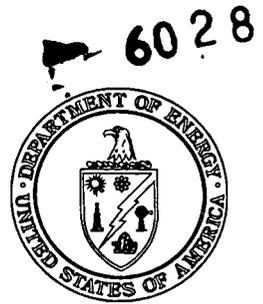




Department of Energy



Ohio Field Office
Fernald Closure Project
175 Tri-County Parkway
Springdale, Ohio 45246
(513) 648-3155

AUG 4 2005

Mr. James A. Saric, Remedial Project Manager
United States Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0295-05

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Mr. Bill Kurey
United States Fish & Wildlife Service, Suite H
6950 American Parkway
Reynoldsburg, OH 43068

Dear Mr. Saric, Mr. Schneider, and Mr. Kurey:

**TRANSMITTAL OF THE 2004 CONSOLIDATED MONITORING REPORT FOR
RESTORED AREAS AT THE FERNALD CLOSURE PROJECT**

Enclosed is the 2004 Consolidated Monitoring Report for restored areas at the Fernald Closure Project (FCP). This document provides the results of implementation and functional monitoring activities completed in restored areas of the FCP in 2004.

If you have any questions or require additional information, please contact Johnny Reising at (513) 648-3139.

Sincerely,

William J. Taylor
Director

FCP:Reising

Mr. James A. Saric
Mr. Tom Schneider
~~Mr. Bill Kurey~~

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DOE-0295-05

Enclosure: As Stated

cc w/enclosure

J. Reising, DOE-OH/FCP
D. Pfister, DOE-OH/FCP
E. Skintik, DOE-OH
G. Stegner, DOE-OH
T. Schneider, OEPA-Dayton (three copies of enclosure)
G. Jablonowski, USEPA-V, SR-6J
D. Sarno, FCAB
F. Bell, ATSDR
M. Cullerton, Tetra Tech
M. Shupe, HSI GeoTrans
R. Vandegrift, ODH
AR Coordinator, Fluor Fernald, Inc., MS78

cc w/o enclosure:

M. Bilson, Fluor Fernald, Inc., MS1
K. Alkema, Fluor Fernald, Inc., MS1
J. Chiou, Fluor Fernald, Inc., MS88
J. Homer, Fluor Fernald, Inc., MS90
L. McHenry, Fluor Fernald, Inc., MS90
F. Johnston, Fluor Fernald, Inc., MS99
D. Powell, Fluor Fernald, Inc., MS64
H. Swiger, Fluor Fernald, Inc., MS90
S. Walpole, Fluor Fernald, Inc., MS76
E. Woods, Fluor Fernald, Inc., MS90

F-6028

ENCLOSURE

2004 CONSOLIDATED MONITORING REPORT
NARRATIVE SUMMARY
JULY 2005

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The attached tables and figures present the data collected in 2004 for Implementation and Functional monitoring of restored areas at the Fernald Closure Project (FCP). Implementation monitoring included vegetation survival within the Northern Pines Restoration Project and a wetland delineation of the Area 1, Phase I (A1PI) Wetland Mitigation Project. The wetland delineation completes monitoring requirements for the A1PI Wetland. Functional monitoring involved comparisons of restored upland prairie communities in A1PI, Area 8, Phase I (A8PI), and Area 8, Phase II (A8PII) to baseline conditions and reference sites. In addition, precipitation data for 2004 is presented in Table 1. While the cumulative amount of rainfall was slightly below average in 2005, no prolonged periods of drought were experienced, and site meteorological conditions were generally favorable for restoration activities.

Implementation Monitoring

Vegetation survival for the Northern Pines Restoration Project is presented in Table 2. All planted trees and shrubs were surveyed in Patch PA2S1 and PA2S3. In other patches, random 100 m² quadrats were used to sample survival. The results of this effort show that vegetation survival in the North Pines is influenced primarily by deer browsing. Deer exclosure fencing was installed around Patch PA2S1. This was the first use of exclosure fencing as part of ecological restoration at the FCP. Not surprisingly, this patch had no deer damage and the highest rate of survival within the North Pines. For most other patches, deer damage was evident on over half of the plants observed. Plastic "deer tubes" that were installed around individual trees are effective at keeping deer from browsing or rubbing small plants or trees that are tall enough that their limbs are above the reach of deer. However, for most plants, deer tubes cause several problems. First, deer are able to browse the tops of trees that are exposed above the four-foot height of the tubes. Second, deer tubes may exacerbate rodent damage. Mice and other small mammals build nests in the tubes and gnaw at the planted tree. The rodent damage reported on Table 2 is attributed to nests within deer tubes. Based on these findings and observations from other restoration projects, plastic deer tubes will no longer be used at the FCP. Exclosure fencing is now the primary means of deer protection. When exclosure fencing is not feasible, individual plants will be protected with welded wire fencing. These measures should greatly increase vegetation survival within ecological restoration projects at the FCP.

Herbaceous cover across the North Pines project area exceeds 90 percent in all areas. The extent of native grass and forb establishment will be characterized in 2005 and discussed in the 2005 Consolidated Monitoring Report.

The A1PI Wetland Mitigation Project has been monitored for the past five years. All Implementation and Functional monitoring results have indicated that the project is meeting its goals of creating wetlands. In 2004, a wetland delineation was conducted in order to determine the extent of jurisdictional wetlands created. Using the criteria established in the 1887 U.S. Army Corp of Engineers Wetland Delineation Manual, 5.34 acres of wetlands have been created in the project area. Figure 1 shows the wetland boundaries in each basin.

Implementation monitoring of the A1PI Wetland Mitigation Project is now complete. DOE will continue Functional monitoring and maintenance of the project area as specified in the Legacy Management and Institutional Controls Plan.

Functional Monitoring

The Functional monitoring data summary is presented in Table 3. Area-specific species lists are found in Tables 3a through 3c. The survey parameters demonstrate that restored upland prairies are providing ecological benefit at the FCP. All parameters from all sites are better than baseline conditions. Native species composition is at or near the 50 percent criterion established by the Fernald Natural Resource Trustees.

The 2004 prairie data show that while there is improvement over baseline conditions, restored prairies at the FCP have not reached the same quality as the upland prairie reference site. A review of the area-specific species lists indicate that a variety of non-native weeds and cool season grasses are competing with seeded prairie species for resources. Also, native and non-native woody vegetation is becoming established in some areas. Enhanced management in the form of burning, mowing, and/or the use of more selective herbicides should increase the establishment of native prairie species. FCP prairie areas have been maintained through mowing and herbicide use. These efforts will be continue in 2005. DOE is committed to maintaining restored prairies pursuant to the Legacy Management and Institutional Controls Plan.

Activities in 2005

Implementation monitoring activities in 2005 will include vegetation survival estimates in Paddys Run East and West and the Phase 2 Wetland Mitigation Project. Herbaceous cover estimates will also be conducted in the Phase 2 Wetland Mitigation Project, as well as the North Pines. In addition, water levels will be measured in the Phase 2 Wetlands. Functional monitoring will involve the characterization of restored forest communities within A8P11, the North Woodlot, and the Southern Waste Units.

TABLE 1
2004 PRECIPITATION DATA

Month	Average Site Precipitation (in.)	Actual Site Precipitation (in.)	Monthly Departure from Average (in.)	Cumulative Departure from Average (in.)	Palmer Drought Severity Index
January	3.14	4.95	1.81	1.81	extremely moist
February	2.80	1.51	-1.29	0.52	very moist
March	3.90	3.02	-0.88	-0.36	near normal
April	3.80	5.21	1.41	1.05	near normal
May	4.23	4.28	0.05	1.10	moderately moist
June	4.06	2.24	-1.82	-0.72	moderately moist
July	4.03	4.15	0.12	-0.60	very moist
August	3.20	2.73	-0.47	-1.07	very moist
September	2.79	0.51	-2.28	-3.35	near normal
October	2.68	4.36	1.68	-1.67	moderately moist
November	3.33	3.34	0.01	-1.66	moderately moist
December	3.12	2.79	-0.33	-1.99	moderately moist

Palmer Drought Severity Index source:

<http://lwf.ncdc.noaa.gov/oa/climate/research/prelim/drought/palmer.html>

**TABLE 2
NORTHERN PINES VEGETATION SURVIVAL**

Patch	Surveyed	Alive	Alive but <50% canopy	Alive but Resprout	Dead	Deer Damage	% Deer Damage	Rodent Damage	% Rodent Damage	% Survival (Total Alive)	% Survival (Conservative)
PA1S1	16	11	3	1	1	9	56%	0	0%	94%	69%
PA1S2	27	15	3	4	5	18	67%	5	19%	81%	56%
PA2S1**	273	231	4	11	26	0	0%	16	6%	90%	85%
PA2S3	180	117	5	11	47	76	42%	42	23%	74%	65%
PA3S1	26	16	0	4	6	16	62%	3	12%	77%	62%
PA3S2	32	9	0	6	17	19	59%	5	16%	47%	28%
PA3S3	31	25	0	3	3	26	84%	0	0%	90%	81%
PA3S4	21	15	3	1	2	21	100%	0	0%	90%	71%
PA3S5	37	34	0	0	3	20	54%	6	16%	92%	92%
PA4S1	18	6	0	2	10	15	83%	1	6%	44%	33%
PA4S2	38	13	2	3	20	33	87%	1	3%	47%	34%
Totals =	699	492	20	46	140	253	36%	79	11%	80%	70%
Within deer fence	273	231	4	11	26	0	0%	16	6%	90%	85%
Without deer fence	426	261	16	35	114	253	59%	63	15%	73%	61%

*Conservative % Survival does not count plants with <50% canopy or resprouts as alive

**Patch protected with deer enclosure fencing

TABLE 3
 FUNCTIONAL MONITORING SUMMARY
 RESTORED UPLAND PRAIRIES

Parameter	A1PI Wetland Mitigation Project			A8PII Forest Demonstration Project			Eco Park Prairie		
	2004 Data	Reference	Baseline	2004 Data	Reference	Baseline	2004 Data	Reference	Baseline
<i>Native Species Composition</i>									
Total Species	64	61	--	53	61	38	66	61	38
Native Species	31	55	--	28	55	15	40	55	15
Percent Composition	48%	90%	--	53%	90%	39%	61%	90%	39%
Relative Frequency	41%	93%	--	48%	93%	23%	70%	93%	23%
<i>Species Conservatism</i>									
Average Coefficient of Conservatism	1.3	3.5	--	1.4	3.5	0.4	1.6	3.5	0.4
Floristic Quality Assessment Index	10.6	27.3	--	10.2	27.3	2.6	13.4	27.3	2.6

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Table 3A
Area 1, Phase I Wetland Mitigation Upland Prairie
2004 Functional Monitoring Data Summary

Mean CC: 1.33 Native Spp.: 31
Total Spp.: 64 Non-Native Spp.: 33
FQAI: 10.63 Percent Native: 48%

(non native species are in bold)

Species	Common Name	Type	CC	Frequency (species/quadrat)	Relative Frequency	
<i>Amaranthus albus</i>	Pig weed	forb	0	0.03	0.5%	
<i>Ambrosia artemisiifolia</i>	common ragweed	forb	0	0.23	3.6%	
<i>Ambrosia trifida</i>	Giant ragweed	forb	0	0.03	0.5%	
<i>Andropogon gerardii</i>	Big blue stem	graminoid	5	0.17	2.6%	
<i>Asclepias syriaca</i>	Milkweed	forb	1	0.03	0.5%	
<i>Aster novae-angliae</i>	New England aster	forb	2	0.07	1.0%	
<i>Aster pilosus</i>	Heath aster	forb	1	0.07	1.0%	
<i>Bouteloua curtipendula</i>	Side oats gramma	graminoid	8	0.03	0.5%	
<i>Carex cristatella</i>	Crested sedge	graminoid	3	0.03	0.5%	
<i>Cornus racemosa</i>	Gray dogwood	shrub	1	0.03	0.5%	
<i>Elymus canadensis</i>	Canada wild rye	graminoid	6	0.30	4.6%	
<i>Erechtites hieracifolia</i>	Pilewort	forb	2	0.03	0.5%	
<i>Erigeron annuus</i>	Daisy fleabane	forb	0	0.07	1.0%	
<i>Galium aparine</i>	Cleavers	forb	0	0.03	0.5%	
<i>Monarda fistulosa</i>	Bergamot	forb	3	0.10	1.5%	
<i>Morus rubra</i>	Red mulberry	tree	7	0.10	1.5%	
<i>Muhlenbergia schreberi</i>	Nimblewill	graminoid	0	0.03	0.5%	
<i>Panicum clandestinum</i>	Deer tongue	graminoid	2	0.07	1.0%	
<i>Panicum virgatum</i>	Switch grass	graminoid	4	0.40	6.2%	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	vine	2	0.20	3.1%	
<i>Plantago rugellii</i>	Red-stemmed plantain	forb	0	0.03	0.5%	
<i>Ratibida pinnata</i>	Gray headed coneflower	forb	5	0.03	0.5%	
<i>Rudbeckia hirta</i>	Black-eyed Susan	forb	1	0.03	0.5%	
<i>Schizachyrium scoparium</i>	Little bluestem	graminoid	5	0.07	1.0%	
<i>Silphium laciniatum</i>	Compass plant	forb	8	0.03	0.5%	
<i>Solidago canadensis</i>	Canada goldenrod	forb	1	0.03	0.5%	
<i>Sorghastrum nutans</i>	Indian grass	graminoid	5	0.13	2.1%	
<i>Toxicodendron radicans</i>	Poison ivy	forb	1	0.07	1.0%	
<i>Tradescantia ohioensis</i>	Ohio spider wort	forb	5	0.03	0.5%	
<i>Viburnum prunifolium</i>	Blackhaw vibernum	shrub	4	0.03	0.5%	
<i>Vitis sp.</i>	Grapevine	vine	3	0.07	1.0%	
<i>Agrostis stolonifera</i>	Creeping bent grass	graminoid	0	0.03	0.5%	
<i>Barbarea vulgaris</i>	Yellow rocket	forb	0	0.03	0.5%	
<i>Bromus commutatus</i>	Meadow brome	graminoid	0	0.03	0.5%	
<i>Bromus japonicus</i>	Japanese brome	graminoid	0	0.50	7.7%	
<i>Carduus nutans</i>	Nodding thistle	forb	0	0.03	0.5%	
<i>Carum carvi</i>	Caraway	forb	0	0.03	0.5%	
<i>Cirsium arvense</i>	Canada thistle	forb	0	0.07	1.0%	
<i>Cirsium vulgare</i>	bull thistle	forb	0	0.27	4.1%	
<i>Conium maculatum</i>	Poison hemlock	forb	0	0.07	1.0%	
<i>Daucus carota</i>	Queen Anne's face	forb	0	0.43	6.7%	
<i>Echinochloa crus-galli</i>	Barnyard grass	graminoid	0	0.03	0.5%	
<i>Festuca elatior</i>	Tall fescue	graminoid	0	0.17	2.6%	
<i>Festuca pratensis</i>	Meadow fescue	graminoid	0	0.07	1.0%	
<i>Glechoma hederacea</i>	Ground ivy	forb	0	0.13	2.1%	
<i>Hordeum jubatum</i>	Squirrel tail	graminoid	0	0.07	1.0%	
<i>Lolium perenne</i>	Perennial rye	graminoid	0	0.03	0.5%	
<i>Lonicera maackii</i>	Bush honeysuckle	shrub	0	0.20	3.1%	
<i>Medicago lupulina</i>	Black medic	forb	0	0.03	0.5%	
<i>Mellilotus officinalis</i>	Yellow sweet clover	forb	0	0.07	1.0%	
<i>Morus alba</i>	White mulberry	tree	0	0.03	0.5%	
(not applicable)	Regreen	graminoid	0	0.17	2.6%	
<i>Phleum pratense</i>	Timothy	graminoid	0	0.30	4.6%	
<i>Plantago lanceolata</i>	narrowleaf plantain	forb	0	0.13	2.1%	
<i>Poa trivialis</i>	Roughstalk bluegrass	graminoid	0	0.03	0.5%	
<i>Polygonum aviculare</i>	Door weed	forb	0	0.03	0.5%	
<i>Polygonum persicaria</i>	Spotted ladies thumb	forb	0	0.03	0.5%	
<i>Rosa multiflora</i>	Multiflora rose	shrub	0	0.17	2.6%	
<i>Setaria faberi</i>	Giant foxtail	graminoid	0	0.03	0.5%	
<i>Setaria viridis</i>	Green foxtail	graminoid	0	0.03	0.5%	
<i>Taraxacum officinale</i>	Dandelion	forb	0	0.13	2.1%	
<i>Trifolium pratense</i>	Red clover	forb	0	0.40	6.2%	
<i>Trifolium repens</i>	White clover	forb	0	0.03	0.5%	
<i>Xanthium strumarium</i>	Common cocklebur	forb	0	0.03	0.5%	
				Native Species:	2.63	40.5%
				Non-Native Species:	3.87	59.5%

CC = Coefficient of Conservatism
FQAI = Floristic Quality Assessment Index

Table 3A
 Area 1, Phase I Wetland Mitigation Upland Prairie
 2004 Functional Monitoring Data Summary

6028

Mean CC: 1.33 Native Spp.: 31
 Total Spp.: 64 Non-Native Spp.: 33
 FQAI: 10.63 Percent Native: 48%

(non native species are in bold)

Species	Common Name	Type	CC	Frequency (species/quadrat)	Relative Frequency	
<i>Amaranthus albus</i>	Pig weed	forb	0	0.03	0.5%	
<i>Ambrosia artemisiifolia</i>	common ragweed	forb	0	0.23	3.6%	
<i>Ambrosia trifida</i>	Giant ragweed	forb	0	0.03	0.5%	
<i>Andropogon gerardii</i>	Big blue stem	graminoid	5	0.17	2.6%	
<i>Asclepias syriaca</i>	Milkweed	forb	1	0.03	0.5%	
<i>Aster novae-angliae</i>	New England aster	forb	2	0.07	1.0%	
<i>Aster pilosus</i>	Heath aster	forb	1	0.07	1.0%	
<i>Bouteloua curtipendula</i>	Side oats gramma	graminoid	8	0.03	0.5%	
<i>Carex cristatella</i>	Crested sedge	graminoid	3	0.03	0.5%	
<i>Cornus racemosa</i>	Gray dogwood	shrub	1	0.03	0.5%	
<i>Elymus canadensis</i>	Canada wild rye	graminoid	6	0.30	4.6%	
<i>Erechtites hieracifolia</i>	Pilewort	forb	2	0.03	0.5%	
<i>Erigeron annuus</i>	Daisy fleabane	forb	0	0.07	1.0%	
<i>Galium aparine</i>	Cleavers	forb	0	0.03	0.5%	
<i>Monarda fistulosa</i>	Bergamot	forb	3	0.10	1.5%	
<i>Morus rubra</i>	Red mulberry	tree	7	0.10	1.5%	
<i>Muhlenbergia schreberi</i>	Nimblewill	graminoid	0	0.03	0.5%	
<i>Panicum clandestinum</i>	Deer tongue	graminoid	2	0.07	1.0%	
<i>Panicum virgatum</i>	Switch grass	graminoid	4	0.40	6.2%	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	vine	2	0.20	3.1%	
<i>Plantago rugellii</i>	Red-stemmed plantain	forb	0	0.03	0.5%	
<i>Ratibida pinnata</i>	Gray headed coneflower	forb	5	0.03	0.5%	
<i>Rudbeckia hirta</i>	Black-eyed Susan	forb	1	0.03	0.5%	
<i>Schizachyrium scoparium</i>	Little bluestem	graminoid	5	0.07	1.0%	
<i>Silphium laciniatum</i>	Compass plant	forb	8	0.03	0.5%	
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<i>Toxicodendron radicans</i>	Poison ivy	forb	1	0.07	1.0%	
<i>Tradescantia ohioensis</i>	Ohio spider wort	forb	5	0.03	0.5%	
<i>Viburnum prunifolium</i>	Blackhaw vibernum	shrub	4	0.03	0.5%	
<i>Vitis sp.</i>	Grapevine	vine	3	0.07	1.0%	
<i>Agrostis stolonifera</i>	Creeping bent grass	graminoid	0	0.03	0.5%	
<i>Barbarea vulgaris</i>	Yellow rocket	forb	0	0.03	0.5%	
<i>Bromus commutatus</i>	Meadow brome	graminoid	0	0.03	0.5%	
<i>Bromus japonicus</i>	Japanese brome	graminoid	0	0.50	7.7%	
<i>Carduus nutans</i>	Nodding thistle	forb	0	0.03	0.5%	
<i>Carum carvi</i>	Caraway	forb	0	0.03	0.5%	
<i>Cirsium arvense</i>	Canada thistle	forb	0	0.07	1.0%	
<i>Cirsium vulgare</i>	bull thistle	forb	0	0.27	4.1%	
<i>Conium maculatum</i>	Poison hemlock	forb	0	0.07	1.0%	
<i>Daucus carota</i>	Queen Anne's lace	forb	0	0.43	6.7%	
<i>Echinochloa crus-galli</i>	Barnyard grass	graminoid	0	0.03	0.5%	
<i>Festuca elatior</i>	Tall fescue	graminoid	0	0.17	2.6%	
<i>Festuca pratensis</i>	Meadow fescue	graminoid	0	0.07	1.0%	
<i>Glechoma hederacea</i>	Ground ivy	forb	0	0.13	2.1%	
<i>Hordeum jubatum</i>	Squirrel tail	graminoid	0	0.07	1.0%	
<i>Lolium perenne</i>	Perennial rye	graminoid	0	0.03	0.5%	
<i>Lonicera maackii</i>	Bush honeysuckle	shrub	0	0.20	3.1%	
<i>Medicago lupulina</i>	Black medic	forb	0	0.03	0.5%	
<i>Melilotus officinalis</i>	Yellow sweet clover	forb	0	0.07	1.0%	
<i>Morus alba</i>	White mulberry	tree	0	0.03	0.5%	
(not applicable)	Regreen	graminoid	0	0.17	2.6%	
<i>Phleum pratense</i>	Timothy	graminoid	0	0.30	4.6%	
<i>Plantago lanceolata</i>	narrowleaf plantain	forb	0	0.13	2.1%	
<i>Poa trivialis</i>	Roughstalk bluegrass	graminoid	0	0.03	0.5%	
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<i>Polygonum persicaria</i>	Spotted ladies thumb	forb	0	0.03	0.5%	
<i>Rosa multiflora</i>	Multiflora rose	shrub	0	0.17	2.6%	
<i>Setaria faberi</i>	Giant foxtail	graminoid	0	0.03	0.5%	
<i>Setaria viridis</i>	Green foxtail	graminoid	0	0.03	0.5%	
<i>Taraxacum officinale</i>	Dandelion	forb	0	0.13	2.1%	
<i>Trifolium pratense</i>	Red clover	forb	0	0.40	6.2%	
<i>Trifolium repens</i>	White clover	forb	0	0.03	0.5%	
<i>Xanthium strumarium</i>	Common cocklebur	forb	0	0.03	0.5%	
				Native Species:	2.63	40.5%
				Non-Native Species:	3.87	59.5%

CC = Coefficient of Conservatism
 FQAI = Floristic Quality Assessment Index

Table 3C
Eco Park Prairie
2004 Functional Monitoring Data Summary

Mean CC:	1.65	Native Spp.:	40
Total Spp.:	66	Non-Native Spp.:	26
FQAI:	13.42	Percent Native:	61%

(non native species are in bold)

Species	Common Name	Type	CC	Frequency (species/quadrat)	Relative Frequency
<i>Acalypha rhomboidea</i>	Three seeded mercury	forb	0	0.03	0.5%
<i>Acer negundo</i>	Box elder seedling	tree	3	0.03	0.5%
<i>Acer saccharinum</i>	Silver maple seedling	tree	3	0.03	0.5%
<i>Achillea millefolium</i>	Yarrow	forb	1	0.17	2.6%
<i>Agrimonia parviflora</i>	Small flowered agrimony	forb	2	0.03	0.5%
<i>Ambrosia artemisiifolia</i>	Common ragweed	forb	0	0.03	0.5%
<i>Andropogon gerardii</i>	Big bluestem	graminoid	5	0.33	5.2%
<i>Apocynum cannabinum</i>	Indian hemp	forb	1	0.03	0.5%
<i>Asclepias syriaca</i>	Common milkweed	forb	1	0.03	0.5%
<i>Aster novae-angliae</i>	New England aster	forb	2	0.17	2.6%
<i>Aster pilosus</i>	Heath aster	forb	1	0.10	1.6%
<i>Bouteloua curtipendula</i>	Side oats grama	graminoid	8	0.03	0.5%
<i>Carex blanda</i>	Woodland sedge	graminoid	1	0.03	0.5%
<i>Carex cephalophora</i>	Oval-headed sedge	graminoid	5	0.03	0.5%
<i>Carex frankii</i>	Franks sedge	graminoid	2	0.10	1.6%
<i>Carex stipata</i>	Owlfruit sedge	graminoid	2	0.03	0.5%
<i>Elymus canadensis</i>	Canada wild rye	graminoid	6	0.30	4.7%
<i>Erigeron annuus</i>	Daisy fleabane	forb	0	0.03	0.5%
<i>Euthamia graminifolia</i>	Lance leaved goldenrod	forb	2	0.03	0.5%
<i>Gleditsia triacanthos</i>	Honey locust	tree	4	0.07	1.0%
<i>Helianthus tuberosus</i>	Jerusalem artichoke	forb	3	0.03	0.5%
<i>Heliopsis helianthoides</i>	False sunflower	forb	5	0.03	0.5%
<i>Juncus tenuis</i>	Poverty rush	graminoid	1	0.03	0.5%
<i>Monarda fistulosa</i>	Bergamot	forb	3	0.07	1.0%
<i>Muhlenbergia schreberi</i>	Nimblewill	graminoid	0	0.17	2.6%
<i>Panicum virgatum</i>	Switchgrass	graminoid	4	0.13	2.1%
<i>Parthenocissus quinquefolia</i>	Virginia creeper	vine	2	0.03	0.5%
<i>Physalis heterophylla</i>	Clammy ground cherry	forb	1	0.03	0.5%
<i>Ratibida pinnata</i>	Gray headed coneflower	forb	5	0.13	2.1%
<i>Rudbeckia hirta</i>	Black eyed Susan	forb	1	0.07	1.0%
<i>Schizachyrium scoparium</i>	Little bluestem	graminoid	5	0.10	1.6%
<i>Solidago canadensis</i>	Canada goldenrod	forb	1	0.87	13.5%
<i>Solidago rigida</i>	Stiff goldenrod	forb	8	0.03	0.5%
<i>Sorghastrum nutans</i>	Indian grass	graminoid	5	0.10	1.6%
<i>Toxicodendron radicans</i>	Poison ivy	forb	1	0.03	0.5%
<i>Ulmus sp.</i>	Elm seedling	tree	2	0.43	6.8%
<i>Verbena urticifolia</i>	White vervain	forb	3	0.03	0.5%
<i>Verbesina alternifolia</i>	Wingstem	forb	5	0.03	0.5%
<i>Vernonia gigantea</i>	Iron weed	forb	2	0.43	6.8%
<i>Vitis sp.</i>	Grapevine	vine	3	0.03	0.5%
<i>Agrostis gigantea</i>	Red top	graminoid	0	0.03	0.5%
<i>Allium vineale</i>	Field garlic	forb	0	0.07	1.0%
<i>Barbarea vulgaris</i>	Yellow rocket	forb	0	0.13	2.1%
<i>Bromus inermis</i>	Smooth brome	graminoid	0	0.03	0.5%
<i>Carduus nutans</i>	Nodding thistle	forb	0	0.03	0.5%
<i>Cirsium arvense</i>	Canada thistle	forb	0	0.03	0.5%
<i>Cirsium vulgare</i>	Bull thistle	forb	0	0.03	0.5%
<i>Daucus carota</i>	Queen Anne's lace	forb	0	0.03	0.5%
<i>Festuca elatior</i>	Tall fescue	graminoid	0	0.17	2.6%

Table 3C
Eco Park Prairie
2004 Functional Monitoring Data Summary

6028

Species	Common Name	Type	CC	Frequency (species/quadrat)	Relative Frequency	
<i>Festuca pratensis</i>	Meadow fescue	graminoid	0	0.13	2.1%	
<i>Glechoma hederacea</i>	Ground ivy	forb	0	0.10	1.6%	
<i>Lactuca serriola</i>	Prickly lettuce	forb	0	0.07	1.0%	
<i>Lepidium campestre</i>	Field pepper weed	forb	0	0.03	0.5%	
<i>Phleum pratense</i>	Timothy	graminoid	0	0.03	0.5%	
<i>Plantago lanceolata</i>	Narrowleaf plantain	forb	0	0.03	0.5%	
<i>Poa trivialis</i>	Rough stalk bluegrass	graminoid	0	0.20	3.1%	
<i>Polygonum convolvulus</i>	Black bindweed	forb	0	0.07	1.0%	
<i>Polygonum persicaria</i>	Spotted ladies thumb	forb	0	0.03	0.5%	
<i>Potentilla recta</i>	Rough fruited cinquefoil	forb	0	0.03	0.5%	
<i>Rumex crispus</i>	Curly dock	forb	0	0.03	0.5%	
<i>Saponaria officinalis</i>	Soapwort	forb	0	0.03	0.5%	
<i>Senecio glabellus</i>	Butter weed	forb	0	0.03	0.5%	
<i>Setaria glauca</i>	Yellow fox tail	graminoid	0	0.03	0.5%	
<i>Solanum carolinense</i>	Horse nettle	forb	0	0.40	6.3%	
<i>Sonchus arvensis</i>	Field sow thistle	forb	0	0.03	0.5%	
<i>Trifolium repens</i>	White clover	forb	0	0.03	0.5%	
				Native Species:	4.50	70.3%
				Non-Native Species:	1.90	29.7%

CC = Coefficient of Conservatism
FQAI = Floristic Quality Assessment Index

FIGURE 1
AREA 1, PHASE 1 WETLAND MITIGATION PROJECT
WETLAND DELINEATION

LIDAR DATE: MAY 17, 2005



SCALE: 1" = 150'

POINT
P1
AND

TOTAL OF WETLAND
AREAS = 5.34 AC.

LEGEND

HEADWALL
EXTENT OF DELINEATED WETLAND