Top was the only area dominated by deciduous woodland cover, consisting of primarily mature trees. Invasive exotic plants are established in this area, but not to the extent evident at the other 5 potential disposal sites. The effect of exotic plant influence on existing wildlife habitat quality was not quantified. However, because of the dominance of exotic vegetation at most sites, it is believed to have significant negative effects on both small mammal and breeding bird populations utilizing the sites.

The results of the wildlife studies conducted by Corps biologists indicate that temporary negative impacts to wildlife populations and habitats would occur at all sites from proposed placement of dredge material. Breeding bird surveys showed sites (Bull Pen, Deer Pen and Wildwood) where the ratio of bird species observed on the herbaceous open areas, versus adjacent shrub and woodland habitats, is less than 1:1, meaning that less than 50 percent of the

total number of observations at these sites were associated with the vegetative cover that would be directly affected by dredge material placement. One site (Latodami), had a ratio greater than 1:1. However, approximately 70 percent (200 of 285) of the bird observations made in the primary habitat (herbaceous vegetation) at the Latodami site were species associated with the 400-meter (m) hedge that bisects the site or were associated with 3 species of cavity nesters using the many nesting boxes placed at that location. These factors suggest that dredge disposal activities would not likely result in major impacts to species richness (i.e. number of species) or breeding bird densities over time. In the case of Latodami, impacts could be lessened by installing bluebird nesting boxes during post-construction site reclamation. A total of 62 species was observed at all of the sites combined. Species richness ranged from 23 at Bull Pen to 44 at Wildwood. Adjacent habitat, not subject to direct disturbances from proposed project activities, contributed from 28 percent of the bird observations made at Latodami to 77 percent at the Bull Pen site. No state or Federal threatened, endangered or other special status species were observed during the breeding bird surveys or the small mammal trapping studies. Five species of small mammals, totaling 74 individuals were captured and released at the 6 sites. However, 84 percent of the total captures (n=62) were meadow voles (*Microtus pennsylvanicus*). Sub-adults were observed at 4 of the 6 locations, with only Round Top and Deer Pen lacking immature small mammals. Low diversity in the small mammal captures and absence of young at several sites suggests low relative value of habitat in the herbaceous areas of the proposed disposal sites and adjacent wooded areas. Poor habitat for small mammals adjacent to the disposal areas suggests that little potential exists for post-construction recruitment to come from these areas. However, incorporating sequential disposal of fill and sequential site restoration will provide escape habitat for small mammals, preserving at least part of the populations for post-construction colonization. PAM-HEP assessments quantified the effects of construction activities expected from the placement of dredge material on the sites. A comparison of existing (Target Year Baseline or TYB) wildlife habitat conditions or Habitat Units (HUs) to Target Year Construction (TYC) HUs showed that losses would occur at all of the sites. Losses in habitat quantity and quality would, however, recover to levels above that which was determined to exist at baseline at all sites, except at the Deer Pen site. Including specific site restoration and reclamation guidelines in project specifications would ensure that post-construction habitat conditions would provide adequate wildlife habitat in the future. Restoration of dredge disposal sites giving priority to wildlife enhancement will result in net gains in habitat for the 6 evaluation species used in the PAM-HEP assessment. Post-construction reclamation plans, at minimum, should include the following 5 specifications if net gains are to be realized: (1) Preclude exotic plants from post-construction vegetation, (2) Plant native herbaceous, shrub and tree species in carefully designed patterns, (3) Provide for strip cutting of vegetation up to 3 times annually on sections of certain disposal sites, (4) Stipulate the installation of bluebird boxes on certain disposal sites, and (5) Return the topography on certain sites to a condition of “enhanced near-original contour”.

## **Results**

### **PAM-HEP**

PAM-HEP assessments were conducted for 3 target year periods associated with the anticipated dredge proposal life cycle: Target Year Baseline (TYB), Target Year Construction (TYC) and Target Year 10, (TY10). Six evaluation species were used in the procedure: American kestrel (*Falco sparverius*), eastern bluebird (*Sialia sialis*), eastern cottontail (*Sylvilagus floridanus*), eastern wild turkey (*Meleagris gallopavo*), meadow vole and song sparrow (*Melospiza melodia*). The interagency PAM-HEP team (Table 1) made species selections, emphasizing wildlife species using grassland habitat for the majority of their life requisite needs. A guild approach also guided the selection of 4 birds and 2 mammals, resulting in data that would be representative of a variety of wildlife with life requisites similar to the evaluation species. The standard PAM-HEP models, included in the PGC manual, were used to determine a Requisite Ranking Suitability Index (SI) for each Life Requisite, as well as the final Habitat Suitability Indices (HSI) for each species. When more than 1 HSI equation was provided in the manual, the equation emphasizing herbaceous vegetation was used.

Data were gathered in the field on 6/16/03 and 6/17/03 by the PAM-HEP team at the following locations: Bull Pen, County Site, Deer Pen, Latodami and Wildwood/Round Top. Each major participating agency cast 1 SI score for each of the Life Requisites for each species. There were 3 major participants: (1) North Park-Allegheny County, (2) PGC, and (3) COE. However, individuals representing other interests participated in the PAM-HEP, as supporting team members, serving a variety of functions (Table 1). COE personnel completed the data analysis and summarized the PAM-HEP results. The team agreed that Wildwood and Round Top areas could be combined into 1 PAM-HEP site assessment for 3 reasons: (1) The relative small size of the Round Top area, (2) Juxtaposition of Round Top to the Wildwood site, the primary proposed disposal area, and (3) The dominance of deciduous woodland at Round Top would have resulted in poor relative scoring with the evaluation species that were selected for the primary herbaceous vegetation cover type.

Using the PAM-HEP methodology, existing or TYB habitat conditions or Habitat Units (HUs) for each evaluation species, at each potential dredge disposal site, were compared to future conditions during construction (TYC) and at 10 years after construction is completed (TY10). Calculations of TYB HUs compared to the maximum potential HUs illustrate various levels of habitat suitability (Table 2). TYB HUs ranged from a low of 36.8 percent of the potential maximum HUs at Bull Pen to 70.4 percent at Deer Pen. Exotic vegetation dominance within the herbaceous plant community was evident during the PAM-HEP fieldwork (Table 3). However, the effect of exotic plant influence on existing habitat suitability was not quantified. The effects of construction activities expected from the placement of dredge material on the sites were quantified. Future HUs were determined by PAM-HEP team members after being briefed by a COE engineer who was familiar with the dynamics of the construction sequence. A comparison of TYB HUs to TYC HUs showed losses at all of the sites (Table 4). Anticipated losses of wildlife habitat, ranging from -6.5 at Bull Pen to -59.0 at Wildwood, would be expected to occur at each of the potential disposal areas. Habitat losses were, however, less than 50 percent of the TYB values for all sites, except Deer Pen (-79.0%). The relatively moderate losses of TYC value at County Site (-31.1%), Latodami (-34.3%), and Wildwood/Round Top (-50.0%) resulted from considerations afforded by the team to an innovative construction sequence described by the COE engineers involved with the PAM-HEP fieldwork (Table 1). Rather than removal of all surface vegetation early in the disposal sequence, only those areas

required for immediate placement of dredge material would be cleared. This would allow for certain portions of the sites under construction to retain original topography and vegetative cover, a scenario that would result in substantial habitat being available for wildlife populations using the sites. In the absence of this practice, TYC HUs would have been substantially lower.

Following PAM-HEP protocol, the team also determined evaluation species SI values and HSI values at Target Year 10 (TY10), which is 10 years after dredge disposal activities would end on the sites. As with TYB and TYC, TY10 HUs were calculated for each species. These values were totaled for each site and compared to TYB HUs (Table 5). Gains in habitat quality from existing conditions were realized for all sites except Deer Pen (-10.1). It was necessary to assume post-construction land use when conducting the TY10 PAM-HEP data collection in the field. For the North Park assessment, post-project land use was assumed to be wildlife habitat for Bull Pen and Latodami and public recreation for County Site and Deer Pen. Two post-construction scenarios were used for the Wildwood/Round Top area: (1) wildlife habitat, and (2) housing/residential. Calculated losses showed marked differences between the 2 options. The quality of TY10 habitat assuming the wildlife option indicated a 73.6-HU gain from TYB HUs, as compared to a 4.9-HU gain for a residential option. This difference highlights the importance of post-construction land use, and the potential for post-construction site restoration to enhance or detract from future wildlife habitat value.

The PAM-HEP team determined that certain minimum standards for construction, reclamation and restoration must be included in the plans and specifications for the PAM-HEP evaluation to be accurate. Sequential site clearing during dredge placement and the use of the best available erosion and sediment controls were determined to be necessities during the construction phase. Similarly, post-construction techniques would help ensure that future wildlife habitat conditions approach the level of suitability calculated by PAM-HEP. These techniques should, at minimum, include the following 5 specifications: (1) Preclude recolonization of invasive exotic plant species, (2) Establish native grasses, forbs, shrubs and trees in carefully designed patterns on the disposal sites, (3) Provide for partial vegetation cutting, up to 3 times annually, on each disposal site with wildlife habitat as the post-construction primary objective, (4) Stipulate the installation of bluebird nesting boxes on disposal sites with wildlife habitat as the post-construction objective, and (5) Return the topography to “enhanced near-original contour” for those sites with wildlife habitat as the post-construction reclamation objective.

Returning dredge disposal sites to “enhanced near-original contour” was discussed with the COE engineers as an option during the PAM-HEP. This would involve creating topographic features not originally present at the sites, such as small (30 m by 100 m or 30m by 150 m) swales or depressions, similar-sized rises or hills, or a limited number of tapered potholes, during final grading of the dredge material. These features would function to create variations in surface habitat that certain wildlife species used in the PAM-HEP, as well as other species not normally found on flat, open herbaceous sites, might find attractive. Depressions in the landscape might collect a small amount of surface water, creating seasonally-saturated ground conditions and associated plant species. Potholes would function similarly, and with the addition of impervious material into the soil, such as clay or bentonite, might hold surface water for a sufficient time to attract amphibians and reptiles.

Keeping invasive exotic plant species from invading sites in the post-construction period will be a challenge. Recommendations for accomplishing this objective would include activities that would take place primarily after the dredge material is placed. Normally, fertile topsoil would be stripped and segregated from underlying material during site clearing activities. This could also be accomplished at North Park. However, because exotic plant seeds are abundant in the topsoil, it is recommended that this topsoil be applied not as the last layer, but approximately 12 inches below the final surface grade. The highly fertile soil would contribute nutrients and root growth medium to the desired vegetation planted on the surface, but would be too deep to permit seed and root growth to invade the surface. Enough dredge material should be stockpiled to perform this function at the conclusion of surface feature contouring. Since this practice will serve to limit the amount of exotic species in the surface vegetation, but not preclude all unwanted species, 2 years of spot herbicide application using glyphosate and 2, 4-D Amine based products should be specified in the project plans. Two possible product names containing these active ingredients are Roundup and Pathway. The second part of the process for eliminating exotic from the sites would include planting native or naturalized herbaceous vegetation and native tree and shrubs in carefully designed arrangements. Herbaceous vegetation should consist of native warm season grasses, such as switch grass and big bluestem, as well as up to 30 percent of the area in cool season grasses, most of which would be naturalized European plant species. Quickly establishing the final vegetation cover acts as a competitive force that should preclude unwanted plants that might start to become established even after incorporating the other techniques.

## **Results of Breeding Bird Surveys**

COE biologists conducted breeding bird surveys at each of the disposal sites in the spring and summer of 2003. Three survey periods were used in the study to ensure that the maximum number of breeding birds was detected. Incorporating the “safe dates” used by the U.S. Geological Survey (USGS) for Breeding Bird Survey Routes in the eastern United States (no observations before the last week in May) decreased the likelihood that observations of migrant birds would be counted as breeding individuals. As a result of these considerations, the following 3 blocks of dates were selected: 6/2-6/4, 6/16-6/18, and 7/22-7/24. Birds observed during these periods, especially the first 2, were considered to be breeding or progeny of breeding birds. However, several birds appeared during the last period, not seen during previous surveys that were considered to be passage migrants.

Standard fixed-radius survey plots were used at each of the 6 proposed disposal sites. Plots were placed in a non-random fashion to ensure full coverage of the portions of the sites that would be directly affected by disposal activities. The number of plots varied with the size of the site, ranging from 6 at Latodami to 1 each at Bull Pen, County Site, Deer Pen and Round Top. Four plots were used at Wildwood. Plot radii varied with the amount of visual and aural obstructions inherent to the site. The mature woodlands at Round Top resulted in a relatively small radius (65 m). A larger radius was used at Latodami due to topographic relief, a linear hedge and scattered shrubs. The largest extent of herbaceous rangeland, with few obstructions, resulted in the greatest radius (150 m at Wildwood) (Table 6). Plots were surveyed once each

day during the survey period, beginning at first light, approximately 0545 Eastern Standard Time (EST), and ending before 1000 EST. The survey order was alternated each day, to decrease the probability of a site being surveyed at the same time on 2 consecutive days. Two observers were present for each survey and counts lasted for 5 minutes at each plot, after a 1-minute quiet period upon arrival. Data were recorded and discussed on site to help ensure that duplicate observations were not recorded.

A total of 62 species was observed and recorded during the surveys (Table 7 – Table 12). There were no Federal or state endangered, threatened or other special status species documented. Species richness varied between sites, ranging from 24 at the Bull Pen location (Table 7) to 44 at Wildwood (Table 12). Species richness was not dependent upon good breeding bird habitat on the dominant habitat at the sites. Wildwood, a site almost completely covered in herbaceous vegetation had the highest species richness (largely owing to diverse adjacent habitats. However, only 34.5 percent of the breeding bird observations made during the survey were associated with this habitat (Table 6). A similar pattern was documented at other locations. The ratio of observations occurring in the open herbaceous portion of the sites, the areas most likely to be directly affected by disposal activities, compared to those documented in adjacent shrub and wooded edges, was less than 1:3 at Bull Pen, Deer Pen and Wildwood, indicating that immediate impacts from dredge placement would not be a major impact to species richness or density at these locations. At Round Top, no observations occurred in herbaceous areas because the entire site is wooded, being the only primary habitat of that type (Table 6). All of the observations at that site were documented in wooded habitat. Clearing and dredge placement there would result in the displacement of breeding species to adjacent wooded areas, which are plentiful. The other two sites, County and Latodami, had ratios greater than 1:1. However, approximately 200 of the 285 observations made at Latodami, attributed to the primary habitat (herbaceous vegetation), were associated with species using the 400-m long hedge that bisects the site, or were associated with 3 species of cavity nesters, including eastern bluebirds (*Sialia sialis*), house wrens (*Troglodytes aedon*) and tree swallows (*Tachycineta bicolor*), which were using the many nesting boxes placed at that location. In the absence of the hedge and nesting boxes, species richness and the breeding bird density at this site would have been much lower. All of these factors taken into consideration collectively suggest that dredge disposal activities would not likely decrease species richness or breeding bird densities over time. In the case of Latodami, installing bluebird nesting boxes and hedges of native shrubs during post-construction site reclamation could lessen the negative impacts to habitat for many species.

## **Results of Small Mammal Live Trapping**

Corps personnel conducted small mammal trapping at all 6 disposal sites. There were 3 objectives of the activity: (1) Determine mammal diversity for species susceptible to capture with live traps; (2) Determine species richness and relative abundance at each site; and (3) Determine if reproduction was occurring in detected populations of small mammals. All trapping was conducted in 2003 during 3 periods: 6/1-6/4, 6/14-6/17, and 7/22-7/25. Sherman live traps, placed at regular intervals along line transects were employed at each site. The number of transects at each site varied with the relative size and other site characteristics interest

in the sites. Traps were checked twice per day, in the morning, then again before dusk. Captured animals were identified, aged and marked prior to being released.

A total of 74 captures, representing 5 species, was recorded. No Federal or state endangered, threatened or other special concern species were identified. Small mammals were documented at each site. Latodami was surveyed most often, recording 286 trap nights. Not unexpectedly, this site had the greatest number of captures (48) and highest species richness (4) (Table 13). The sites with the greatest amount of unmowed vegetation had the most captures and the greatest relative abundance.

Meadow vole, a species associated with moderate-height herbaceous areas, dominated the survey. For the 5 sites where this species was observed, the dominance of meadow voles ranged from 66.7 percent to 94.7 percent. Catch Effort (CE) (i.e. number of captures per 100 trap nights) was highest at Latodami (14.7) and Wildwood (14.7), and lowest at Deer Pen (2.2). Herbaceous areas at Deer Pen were short, having been mowed on a regular basis. Mowed areas at Latodami and Wildwood were estimated at less than 10 percent for each location. Generally, areas without extensive areas of taller vegetation, consisting of primarily grass or grass-like species, had few small mammal captures and few sub-adults.

The presence of sub-adults in the survey results indicated reproduction was occurring in small mammal populations at Bull Pen, County Site, Latodami and Wildwood (Table 14). However, reproduction was only noted for meadow vole. None of the other species observed included sub-adults in the captures. Low of diversity in the mammal captures and age classes likely indicates that there is insufficient suitable habitat in the herbaceous areas of the proposed disposal sites and in adjacent wooded areas. Poor habitat for small mammals adjacent to the disposal areas might indicate that little potential exists for post-construction recruitment to come from land not subject to direct impacts from dredge disposal. Conserving the small mammals populations existing on the sites would increase the likelihood that viable populations will become established after construction activities have been completed. This is an important issue, considering that many other species are dependent upon an abundant and diverse small mammal community. Incorporating sequential disposal of fill and sequential site restoration should provide escape habitat for small mammals, thereby ensuring that at least part of the populations required for post-construction colonization are preserved.

Sequential disposal was discussed during the periods that COE engineers were in the field for the PAM-HEP assessment. Instead of clearing the selected sites completely in preparation for dredge material placement, a process that would likely eliminate most small mammals, only portions of those sites would be directly impacted at any given time. The rest of the site would be left vegetated, and functioning as escape cover and feeding habitats for small mammals. As successive sections of the sites are cleared for dredge placement, the previously filled areas could be restored to contour and seeded, resulting in areas that, within several months, would again function as small mammal habitat. The benefits of this process would include lowered costs for erosion and sediment control. Vegetated sections of the project areas would not require water diversions, sediment fences and other forms for runoff control. Erosion controls would only be necessary on sites being actively cleared for access or for dredge placement.

Table 1. List of Team members and supporting personnel for the Pennsylvania Modified Habitat Evaluation Procedure (PAM-HEP) assessment conducted on 6/16/03-6/17/03 at North Park Lake, Allegheny County, Pennsylvania.

<b>Name</b>	<b>Affiliation</b>	<b>Title</b>	<b>PAMHEP Function</b>
Barry, Kevin	Allegheny County	SCA Intern	Assisted Meg Scanlon
Cooper, Gary	U.S. Army Corps of Engineers Pittsburgh District (COE)	Civil Engineer	Provided Construction Sequence Details/Answered Construction and Site Restoration Questions (participated on 6/17/03)
Donahue, Paul	U.S. Army Corps of Engineers Pittsburgh District (COE)	Civil Engineer	Provided Construction Sequence Details/Answered Construction and Site Restoration Questions (participated on 6/16/03)
Fowles, J. Michael	U.S. Army Corps of Engineers Pittsburgh District (COE)	Fish and Wildlife Specialist	<b>Voting Team Member – COE</b>
Neuendorffer, Cheryl	Friends of Latodami	*	Assisted Meg Scanlon
Piehler, Kirk	U.S. Army Corps of Engineers Pittsburgh District (COE)	District Wildlife Biologist	Team Leader
Scanlon, Meg	Allegheny County	Naturalist, North Park Lake	<b>Voting Team Member – Allegheny County</b>
Smith, John	PA Game Commission (PGC)	Supervisor, Land Management, Southwest Region	<b>Voting Team Member – PGC</b>
Stone, Caitlin	Allegheny County	Assistant Park Naturalist	Assisted Meg Scanlon

\* - title unknown

Table 2. Pennsylvania Modified HEP (PAM-HEP) baseline results for proposed dredge disposal sites at North Park Lake, Allegheny County (TYB – Target Year Baseline, HU – Habitat Unit, TYC – Target Year Construction). All sites were categorized as herbaceous rangeland.

Study Site	Area Size (acres)	Evaluation Species	Max HSI	Max HUs	TYB Mean HSI	TYB HUs	TYB HUs as % of Max HUs
<b>Bull Pen</b>	8.13	Song sparrow	1.0	8.1	0.0	0.0	0.0
		Eastern wild turkey	1.0	8.1	0.5	4.1	50.6
		American kestrel	1.0	8.1	0.2	1.6	19.8
		Meadow vole	1.0	8.1	0.4	3.3	40.7
		Eastern cottontail	1.0	8.1	0.1	0.8	9.9
		Eastern bluebird	1.0	8.1	1.0	8.1	100
		<b>Study Site Sub-total</b>			<b>48.6</b>		<b>17.9</b>
<b>County Site</b>	13.10	Song sparrow	1.0	13.1	0.8	10.5	80.2
		Eastern wild turkey	1.0	13.1	0.1	1.3	9.9
		American kestrel	1.0	13.1	0.4	5.2	39.7
		Meadow vole	1.0	13.1	0.5	6.6	50.4
		Eastern cottontail	1.0	13.1	0.6	7.9	60.3
		Eastern bluebird	1.0	13.1	0.2	2.6	19.8
		<b>Study Site Sub-total</b>			<b>78.6</b>		<b>34.1</b>
<b>Deer Pen</b>	6.22	Song sparrow	1.0	6.2	0.5	3.1	50.0
		Eastern wild turkey	1.0	6.2	0.7	4.4	71.0
		American kestrel	1.0	6.2	1.0	6.2	100.0
		Meadow vole	1.0	6.2	0.8	5.0	80.6
		Eastern cottontail	1.0	6.2	0.3	1.9	30.6
		Eastern bluebird	1.0	6.2	0.9	5.6	90.3
		<b>Study Site Sub-total</b>			<b>37.2</b>		<b>26.2</b>
<b>Latodami</b>	32.24	Song sparrow	1.0	32.2	0.7	22.6	70.2
		Eastern wild turkey	1.0	32.2	0.1	3.2	10.0
		American kestrel	1.0	32.2	0.2	6.5	20.2
		Meadow vole	1.0	32.2	0.7	22.6	70.2
		Eastern cottontail	1.0	32.2	0.3	9.7	30.1
		Eastern bluebird	1.0	32.2	0.9	29.0	90.1
		<b>Study Site Sub-total</b>			<b>193.2</b>		<b>93.6</b>
<b>Wildwood<sup>1/</sup> Round Top</b>	49.15	Song sparrow	1.0	49.2	0.5	24.6	50.0
		Eastern wild turkey	1.0	49.2	0.1	4.9	10.0
		American kestrel	1.0	49.2	0.4	19.7	40.0
		Meadow vole	1.0	49.2	0.7	34.4	69.9
		Eastern cottontail	1.0	49.2	0.1	4.9	10.0
		Eastern bluebird	1.0	49.2	0.6	29.5	40.0
		<b>Study Site Sub-total</b>			<b>295.2</b>		<b>118.0</b>
<b>Project Area Totals</b>				<b>289.8</b>		<b>289.8</b>	

<sup>1</sup>- assessment included the Round Top acreage located adjacent to Wildwood

Table 3. Summary of percent (%) exotic plant species for vegetative communities at 6 proposed dredge disposal sites at North Park Lake, Allegheny County, Pennsylvania.

Dredge Placement Site	Transect #	Vegetation Community <sup>1</sup>	Overall		Canopy	Sub canopy		Herbaceous		Entire Understory	
			% of Dominant Plants Exotic	Order Least to Most Degraded	% Dominant Plant Species Exotic Canopy	% Dominant Plant Species Exotic	Order Least to Most Degraded	% Dominant Plant Species Exotic	Order Least to Most Degraded	% Dominant Plant Species Exotic	Order Least to Most Degraded
Round Top	1	woodland	18.8	1	0.0	28.6	3	23.5	2	25.0	1
Latadomi	8	woodland	22.2	2	0.0	50.0	6	0.0	1	33.3	2
County Site	9	swale	33.3	3	0.0	0.0	1	37.5	3	33.3	2
Latadomi	6	woodland	40.0	4	0.0	100.0	8	40.0	4	67.1	7
Bull Pen	5	woodland	50.0	5	0.0	25.0	2	42.9	5	36.4	3
County Site	9	mowed	57.1	6	na	50.0	6	60.0	6	57.1	4
Latadomi	8	old field	64.3	7	na	42.9	5	71.4	8	64.3	5
Deer Pen	4	old field	65.0	8	na	33.3	4	70.6	7	65.0	6
County Site	9	woodland	66.7	9	0.0	50.0	6	83.3	10	75.0	9
Latadomi	7	old field	68.0	10	na	50.0	6	71.4	8	68.0	8
Latadomi	6	old field	71.4	11	0.0	66.7	7	78.3	9	76.9	10
Wildwood	3	old field	76.2	12	33.3	50.0	6	87.5	11	83.3	11
Wildwood	2	old field	94.1	13	na	100.0	8	93.3	12	94.1	13
Bull Pen	5	old field	91.7	14	na	100.0	8	90.0	13	91.7	12

<sup>1</sup> – vegetation analysis conducted by Rosemary Reilly, USACE biologist, in July 2003

Table 4. Pennsylvania Modified HEP (PAM-HEP) construction year results for proposed dredge disposal sites at North Park Lake, Allegheny County (TYB – Target Year Baseline, HU – Habitat Unit, TYC – Target Year Construction). All sites were categorized as herbaceous rangeland.

Study Site	Area Size (acres)	Evaluation Species	TYB Mean HSI	TYB HUs	TYC Mean HSI	TYC HUs	TYB:TYC HUs Gains/Losses(-)
<b>Bull Pen</b>	8.13	Song sparrow	0.0	0.0	0.0	0.0	0.0
		Eastern wild turkey	0.5	4.1	0.0	0.0	-4.1
		American kestrel	0.2	1.6	0.2	1.6	0.0
		Meadow vole	0.4	3.3	0.4	3.3	0.0
		Eastern cottontail	0.1	0.8	0.1	0.8	0.0
		Eastern bluebird	1.0	8.1	0.7	5.7	-2.4
		<b>Study Site Sub-total</b>			<b>17.9</b>		<b>11.4</b>
<b>County Site</b>	13.10	Song sparrow	0.8	10.5	0.6	7.9	-2.6
		Eastern wild turkey	0.1	1.3	0.1	1.3	0.0
		American kestrel	0.4	5.2	0.2	2.6	-2.6
		Meadow vole	0.5	6.6	0.4	5.2	-1.4
		Eastern cottontail	0.6	7.9	0.3	3.9	-4.0
		Eastern bluebird	0.2	2.6	0.2	2.6	0.0
		<b>Study Site Sub-total</b>			<b>34.1</b>		<b>23.5</b>
<b>Deer Pen</b>	6.22	Song sparrow	0.5	3.1	0.0	0.0	-3.1
		Eastern wild turkey	0.7	4.4	0.0	0.0	-4.4
		American kestrel	1.0	6.2	0.1	0.6	-5.6
		Meadow vole	0.8	5.0	0.2	1.2	-3.8
		Eastern cottontail	0.3	1.9	0.1	0.6	-1.3
		Eastern bluebird	0.9	5.6	0.5	3.1	-2.5
		<b>Study Site Sub-total</b>			<b>26.2</b>		<b>5.5</b>
<b>Latodami</b>	32.24	Song sparrow	0.7	22.6	0.5	16.1	-6.5
		Eastern wild turkey	0.1	3.2	0.1	3.2	0.0
		American kestrel	0.2	6.5	0.4	12.9	6.4
		Meadow vole	0.7	22.6	0.5	16.1	-6.5
		Eastern cottontail	0.3	9.7	0.1	3.2	-6.5
		Eastern bluebird	0.9	29.0	0.3	9.7	-19.3
		<b>Study Site Sub-total</b>			<b>93.6</b>		<b>61.5</b>
<b>Wildwood<sup>1</sup>/ Round Top</b>	49.15	Song sparrow	0.5	24.6	0.4	19.7	-4.9
		Eastern wild turkey	0.1	4.9	0.0	0.0	-4.9
		American kestrel	0.4	19.7	0.1	4.9	-14.8
		Meadow vole	0.7	34.4	0.4	19.7	-14.7
		Eastern cottontail	0.1	4.9	0.1	4.9	0.0
		Eastern bluebird	0.6	29.5	0.2	9.8	-19.7
		<b>Study Site Sub-total</b>			<b>118.0</b>		<b>59.0</b>
<b>Project Area Totals</b>				<b>289.8</b>		<b>149.5</b>	<b>-140.3</b>

<sup>1</sup> - assessment included the Round Top acreage located adjacent to Wildwood

Table 5. Pennsylvania Modified HEP (PAM-HEP) target year results for proposed dredge disposal sites at North Park Lake, Allegheny County (TYB – Target Year Baseline, HU – Habitat Unit, TY10 – Target Year 10 years post-construction). All sites were categorized as herbaceous rangeland. TY10 assumes post-construction site restoration, as outlined in the text.

Study Site	Area Size (acres)	Evaluation Species	TYB Mean HSI	TYB HUs	TY10 Mean HSI	TY10 HUs	TYB:TY10 HUs Gains/Losses(-)
<b>Bull Pen</b>	8.13	Song sparrow	0.0	0.0	0.7	5.7	5.7
		Eastern wild turkey	0.5	4.1	0.0	0.0	-4.1
		American kestrel	0.2	1.6	0.7	0.0	-1.6
		Meadow vole	0.4	3.3	0.9	7.3	4.0
		Eastern cottontail	0.1	0.8	0.1	0.8	0.0
		Eastern bluebird	1.0	8.1	1.0	8.1	0.0
		<b>Study Site Sub-total</b>			<b>17.9</b>		<b>21.9</b>
<b>County Site</b>	13.10	Song sparrow	0.8	10.5	0.5	6.6	-3.9
		Eastern wild turkey	0.1	1.3	0.1	1.3	0.0
		American kestrel	0.4	5.2	1.0	13.1	7.9
		Meadow vole	0.5	6.6	0.8	10.1	3.5
		Eastern cottontail	0.6	7.9	0.1	1.3	-6.6
		Eastern bluebird	0.2	2.6	0.9	11.8	9.2
		<b>Study Site Sub-total</b>			<b>34.1</b>		<b>44.2</b>
<b>Deer Pen</b>	6.22	Song sparrow	0.5	3.1	0.5	3.1	0.0
		Eastern wild turkey	0.7	4.4	0.4	2.5	-1.9
		American kestrel	1.0	6.2	1.0	6.2	0.0
		Meadow vole	0.8	5.0	0.0	0.0	-5.0
		Eastern cottontail	0.3	1.9	0.5	3.1	1.2
		Eastern bluebird	0.9	5.6	0.2	1.2	-4.4
		<b>Study Site Sub-total</b>			<b>26.2</b>		<b>16.1</b>
<b>Latodami</b>	32.24	Song sparrow	0.7	22.6	0.8	25.8	3.2
		Eastern wild turkey	0.1	3.2	0.7	22.6	19.4
		American kestrel	0.2	6.5	0.6	19.3	12.8
		Meadow vole	0.7	22.6	0.7	22.6	0.0
		Eastern cottontail	0.3	9.7	0.3	9.7	0.0
		Eastern bluebird	0.9	29.0	0.9	29.0	0.0
		<b>Study Site Sub-total</b>			<b>93.6</b>		<b>129.0</b>
<b>Wildwood<sup>1</sup>/ Round Top</b>	49.15	Song sparrow	0.5	24.6	0.8	39.3	14.7
		Eastern wild turkey	0.1	4.9	0.1	4.9	0.0
		American kestrel	0.4	19.7	1.0	49.2	29.5
		Meadow vole	0.7	34.4	0.8	39.3	4.9
		Eastern cottontail	0.1	4.9	0.3	14.7	9.8
		Eastern bluebird	0.6	29.5	0.9	44.2	14.7
		<b>Study Site Sub-total</b>			<b>118.0</b>		<b>191.6</b>
			<b>Project Area Totals<sup>1</sup></b>		<b>402.8</b>	<b>112.9</b>	
<b>Wildwood<sup>2</sup>/ Round Top</b>	49.15	Song sparrow	0.5	24.6	0.6	29.5	4.9
		Eastern wild turkey	0.1	4.9	0.0	0.0	-4.9
		American kestrel	0.4	19.7	1.0	49.2	29.5
		Meadow vole	0.7	34.4	0.6	29.5	-4.9
		Eastern cottontail	0.1	4.9	0.1	4.9	0.0
		Eastern bluebird	0.6	29.5	0.2	9.8	-19.7
		<b>Study Site Sub-total</b>			<b>118.0</b>		<b>122.9</b>
			<b>Project Area Totals<sup>2</sup></b>		<b>334.1</b>	<b>44.2</b>	

<sup>1</sup>- wildlife habitat option post-construction; assessment included the Round Top acreage located adjacent to Wildwood

<sup>2</sup>- residential development option post-construction

Table 6. Summary of breeding bird survey results for proposed dredge disposal areas at North Park Lake, Allegheny County.

Study Site	Area Size (ac)	Total Species Richness (n)	Total Birds Observed (n) <sup>2</sup>	Total Obs. (n) <sup>3</sup>	Obs. Made in Primary Habitat (n/%)	Breeding Bird Density (birds per 100ha)	No of Plots (n)	Plot Radius (m)	SD (m)
<b>Bull Pen</b>	<b>8.1</b>	<b>24</b>	<b>148</b>	<b>70</b>	<b>16/22.9</b>	<b>5.42</b>	<b>1</b>	<b>115</b>	*
<b>County Site</b>	<b>13.1</b>	<b>28</b>	<b>179</b>	<b>117</b>	<b>81/69.2</b>	<b>4.83</b>	<b>1</b>	<b>115</b>	*
<b>Deer Pen</b>	<b>6.2</b>	<b>33</b>	<b>104</b>	<b>78</b>	<b>22/28.2</b>	<b>4.30</b>	<b>1</b>	<b>115</b>	*
<b>Latodami</b>	<b>32.2</b>	<b>39</b>	<b>601</b>	<b>461</b>	<b>285/61.8</b>	<b>3.01</b>	<b>6</b>		<b>0.19</b>
Plot LA1		26	102	80	49/61.2	3.07		115	
Plot LA2		25	106	81	64/79.0	3.19		115	
Plot LA3		24	91	70	43/61.4	2.73		115	
Plot LA4		24	94	68	34/50.0	2.83		115	
Plot LA5		24	104	74	47/63.5	3.12		115	
Plot LA6		28	104	88	48/54.6	3.13		115	
<b>Round Top</b>	<b>4.0</b>	<b>19</b>	<b>67</b>	<b>57</b>	<b>57/100.0<sup>1</sup></b>	<b>6.22</b>	<b>1</b>	<b>65</b>	*
<b>Wildwood</b>	<b>49.2</b>	<b>44</b>	<b>502</b>	<b>310</b>	<b>107/34.5</b>	<b>2.02</b>	<b>4</b>		<b>0.59</b>
Plot WA1		33	178	89	28/31.5	2.73		150	
Plot WA2		27	146	76	32/39.0	2.29		150	
Plot WA3		26	106	63	26/34.2	1.62		150	
PlotWA4		24	72	57	21/33.3	1.46		150	

<sup>1</sup> – Round Top was the only area with woodlands as the primary habitat type

<sup>2</sup> – total number of birds observed during all survey periods

<sup>3</sup> – total number of observations made during all survey periods (e.g. a flight of 10 American crows would equal 1 observation, 2 eastern bluebirds observed on a nesting box would equal 1 observation, etc)

Table 7. List of bird species observed during breeding bird surveys conducted at the proposed Bull Pen dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
13	American crow	ac	<i>Corvus brachyrhynchos</i>	Piehler/Fowles
49	American goldfinch	ag	<i>Carduelis tristis</i>	Piehler/Fowles
25	American robin	ar	<i>Turdus migratorius</i>	Piehler/Fowles
12	blue jay	bj	<i>Cyanocitta cristata</i>	Piehler/Fowles
47	Baltimore oriole	bo	<i>Icterus galbula</i>	Piehler/Fowles
16	barn swallow	bs	<i>Hirundo rustica</i>	Piehler/Fowles
63	chimney swift	cs	<i>Chaetura pelagica</i>	Piehler/Fowles
30	cedar waxwing	cwg	<i>Bombycilla cedrorum</i>	Piehler/Fowles
4	eastern wood-pewee	ewp	<i>Contopus virens</i>	Piehler/Fowles
80	great crested flycatcher	gcf	<i>Myiarchus crinitus</i>	Piehler/Fowles
50	house sparrow	hs	<i>Passer domesticus</i>	Piehler/Fowles
41	indigo bunting	ib	<i>Passerina cyanea</i>	Piehler/Fowles
59	killdeer	k	<i>Charadrius vociferus</i>	Piehler/Fowles
62	mourning dove	md	<i>Zenaida macroura</i>	Piehler/Fowles
2	northern flicker	nf	<i>Colaptes auratus</i>	Piehler/Fowles
40	rose-breasted grosbeak	rbg	<i>Pheucticus ludovicianus</i>	Piehler/Fowles
65	red-bellied woodpecker	rbw	<i>Melanerpes carolinus</i>	Piehler/Fowles
11	red-eyed vireo	rev	<i>Vireo olivaceus</i>	Piehler/Fowles
56	red-tailed hawk	rth	<i>Buteo jamaicensis</i>	Piehler/Fowles
38	song sparrow	ss	<i>Melospiza melodia</i>	Piehler/Fowles
34	scarlet tanager	st	<i>Piranga olivacea</i>	Piehler/Fowles
24	wood thrush	wt	<i>Hylocichla mustelina</i>	Piehler/Fowles
9	yellow-throated vireo	ytv	<i>Vireo flavifrons</i>	Piehler/Fowles
31	yellow warbler	yw	<i>Dendroica petechia</i>	Piehler/Fowles

Table 8. List of bird species observed during breeding bird surveys conducted at the proposed County Site dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
49	American goldfinch	ag	Carduelis tristis	Piehler/Fowles
25	American robin	ar	Turdus migratorius	Piehler/Fowles
12	blue jay	bj	Cyanocitta cristata	Piehler/Fowles
47	Baltimore oriole	bo	Icterus galbula	Piehler/Fowles
16	barn swallow	bs	Hirundo rustica	Piehler/Fowles
44	common grackle	cg	Quiscalus quiscula	Piehler/Fowles
63	chimney swift	cs	Chaetura pelagica	Piehler/Fowles
36	chipping sparrow	csw	Spizella passerina	Piehler/Fowles
30	cedar waxwing	cwg	Bombycilla cedrorum	Piehler/Fowles
33	common yellowthroat	cy	Geothlypis trichas	Piehler/Fowles
8	eastern kingbird	ek	Tyrannus tyrannus	Piehler/Fowles
29	European starling	es	Sturnus vulgaris	Piehler/Fowles
51	great blue heron	gbh	Ardea herodias	Piehler/Fowles
50	house sparrow	hs	Passer domesticus	Piehler/Fowles
41	indigo bunting	ib	Passerina cyanea	Piehler/Fowles
59	killdeer	k	Charadrius vociferus	Piehler/Fowles
54	mallard	m	Anas platyrhynchos	Piehler/Fowles
62	mourning dove	md	Zenaida macroura	Piehler/Fowles
39	northern cardinal	nc	Cardinalis cardinalis	Piehler/Fowles
15	northern rough-winged swallow	nrws	Stelgidopteryx serripennis	Piehler/Fowles
46	orchard oriole	oo	Icterus spurius	Piehler/Fowles
43	red-winged blackbird	rwb	Agelaius phoeniceus	Piehler/Fowles
141	northern rough-winged swallow	rws	Stelgidopteryx ruficollis	Piehler/Fowles
38	song sparrow	ss	Melospiza melodia	Piehler/Fowles
14	tree swallow	ts	Tachycineta bicolor	Piehler/Fowles
6	willow flycatcher	wf	Empidonax traillii	Piehler/Fowles
10	warbling vireo	wv	Vireo gilvus	Piehler/Fowles
31	yellow warbler	yw	Dendroica petechia	Piehler/Fowles

Table 9. List of bird species observed during breeding bird surveys conducted at the proposed Deer Pen dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
13	American crow	ac	<i>Corvus brachyrhynchos</i>	Piehler/Fowles
5	acadian flycatcher	af	<i>Empidonax virescens</i>	Piehler/Fowles
49	American goldfinch	ag	<i>Carduelis tristis</i>	Piehler/Fowles
25	American robin	ar	<i>Turdus migratorius</i>	Piehler/Fowles
17	black-capped chickadee	bcc	<i>Poecile atricapillus</i>	Piehler/Fowles
45	brown-headed cowbird	bhc	<i>Molothrus ater</i>	Piehler/Fowles
12	blue jay	bj	<i>Cyanocitta cristata</i>	Piehler/Fowles
47	Baltimore oriole	bo	<i>Icterus galbula</i>	Piehler/Fowles
16	barn swallow	bs	<i>Hirundo rustica</i>	Piehler/Fowles
44	common grackle	cg	<i>Quiscalus quiscula</i>	Piehler/Fowles
63	chimney swift	cs	<i>Chaetura pelagica</i>	Piehler/Fowles
20	Carolina wren	cw	<i>Thryothorus ludovicianus</i>	Piehler/Fowles
7	eastern phoebe	ep	<i>Sayornis phoebe</i>	Piehler/Fowles
29	European starling	es	<i>Sturnus vulgaris</i>	Piehler/Fowles
35	eastern towhee	et	<i>Pipilo erythrophthalmus</i>	Piehler/Fowles
4	eastern wood-pewee	ewp	<i>Contopus virens</i>	Piehler/Fowles
58	eastern wild turkey	ewt	<i>Meleagris gallopavo</i>	Piehler/Fowles
51	great blue heron	gbh	<i>Ardea herodias</i>	Piehler/Fowles
26	gray catbird	gc	<i>Dumetella carolinensis</i>	Piehler/Fowles
62	mourning dove	md	<i>Zenaida macroura</i>	Piehler/Fowles
39	northern cardinal	nc	<i>Cardinalis cardinalis</i>	Piehler/Fowles
2	northern flicker	nf	<i>Colaptes auratus</i>	Piehler/Fowles
65	red-bellied woodpecker	rbw	<i>Melanerpes carolinus</i>	Piehler/Fowles
11	red-eyed vireo	rev	<i>Vireo olivaceus</i>	Piehler/Fowles
43	red-winged blackbird	rwb	<i>Agelaius phoeniceus</i>	Piehler/Fowles
141	northern rough-winged swallow	rsw	<i>Stelgidopteryx ruficollis</i>	Piehler/Fowles
38	song sparrow	ss	<i>Melospiza melodia</i>	Piehler/Fowles
34	scarlet tanager	st	<i>Piranga olivacea</i>	Piehler/Fowles
18	tufted titmouse	tt	<i>Baeolophus bicolor</i>	Piehler/Fowles
71	unknown flycatcher	uf	<i>Empidonax sp.</i>	Piehler/Fowles
24	wood thrush	wt	<i>Hylocichla mustelina</i>	Piehler/Fowles
9	yellow-throated vireo	ytv	<i>Vireo flavifrons</i>	Piehler/Fowles
31	yellow warbler	yw	<i>Dendroica petechia</i>	Piehler/Fowles

Table 10. List of bird species observed during breeding bird surveys conducted at the proposed Latodami dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
13	American crow	ac	Corvus brachyrhynchos	Piehler/Fowles
49	American goldfinch	ag	Carduelis tristis	Piehler/Fowles
25	American robin	ar	Turdus migratorius	Piehler/Fowles
42	Bobolink <sup>1</sup>	b	Dolichonyx oryzivorus	Piehler/Fowles
17	black-capped chickadee	bcc	Poecile atricapillus	Piehler/Fowles
45	brown-headed cowbird	bhc	Molothrus ater	Piehler/Fowles
12	blue jay	bj	Cyanocitta cristata	Piehler/Fowles
47	Baltimore oriole	bo	Icterus galbula	Piehler/Fowles
16	barn swallow	bs	Hirundo rustica	Piehler/Fowles
28	brown thrasher	bt	Toxostoma rufum	Piehler/Fowles
44	common grackle	cg	Quiscalus quiscula	Piehler/Fowles
63	chimney swift	cs	Chaetura pelagica	Piehler/Fowles
30	cedar waxwing	cwg	Bombycilla cedrorum	Piehler/Fowles
33	common yellowthroat	cy	Geothlypis trichas	Piehler/Fowles
22	eastern bluebird	eb	Sialia sialis	Piehler/Fowles
8	eastern kingbird	ek	Tyrannus tyrannus	Piehler/Fowles
35	eastern towhee	et	Pipilo erythrophthalmus	Piehler/Fowles
4	eastern wood-pewee	ewp	Contopus virens	Piehler/Fowles
37	field sparrow	fs	Spizella pusilla	Piehler/Fowles
26	gray catbird	gc	Dumetella carolinensis	Piehler/Fowles
50	house sparrow	hs	Passer domesticus	Piehler/Fowles
21	house wren	hw	Troglodytes aedon	Piehler/Fowles
41	indigo bunting	ib	Passerina cyanea	Piehler/Fowles
62	mourning dove	md	Zenaida macroura	Piehler/Fowles
39	northern cardinal	nc	Cardinalis cardinalis	Piehler/Fowles
2	northern flicker	nf	Colaptes auratus	Piehler/Fowles
27	northern mockingbird	nm	Mimus polyglottos	Piehler/Fowles
65	red-bellied woodpecker	rbw	Melanerpes carolinus	Piehler/Fowles
11	red-eyed vireo	rev	Vireo olivaceus	Piehler/Fowles
56	red-tailed hawk	rth	Buteo jamaicensis	Piehler/Fowles
43	red-winged blackbird	rwb	Agelaius phoeniceus	Piehler/Fowles
38	song sparrow	ss	Melospiza melodia	Piehler/Fowles
34	scarlet tanager	st	Piranga olivacea	Piehler/Fowles
14	tree swallow	ts	Tachycineta bicolor	Piehler/Fowles
18	tufted titmouse	tt	Baeolophus bicolor	Piehler/Fowles
19	white-breasted nuthatch	wbn	Sitta carolinensis	Piehler/Fowles
6	willow flycatcher	wf	Empidonax traillii	Piehler/Fowles
9	yellow-throated vireo	ytv	Vireo flavifrons	Piehler/Fowles
31	yellow warbler	yw	Dendroica petechia	Piehler/Fowles

<sup>1</sup> – observed on 7/25/03, only and was not singing – regarded as passage migrant

Table 11. List of bird species observed during breeding bird surveys conducted at the proposed Round Top dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
13	American crow	ac	Corvus brachyrhynchos	Piehler/Fowles
49	American goldfinch	ag	Carduelis tristis	Piehler/Fowles
25	American robin	ar	Turdus migratorius	Piehler/Fowles
17	black-capped chickadee	bcc	Poecile atricapillus	Piehler/Fowles
12	blue jay	bj	Cyanocitta cristata	Piehler/Fowles
47	Baltimore oriole	bo	Icterus galbula	Piehler/Fowles
30	cedar waxwing	cwg	Bombycilla cedrorum	Piehler/Fowles
35	eastern towhee	et	Pipilo erythrophthalmus	Piehler/Fowles
4	eastern wood-pewee	ewp	Contopus virens	Piehler/Fowles
62	mourning dove	md	Zenaida macroura	Piehler/Fowles
39	northern cardinal	nc	Cardinalis cardinalis	Piehler/Fowles
2	northern flicker	nf	Colaptes auratus	Piehler/Fowles
40	rose-breasted grosbeak	rbg	Pheucticus ludovicianus	Piehler/Fowles
65	red-bellied woodpecker	rbw	Melanerpes carolinus	Piehler/Fowles
11	red-eyed vireo	rev	Vireo olivaceus	Piehler/Fowles
34	scarlet tanager	st	Piranga olivacea	Piehler/Fowles
18	tufted titmouse	tt	Baeolophus bicolor	Piehler/Fowles
23	veery	v	Catharus fuscescens	Piehler/Fowles
19	white-breasted nuthatch	wbn	Sitta carolinensis	Piehler/Fowles

Table 12. List of bird species observed during breeding bird surveys conducted at the proposed Wildwood dredge disposal site at North Park Lake, Allegheny County, Pennsylvania (6/2/03-7/25/03).

Species ID No.	Species Common Name	Species Code	Species Scientific Name	Observers
13	American crow	ac	<i>Corvus brachyrhynchos</i>	Piehler/Fowles
49	American goldfinch	ag	<i>Carduelis tristis</i>	Piehler/Fowles
57	American kestrel	ak	<i>Falco sparverius</i>	Piehler/Fowles
25	American robin	ar	<i>Turdus migratorius</i>	Piehler/Fowles
17	black-capped chickadee	bcc	<i>Poecile atricapillus</i>	Piehler/Fowles
12	blue jay	bj	<i>Cyanocitta cristata</i>	Piehler/Fowles
47	Baltimore oriole	bo	<i>Icterus galbula</i>	Piehler/Fowles
16	barn swallow	bs	<i>Hirundo rustica</i>	Piehler/Fowles
44	common grackle	cg	<i>Quiscalus quiscula</i>	Piehler/Fowles
63	chimney swift	cs	<i>Chaetura pelagica</i>	Piehler/Fowles
36	chipping sparrow	csw	<i>Spizella passerina</i>	Piehler/Fowles
20	Carolina wren	cw	<i>Thryothorus ludovicianus</i>	Piehler/Fowles
30	cedar waxwing	cwg	<i>Bombycilla cedrorum</i>	Piehler/Fowles
33	common yellowthroat	cy	<i>Geothlypis trichas</i>	Piehler/Fowles
1	downy woodpecker	dw	<i>Picoides pubescens</i>	Piehler/Fowles
7	eastern phoebe	ep	<i>Sayornis phoebe</i>	Piehler/Fowles
29	European starling	es	<i>Sturnus vulgaris</i>	Piehler/Fowles
35	eastern towhee	et	<i>Pipilo erythrophthalmus</i>	Piehler/Fowles
4	eastern wood-pewee	ewp	<i>Contopus virens</i>	Piehler/Fowles
58	eastern wild turkey	ewt	<i>Meleagris gallopavo</i>	Piehler/Fowles
37	field sparrow	fs	<i>Spizella pusilla</i>	Piehler/Fowles
51	great blue heron	gbh	<i>Ardea herodias</i>	Piehler/Fowles
26	gray catbird	gc	<i>Dumetella carolinensis</i>	Piehler/Fowles
48	house finch	hf	<i>Carpodacus mexicanus</i>	Piehler/Fowles
41	indigo bunting	ib	<i>Passerina cyanea</i>	Piehler/Fowles
59	killdeer	k	<i>Charadrius vociferus</i>	Piehler/Fowles
54	mallard	m	<i>Anas platyrhynchos</i>	Piehler/Fowles
62	mourning dove	md	<i>Zenaida macroura</i>	Piehler/Fowles
39	northern cardinal	nc	<i>Cardinalis cardinalis</i>	Piehler/Fowles
2	northern flicker	nf	<i>Colaptes auratus</i>	Piehler/Fowles
40	rose-breasted grosbeak	rbg	<i>Pheucticus ludovicianus</i>	Piehler/Fowles
65	red-bellied woodpecker	rbw	<i>Melanerpes carolinus</i>	Piehler/Fowles
11	red-eyed vireo	rev	<i>Vireo olivaceus</i>	Piehler/Fowles
43	red-winged blackbird	rwb	<i>Agelaius phoeniceus</i>	Piehler/Fowles
141	northern rough-winged swallow	rsw	<i>Stelgidopteryx ruficollis</i>	Piehler/Fowles
38	song sparrow	ss	<i>Melospiza melodia</i>	Piehler/Fowles
34	scarlet tanager	st	<i>Piranga olivacea</i>	Piehler/Fowles
14	tree swallow	ts	<i>Tachycineta bicolor</i>	Piehler/Fowles
18	tufted titmouse	tt	<i>Baeolophus bicolor</i>	Piehler/Fowles
23	veery	v	<i>Catharus fuscescens</i>	Piehler/Fowles
81	white-eyed vireo	wevi	<i>Vireo griseus</i>	Piehler/Fowles
6	willow flycatcher	wf	<i>Empidonax traillii</i>	Piehler/Fowles
24	wood thrush	wt	<i>Hylocichla mustelina</i>	Piehler/Fowles
31	yellow warbler	yw	<i>Dendroica petechia</i>	Piehler/Fowles

Table 13. Summary of small mammal trapping results for proposed dredge disposal areas at North Park Lake, Allegheny County.

	<b>Bull Pen</b>	<b>County</b>	<b>Deer Pen</b>	<b>Latodami</b>	<b>Round Top</b>	<b>Wildwood</b>
Transects	1	2	2	5	1	2
Trapping Dates	6/14/03-6/17/03	6/14/03-6/17/03 7/22/03-7/25/03	6/14/03-6/17/03 7/22/03-7/25/03	6/1/03-6/4/03 7/22/03-7/25/03	6/1/03-6/4/03	6/1/03-6/4/03
Trap nights	50	85	93	286	37	116
Captures	3	7	2	48	3	17
Recaptures	0	0	0	6	0	0
Catch Effort (CE) <sup>1</sup>	6.0	8.2	2.2	14.7	8.1	14.7
Species Richness	2	2	1	4	2	2
% of capture meadow vole	66.7	85.7	0	88.1	66.7	94.1

<sup>1</sup> – CE is defined as number of captures per 100 trap nights

Table 14. Summary of small mammal species and age classes of small mammal captures on the proposed dredge disposal areas at North Park Lake, Allegheny County.

<b>Species</b>	<b>Bull Pen</b>	<b>County</b>	<b>Deer Pen</b>	<b>Latodami</b>	<b>Round Top</b>	<b>Wildwood</b>
meadow vole - adult (a)	1	4	0	20	2	10
meadow vole - immature (i)	1	2	0	16	0	6
meadow vole - unknown (u)	0	0	0	1	0	0
eastern chipmunk (a)	0	1	0	0	1	0
eastern chipmunk (i)	0	0	0	0	0	0
shorttail shrew (a)	0	0	0	1	0	0
shorttail shrew (i)	0	0	0	0	0	0
meadow jumping mouse (a)	0	0	0	2	0	0
meadow jumping mouse (i)	0	0	0	0	0	0
meadow jumping mouse (u)	1	0	0	0	0	0
white-footed mouse(a)	0	0	0	0	0	0
white-footed mouse(i)	0	0	2	1	0	1
white-footed mouse(u)	0	0	0	1	0	0
Totals	3	7	2	42	3	17