

Implementation of Wetland Health Assessment Monitoring Programs



Compiled by:

**The Oklahoma Conservation Commission
Water Quality Division**

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OCC #563**

**September 2006
Draft Final Report**

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Task 1: Volunteer Training

- Detailed workplan
- Training materials (sent 6/3/06)
- List of attendees

WORKPLAN

Agency: Oklahoma Conservation Commission
in cooperation with
Oklahoma's 88 Conservation Districts
Oklahoma Water Resources Board
Oklahoma's Wetland Working Group

Title: Implementation of Wetland Health Assessment Monitoring Programs

Background:

By conservative estimates, wetland acreage in Oklahoma has decreased by approximately sixty-seven percent over the past two hundred years. Furthermore, additional ecological stresses, such as nutrient enrichment and altered hydrologic regimes, play an ever increasing role in the ecological health of existing wetlands. Since the restoration of 1.9 million wetland acres is not currently feasible, proper conservation and protection efforts of existing wetland resources is essential. Moreover, data pertaining to the ecological health of these wetland systems is equally important. Ecological health addresses issues more complex than simple chemical or biological assessments, but rather attempts to monitor the ability of the system to properly function in a sustainable manner.

In the Fiscal Year 2001 EPA Region 6 104(b)(3) wetlands grants solicitation notice, the continuation and implementation of wetland protection programs designed to assess and monitor wetland health is listed as a priority. The Wetland Health Assessment Monitoring (WHAM) program was developed by The University of Oklahoma Environmental Science program and the Oklahoma Water Resources Board, with funding from EPA. The WHAM volunteering monitoring program established protocols to evaluate and protect the ecological health of wetland ecosystems, by providing baseline environmental data on water quality, wildlife, vegetation, groundwater, surface water and soils. However, emphasis can be placed on attributes of specific wetland types (i.e., playa lakes, marshes, cypress swamps) or needs (i.e., endangered species identification).

The implementation of WHAM not only provides wetland scientists valuable data pertaining to the ecological health of critical wetland habitat, but also serves as a means to educate the public about wetland resources. One of the goals of WHAM is to promote the awareness, appreciation, knowledge and stewardship of wetlands within their community. By instilling a conservation ethic within those involved and establishing "ownership" over local wetlands, wetland conservation is broadened within the public.

Project Goals:

The goal of WHAM implementation is two-fold. First, to provide an abundance of quality environmental data assessing the health of critical wetlands in Oklahoma. Second, to encourage a wetland conservation ethic within local communities through education and volunteer monitoring efforts.

Project Objectives:

1. To develop and maintain a database of detailed environmental data on the ecological health of critical wetlands within Oklahoma.
2. Train environmentally minded citizens to monitor the ecological health of wetland habitats in their local communities.

Coordination with Oklahoma's Comprehensive Wetlands Conservation Plan Objectives:

Objective 4: To characterize the wetlands resource more completely and identify the critical functions of the major wetland types of Oklahoma wetlands.

Objective 7: To develop information/education programs on Oklahoma's wetlands resources.

Measures of Success:

1. Establishment of at least 5 volunteer monitoring groups within Oklahoma County.
2. Development of database containing data pertinent to the ecological health of wetland resources in urban areas of Oklahoma.

Workplan:

Task 1: Annual training of volunteer groups and program oversight. This will ensure that data provided by the volunteers is high quality, provide the necessary supplies to complete the monitoring procedures and allow project oversight by Commission staff. This will include the development and approval of a Quality Assurance Project Plan prior to the collection and data.

Milestone Date: August 2003

Deliverable: Pre- and post training test and a listing of attendees

Cost: \$37,177 (\$27,883 Federal)

Justification: By providing proper training of volunteers, the Conservation Commission can ensure the quality of the data collected by volunteer groups. Training should occur on an annual basis for two reasons. First, due to the dynamic nature of many volunteer groups, annual training will provide consistency in data collection procedures, methods and techniques. Second, since many of these volunteers are not fully trained scientists, annual training will provide a "refresher course" in wetland science.

Task 2: Database management by the Oklahoma Water Resources Board will ensure quality control and assess trends in wetland health. Data will be delivered from volunteer groups to the Commission via the internet, making the learning experience more interactive.

Milestone Date: October 2004

Deliverable: Raw and summarized data collected over the project duration.

Cost: \$11,421 (\$8,566 Federal)

Task 3: On-site wetland education emphasizing the need to conserve wetland ecosystems. This will be accomplished by providing at least 3 WOW! (Wonders of Wetlands) workshops.

Milestone Date: January 2002 – July 2004

Deliverable: Letter report identifying agenda, curriculum, location and attendees.

Cost: \$12,054 (\$9,040 Federal)

Task 4: Final Report

Milestone Date: October 2004

Deliverable: Final report emphasizing the "how to" aspects of implementing a volunteer monitoring program for wetlands.

Cost: \$3,720 (\$2,790 Federal)

Resource Allocation:

State \$16,093
Federal \$48,279
Total \$64,372

Budget Categories:

	<i>Federal</i>	<i>State</i>	<i>Total</i>
Personnel	\$26,150	\$8,717	\$34,867
Fringe Benefits	\$5,099	\$1,700	\$6,799
Equipment	\$0	\$0	\$0
Travel	\$2,200	\$733	\$2,933
Supplies	\$5,600	\$1,867	\$7,467
Contracting	\$4,000	\$1,333	\$5,333
Total Direct Charges	\$43,049	\$14,350	\$57,399
Indirect Charges @ 20%	\$5,230	\$1,743	\$6,973
<i>Total</i>	<i>\$48,279</i>	<i>\$16,093</i>	<i>\$64,372</i>

Personnel:

<i>Personnel</i>	<i>Years</i>	<i>Cost</i>
Executive Director	0.025	\$1,550
Assistant Director	0.025	\$1,500
District Operations Director	0.03	\$1,740
Assistant District Operation Dir.	0.035	\$1,680
Administrative Officer	0.03	\$1,440
Wetlands Program Coordinator	0.69	\$22,250
Project Wet Coordinator	0.13	\$3,900
Administrative Assistant	0.03	\$807
<i>Total</i>		<i>\$34,867</i>

Supplies:

	Cost
Office Supplies (paper, pen, etc)	\$600
Resource Materials	\$2,255
Sampling Equipment	\$3,000
Waders, boots, camera, etc.	\$1,612
<i>Total</i>	<i>\$7,467</i>

TRAINING MATERIALS

Blue Thumb Wetland Training and Volunteer Workshop

Get involved in protecting your local wetlands! This volunteer training/workshop will provide information concerning wetland:

Water chemistry monitoring
Plant inventories
Important wetland animals and their calls
Photo documentation

This training/workshop is designed for people who can make a commitment for monthly wetland monitoring for at least 12 months. This activity is perfect for:
*families conservation professionals
4-H groups and scouts retired people
science clubs biology classes*

*****No former monitoring experience is required. Learn what you need to know and receive a test kit at the workshop*****



The Wetland Volunteer Training/Workshop is sponsored by the Oklahoma Conservation Commission's Wetland Program and Blue Thumb Water Pollution Education Program.

Participants pay no workshop fees

□

Overnight lodging is covered through a wetlands grant

□

Most meals are provided

□

Participants leave the workshop with test kits and tools for monitoring/documentation

□

Wetland teams are eligible to receive a funding stipend to cover additional materials for the purpose of monitoring/learning more about wetlands

□

Workshop is limited to first 25 who register

□

For more information, please contact:
Cheryl Cheadle at 918-280-1598 or
Chris Dubois at 405-522-4733.

News Release

8/26/04

Statewide Volunteer Wetlands Monitoring Training Offered

Contact: Chris DuBois, Oklahoma Conservation Commission, 405-522-4733

Oklahoma's wetlands are a remarkable resource, and now these swamps, bogs, marshes and sloughs are the target of a new volunteer monitoring effort. A two-day course called "Wetland Training and Volunteer Workshop" is being offered through the Oklahoma Conservation Commission's Wetlands Program and Blue Thumb Water Pollution Education Program.

The course is being held at OSU Okmulgee on October 16 and 17, 2004, a Saturday and Sunday. Participating in these two days will provide volunteers with the information and tools they need to begin wetland monitoring. Wetlands Program Coordinator Chris DuBois said, "We have the funding through a grant to cover lodging and most food costs for participants. We hope to get people from across the state," DuBois added that the course will run from 10:00 a.m. until 8:00 p.m. on Saturday, and from 8:30 a.m. until 4:00 p.m. on Sunday.

"Like with current Blue Thumb stream monitoring, volunteers will receive test kits and training on how to use them. Because wetlands will be the target, additional activities will go along with chemical monitoring, like plant identification, listening to amphibian calls, and photo documentation," DuBois explained. "It may sound involved," DuBois added "but it is work that volunteers are very capable of doing."

Volunteers are being sought from an array of backgrounds. Conservation professionals, school groups, 4-H clubs, even "families with wetlands on their property" can make excellent citizen monitors, DuBois stated. In addition to receiving training and test kits, monitoring groups can apply for a stipend that will provide additional monitoring materials, like plant identification books, waders, binoculars, and other supplies.

DuBois said that groups are asked to monitor their wetland sites monthly over the course of a year. "All volunteer groups will have help their first time on site, no matter where they are from, and where their wetland area is located," DuBois assured. To learn more about the Wetland Training and Volunteer Workshop, contact Chris DuBois at 405-522-4733.

Blue Thumb Wetland Training & Volunteer Workshop

October 16 & 17, 2004 OSU Okmulgee

Agenda (Saturday):

- 10:00 a.m. Arrival/registration
- 10:30 Introduction to Wetland Training/Welcome
- 11:15 Oklahoma's Wetland Program/Volunteer Training Goals
- 11:45 Oklahoma's Wetlands - Functions and Values
- 12:30 ***Lunch***
- 1:15 p.m. Watersheds
- 2:15 ***Break***
- 2:30 Wetland Tour
 - Plant ID; Sounds of Wetlands; Photo Documentation; On site Monitoring
 - Introduction; Observations; Transects; Wetland Soils
- 6:00 ***Dinner***
- 7:00 "The Call of the Wild" (frogs)
- 7:30 Wetland Plants
- 8:00 Discussion of Chemical Monitoring

(Sunday)

- 8:00 a.m. Breakfast on the Bus
- 8:30 Wetland Hike & Quizzes (Look and Listen)
- 10:30 Chemical Testing Training
- 12:00 ***Lunch***
- 12:45 Monitoring Continued
- 3:00 Monitoring Clean up
- 4:00 Distribution of Test Kits/Materials & Planning of Practice Sessions
- 4:30 Graduation

Blue Thumb Wetland Volunteer Responsibilities

The Blue Thumb Program is unique in that volunteers are especially well-trained and they participate in both monitoring and water pollution prevention educational activities.

As a Blue Thumb Wetland Volunteer, you will be expected to:

- Complete the Wetland Training
- Perform monthly monitoring (2 to 4 hours)
- Complete and mail data sheets in a timely manner
- Attend Quality Assurance Session at least twice a year

Optional Activities:

- Assist with aquatic macroinvertebrate collections and subsampling
- Attend Quality Assurance sessions* quarterly
- Visit local schools and organizations with information about your monitoring activities and water protection

*Quality Assurance sessions are held quarterly for Blue Thumb stream teams. Wetland monitors are asked to attend these sessions in your area, and an additional quality assurance session will be held with you on your site next spring. QA sessions are valuable because: you get the chance to converse with other volunteers; information pertinent to monitoring is often provided; you can check yourself for accuracy in chemical testing; and you can replenish your reagent supply.

LIST OF ATTENDEES

Blue Thumb Volunteer Wetland Monitors

FIRST NAME	LAST NAME	CITY	STATE	PHONE	E-MAIL
AUSMUS	AMBER	BUTLER	OK	580-664-2205	AMBER_AUSMUS@FWS.GOV
BOGLE	CHRIS	WARR ACRES	OK		CB0G34@YAHOO.COM
BONZON	MIDGE	OKC	OK	405-596-5960	MIDGE_BONZON@YAHOO.COM
DAY	STACEY	SHAWNEE	OK	405-878-6809	STACEYBDAY@YAHOO.COM
EDEN	SUSIE	PARK HILL	OK	918-453-0405	
EDEN	BETTY	PARK HILL	OK	918-453-0405	BLUEFAERIE07@STORIES.COM
EDEN	SAM	PARK HILL	OK	918-453-0405	
EDGE	CHANCE	BETHANY	OK	405-209-4727	CEGE@MAIL.SNU.EDU
FELL	GLEN	BETHANY	OK	405-491-6640	GFELL@SNU.EDU
GOODALL	TODD	CHEYENNE	OK		
HARRIS	WILMA	SKIATOOK	OK	918-396-2145	DEWILM@OKLAHOMA.NET
HAYWOOD	SCOTT	KAW CITY	OK	580-269-2552	SHAYWOOD@KAWNATION.COM
KELLER	SHAWN	KAW CITY	OK	580-269-2552	SKELLER@KAWNATION.COM
LANDON	BETH	OKC	OK	405-787-7579	SABREI@IONET.NET
MATHEWS	CAROLYN	GLENPOOL	OK	918-322-6009	CARE2USE@AOL.COM
NAVESKY	ANDREA	EDMOND	OK	405-922-1389	
RADTKE	AMY	NOBLE	OK	405-872-7982	ARADTKE@NOMAN.KLZ
ROWELL	GARY	TULSA	OK	918-252-5896	
SANCHEZ	JEFF	VIAN	OK	918-773-5251	JEFF_SANCHEZ@FWS.GOV
SCHAAL	STEVE	TULSA	OK	918-591-4391	SSCHAAL@CI.TULSA.OK.US
STALLBURG	CHAD	OKC	OK	580-497-3413	CROTALUS_H@HOTMAIL.COM

Task 2: Database Management

- Raw and summarized data collected

Since this grant was obtained through OCC and the implementation was performed by OCC staff, the database management was conducted through OCC rather than OWRB as originally stated in the workplan.

Blue Thumb Wetlands Data Sheet

Site Name: _____
 Legal/County: _____ Date (Mo/Dy/Yr): _____
 Lat/Long: _____ Site Time (Military): _____
 Samplers: _____

Wildlife And Amphibian Observations: Circle *all* that apply; discuss in comments:

Wildlife:

- 1 Skins
- 2 Feathers
- 3 Tracks/Prints
- 4 Shells
- 5 Dead Animals
- 6 Burrows
- 7 Feeding Evidence (fur, bones, scat, feathers strewn about)

Amphibians:

- 1 See Bullfrogs
- 2 Hear Bullfrogs
- 3 See or hear any other species of frogs, toads, or salamanders

Wildlife Name	Quantity	Dead/Alive

Site Conditions: Circle one item from each column. Data is important for future verification.

Do not monitor if lightning is occurring.

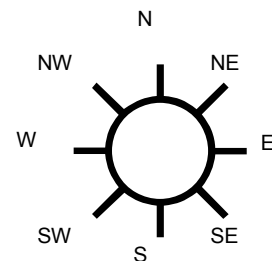
WEATHER

- 1 Fair Skies
- 2 Overcast
- 3 Haze
- 4 Fog
- 5 Drizzle
- 6 Intermittent Rain
- 7 Rain
- 8 Heavy Rain
- 9 Snow/Sleet/Ice

WIND SPEED

- 1 Calm (<1 mph)
- 2 Light air; smoke drift (1-3 mph)
- 3 Light breeze; felt on face (4-7mph)
- 4 Leaves/ twigs move (8-12mph)
- 5 Branches move (13-18mph)
- 6 Small trees sway (19-24 mph)
- 7 Large branches sway (25-31 mph)
- 8 Hard to walk (32-38 mph)
- 9 Other (branches breaking/roofing flying/trees uprooted)

WIND DIRECTION
 (From which wind is blowing)



Temperature: Always measure air temperature first. Measure both for 2 minutes.

Air: _____ °C Water: _____ °C (Put bulb 15 cm below surface. Read while still in water.)

Assessing Surrounding Land Use: Circle *all* that apply; discuss in comments:

Human Impacts (land uses):

- 1 Undisturbed natural vegetation
- 2 Residential housing
- 3 Construction site
- 4 Agriculture, grazing, crop cultivation
- 5 Commercial development (offices)
- 6 Industrial development
- 7 Railroads
- 8 Sewage treatment
- 9 Park, recreation area
- 10 Oil, gas drilling
- 11 Open fields

Signs Of Degradation:

- 1 Soil, gravel, vegetation Dumping
- 2 Man-made materials/trash Dumping
- 3 Grading (topsoil removal)
- 4 Water draining *Out* of wetland
- 5 Water draining *Into* wetland (pipes, parking lots, industrial type buildings)
- 6 Water channeling (trenches, ditches)
- 7 All terrain vehicle/tire tracks
- 8 Livestock usage (look for prints)
- 9 Silt, sandy, or gravel deposits (runoff)
- 10 Stream bank erosion
- 11 Dredging (soil removal, channel digging)

Hydrology Assessment:

Staff Gauge:

Staff measurement _____ cm

Crest measurement _____ cm

Groundwater Sampler:

****subtract measurement from well depth**

Well depth (pipe top to ground) = _____ cm

Distance from pipe top to water = _____ cm

Groundwater depth = _____ cm

Comments:

Dissolved Oxygen Test

RANGE	COMMENTS	READING	CALCULATION S	mg/L D.O.
High - use this most of the time.	Count drops of sodium thiosulfate to bring about color change from yellow (or blue) to colorless. Don't go beyond.	No Blank 1. _____ 2. _____	None. Each drop = 1 mg/L of dissolved oxygen.	1. _____ mg/L 2. _____ mg/L
Low - switch to this if reading is less than 3	Pour off contents to 30 ml. Each drop = 0.2 mg/L D.O.	No Blank 1. _____ 2. _____	Multiply # drops by 0.2.	1. _____ mg/L 2. _____ mg/L

Note: This test is the reason you must try to monitor in the a.m. at the same time each month. Do this test before carrying remainder of sample indoors to complete other tests.

pH Test:

No Blank	1. ____ pH	2. ____ pH
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Nitrate Nitrogen Test:

RANGE	COMMENTS	READING	CALCULATION	mg/L N
Low: 0-1 mg/L N read directly on wheel.	Use 5.0 ml of sample: the line just below frosted part of test tube.	Blank ____ 1. ____ 2. ____	None.	Blank ____ mg/L 1. ____ mg/L 2. ____ mg/L
Mid: 1-5 mg/L N	Use the dropper to get a 1.0 ml sample.	Blank ____ 1. ____ 2. ____	Multiply by 5.	Blank ____ mg/L 1. ____ mg/L 2. ____ mg/L

Note: For mid-range test, bring sample up to 5 ml level by adding deionized rinse water.

Ammonia Nitrogen Test:

	0.0 - 0.2 mg/L NH ₃ -N	0.2 - 0.4 mg/L NH ₃ -N	0.4 - 0.6 mg/L NH ₃ -N	0.6 - 0.8 mg/L NH ₃ -N	0.8 - 1.0 mg/L NH ₃ -N
Blank					
1.					
2.					

Note: Match the color of the sample to the color on the cube and check your result above.

Orthophosphate Phosphorus Test:

RANGE	COMMENTS	READING	CALCULATION	mg/L P
Low: 0 - 1 mg/L PO ₄ 0 - 0.33 mg/L P	Use mirror and no caps.	Blank ____ 1. ____ 2. ____	Divide by 150. (See below)	Blank ____ mg/L 1. ____ mg/L 2. ____ mg/L
Mid: 0 - 5 mg/L PO ₄ 0 - 1.67 mg/L P	Read directly through the sample. Do not use the mirror.	Blank ____ 1. ____ 2. ____	Divide by 30.	Blank ____ mg/L 1. ____ mg/L 2. ____ mg/L

Notes: Use one packet per test. Read after 8 minutes.

1/150 = 0.007	5/150 = 0.033	9/150 = 0.06	13/150 = 0.087	17/150 = 0.113
2/150 = 0.013	6/150 = 0.04	10/150 = 0.067	14/150 = 0.093	18/150 = 0.12
3/150 = 0.02	7/150 = 0.047	11/150 = 0.073	15/150 = 0.10	19/150 = 0.127
4/150 = 0.027	8/150 = 0.053	12/150 = 0.08	16/150 = 0.107	20/150 = 0.133

Rinse Procedures:

1. Before blank test:
 - Rinse twice with deionized water.
2. After blank test:
 - Rinse 3X with deionized water.
3. Before 1st sample test:
 - Rinse twice with sample water
4. After 1st sample test:
 - Rinse twice with sample water.
 - Rinse twice with deionized water.
 - Rinse twice with sample water.
5. After last test:
 - Rinse twice with sample water.
 - Rinse twice with deionized water.

Rules for Monitoring:

1. Dissolved Oxygen is done on site.
2. **Always run blanks** using deionized water.
3. Use sample water in the comparator tubes.
4. Fill in raw data and calculated data.
5. Rinse, rinse, rinse. We've learned the hard way that a bit of residue left from a previous test will alter the results.
6. Achieve repeatability.
7. Deliver the data sheet to the Statewide Blue Thumb Office in Tulsa.
8. Wash all equipment in the lab detergent provided. Rinse 3X in hot tap water. Rinse 3X with deionized water. Allow equipment to air dry. Put equipment away. Store in temperature controlled environment out of the reach of children.

For help or information call:
Jean Lemmon or Cheryl Cheadle (918) 280-1598
Chris DuBois (405) 522-4733
Kim Shaw (405) 522-4738

Blue Thumb Wetlands Sketch Sheet

Site Name: _____

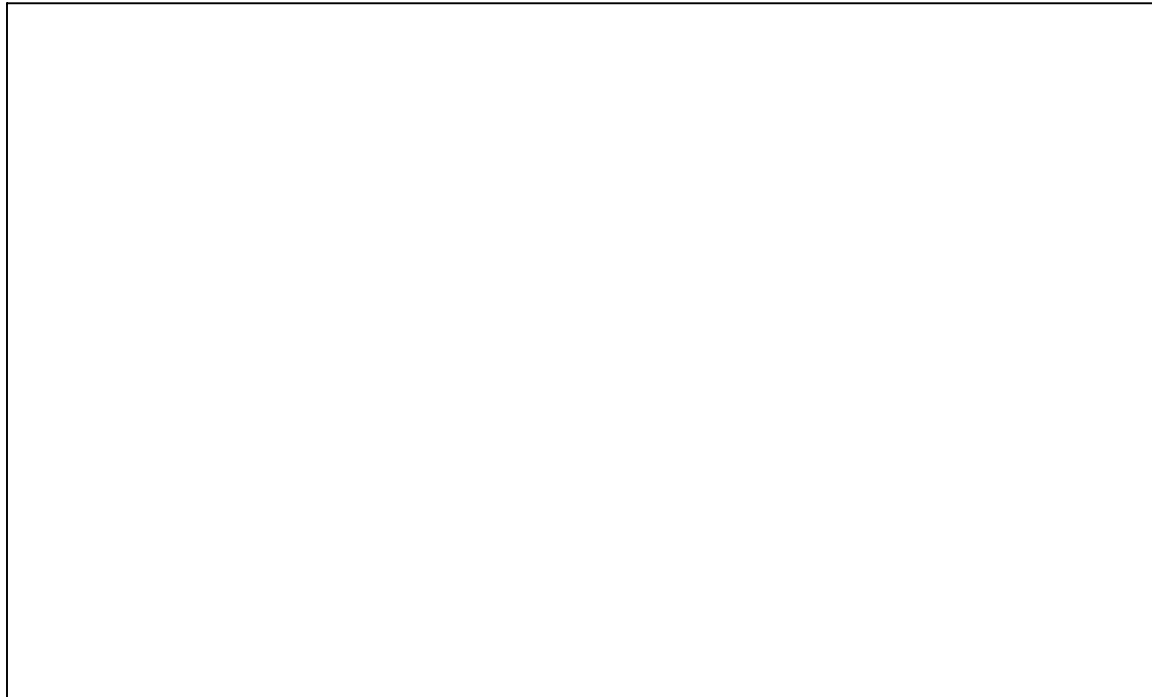
Legal/County: _____

Date (Mo/Dy/Yr): _____

Lat/Long: _____

Site Time (Military): _____

Artist: _____



Legend:



Estimated Wetland Size:

- 1 <1 acre (the size of 1 football field is about 1 acre)
- 2 _____ acres

NOTES:



Blue Thumb Wetlands Photopoint Identification Sheet

Site Name: _____

Legal/County: _____ Lat/Long: _____

Site Time (Military): _____ Samplers: _____

NOTE: Be sure to make your numbers legible! As a suggestion, write your numbers like this: 1 2
3 4 5 6 7 8 9 0 ****USE A SHARPIE MARKER****

(It's best to stand at least four feet from the camera. Put your site number above in big black numbers so the camera can read it clearly.)

(Put the heading of your photo here. For example, when facing directly left, if your compass reads northeast 35 degrees, write NE35. Write Clearly.)

(Put the date above using dashes. If it's November 18, 2004, you should write 11-18-04 above. Be sure to write clearly, you're going to have to use this as a reference later!)

Blue Thumb Wetlands Soil Sheet

Site Name: _____

Legal/County: _____ Date (Mo/Dy/Yr): _____

Lat/Long: _____ Site Time (Military): _____

Samplers: _____

Assess soil conditions at every site along the transect **BEGINNING** with the **UPLAND** starting point (100 ft.) and working toward the wetland.

		100 ft.	50 ft.	0 ft.
Sulfur Smell	15 cm	Yes or No	Yes or No	Yes or No
	30 cm	Yes or No	Yes or No	Yes or No
	45 cm	Yes or No	Yes or No	Yes or No

Mottles	15 cm	Yes or No	Yes or No	Yes or No
	30 cm	Yes or No	Yes or No	Yes or No
	45 cm	Yes or No	Yes or No	Yes or No

Soil Color	15 cm			
	30 cm			
	45 cm			

Circle either Yes or No for sulfur smell and mottles at each site along the transect and at each depth.

	100 ft.	50 ft.	0 ft.
Muck Layer	Yes or No	Yes or No	Yes or No
**standing water depth			

When you reach **STANDING WATER**, skip soil assessment and record if there is a Muck Layer.

****Write down depth of the standing water**

Bottom of Hole:

		100 ft.	50 ft.	0 ft.
Standing Water Depth	15 cm			
	30 cm			
	45 cm			

Soil Surface to Groundwater Depth	15 cm			
	30 cm			
	45 cm			



Blue Thumb Wetland Meeting Reminder!!!!

I hope everyone had a nice Thanksgiving. During the holiday season work can sometimes get pushed aside, but this is to remind you of the Wetland Volunteer Meeting:

Date: Friday, December 16th

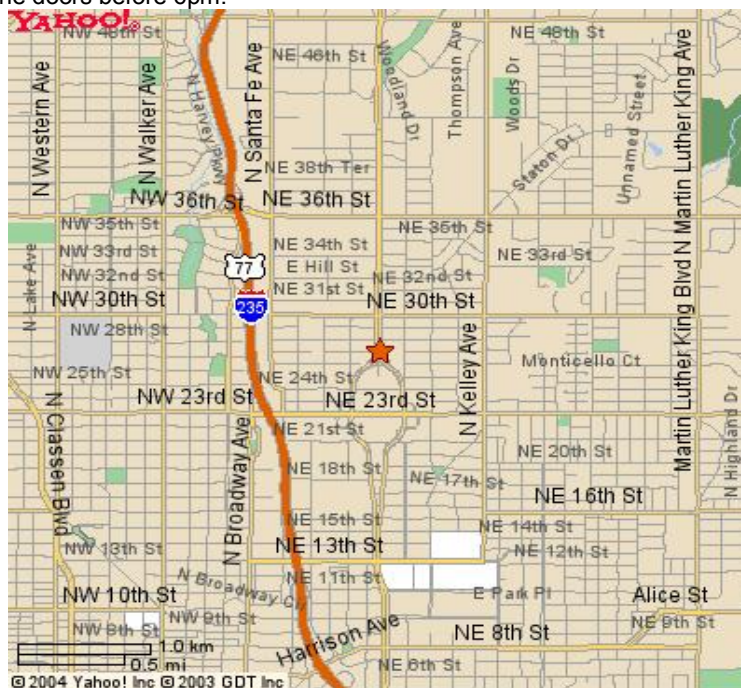
Time: 6pm to around 830pm

Place: Agriculture Building in OKC
(see below directions)

As I mentioned in the November Blue Thumb Newsletter I sent to you, please come prepared with your thoughts, comments, ideas on how we could improve the program, monitoring, datasheets, etc. *Make sure and bring your test kits with you because you will need them all for the quality assurance. Reagents will be restocked at this time as well. We will have a brief discussion covering the general aspects of all the wetlands being monitored and show off some of the photopoint pictures you have taken. A very important topic we will cover is using your knowledge on how to educate the public in your area about wetlands and the work you have done. So please think about different newsletters, papers, public documents, etc. in your area that the people read where an article could be posted to inform the public on wetlands. If you have any questions please contact me: office (405)522-4738 cell (405)627-3787. Otherwise I will see you on Friday, December 16th at 6pm.

The Agriculture Building: 2800 N. Lincoln Blvd., Oklahoma City

From I-40 take I-235 North. Exit onto Lincoln Blvd. and go North. Follow Lincoln Blvd. around the State Capital. At the stoplights on Lincoln Blvd. and NE 28th St. turn right and then take your immediate right into the parking lot of the Agriculture building. Park out front of the main entrance (south side of the building) and I will be there to greet you since I think they lock the doors before 6pm.



Oklahoma Blue Thumb Quality Assurance Session December, 2005

Name	
Wetland Site, County	
pH	_____
NO ₂ -N	_____mg/L
DO	_____
NO ₃ -N	_____mg/L
NH ₃ -N	_____mg/L
PO ₄ -P	_____mg/L
Air Temp.	_____°C
Water Temp.	_____°C



Blue Thumb Wetland Monitoring

Quality Control Assessment

Name: _____

Date: _____

1. Why are bad data worse than no data at all?
2. Should you rely on your memory or write down data and observations as you go along through the monitoring sequence? Why?
3. Which of the following sequences is correct?

<input type="checkbox"/> Hydrology	<input type="checkbox"/> Wildlife	<input type="checkbox"/> Soils
Soils	Transects	Hydrology
Transects	Soils	Wildlife
Wildlife	Hydrology	Transects
4. What can the surrounding land use tell us about the wetland?
5. Which of the following **MUST** be included when sketching your wetland? (check all that apply)

<input type="checkbox"/> transects	<input type="checkbox"/> photopoints	<input type="checkbox"/> buffers
<input type="checkbox"/> nests	<input type="checkbox"/> compass direction	<input type="checkbox"/> burrows
6. What is/are the purposes for photographing the wetland?
7. What does the staff gauge measure?
8. What does the groundwater sampler measure?
9. When observing wildlife, which of the following should you **NOT** do? (check all that apply)

<input type="checkbox"/> put your hand in a burrow	<input type="checkbox"/> note any nests or tracks
<input type="checkbox"/> approximate the number of birds in a flock	<input type="checkbox"/> collect butterflies

10. Amphibian Calls: Which call is the bullfrog?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

11. Which picture is the bullfrog?

- ☐ A
- ☐ B
- ☐ C
- ☐ D

12. Which soil DOES NOT exhibit hydric characteristics (mottles, oxidized rhizospheres, etc.)?

- ☐ A
- ☐ B
- ☐ C
- ☐ D

13. Which plant is the invasive purple loosestrife?

- ☐ A
- ☐ B
- ☐ C
- ☐ D

14. Name that plant

- A)
- B)
- C)
- D)

15. Name that animal

- A)
- B)
- C)
- D)

SITE INFORMATION

SAMPLEID	WBID	Site Name	Latitude	Longitude	Legal Description	County	State	Date	Time
31673	Wetland-001	Marsh-O-Muck Wetland Area			NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	25-Jan-05	10:15:00 AM
31674	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	11-Jan-05	9:00:00 AM
31675	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	21-Jan-05	11:00:00 AM
31676	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	27-Jan-05	9:33:00 AM
31677	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	11-Jan-05	9:40:00 AM
32175	Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111	NW¼ Section 23 13E 18N	Tulsa	OK	21-Jan-05	3:00:00 PM
32176	Wetland-009	Durrett Outdoor Classroom Wetland			SE¼ SE¼ SW¼ Section 9 16N 22E	Cherokee	OK	21-Jan-05	3:35:00 PM
32177	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	29-Jan-05	9:00:00 AM
32178	Wetland-010	Beaver Creek Wetland	36.84732778	-96.75916389	SW¼ Section 3 27N 5E	Kay	OK	31-Jan-05	10:45:00 AM
32608	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	14-Feb-05	11:45:00 AM
32609	Wetland-010	Beaver Creek Wetland	36.84732778	-96.75916389	SW¼ Section 3 27N 5E	Kay	OK	14-Feb-05	1:30:00 PM
32610	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	15-Feb-05	9:00:00 AM
32611	Wetland-009	Durrett Outdoor Classroom Wetland			SE¼ SE¼ SW¼ Section 9 16N 22E	Cherokee	OK	19-Feb-05	8:00:00 AM
32612	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	25-Feb-05	9:47:00 AM
32613	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	26-Feb-05	9:15:00 AM
32614	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	28-Feb-05	3:00:00 PM
32615	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	16-Mar-05	10:15:00 AM
32616	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	17-Mar-05	10:00:00 AM
32617	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	27-Mar-05	9:00:00 AM
32618	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	27-Mar-05	10:20:00 AM
32619	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	27-Mar-05	12:00:00 PM
32620	Wetland-009	Durrett Outdoor Classroom Wetland			SE¼ SE¼ SW¼ Section 9 16N 22E	Cherokee	OK	29-Mar-05	8:00:00 AM
32621	Wetland-001	Marsh-O-Muck Wetland Area			NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	31-Mar-05	8:36:00 AM
32622	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	18-Apr-05	8:45:00 AM
32623	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	18-Apr-05	10:20:00 AM
32624	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	19-Apr-05	8:00:00 AM
32625	Wetland-009	Durrett Outdoor Classroom Wetland			SE¼ SE¼ SW¼ Section 9 16N 22E	Cherokee	OK	22-Apr-05	8:00:00 AM
32626	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	28-Apr-05	8:00:00 AM
32627	Wetland-001	Marsh-O-Muck Wetland Area			NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	28-Apr-05	1:45:00 PM
32628	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	30-Apr-05	1:50:00 PM
32780	Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111	NW¼ Section 23 13E 18N	Tulsa	OK	31-Mar-05	4:57:00 PM
32781	Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111	NW¼ Section 23 13E 18N	Tulsa	OK	20-Dec-04	2:56:00 PM
32905	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	26-May-05	4:00:00 PM
32906	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	17-May-05	9:00:00 AM
32907	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	19-May-05	10:24:00 AM
32908	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	23-May-05	8:15:00 AM
32909	Wetland-009	Durrett Outdoor Classroom Wetland			SE¼ SE¼ SW¼ Section 9 16N 22E	Cherokee	OK	25-May-05	8:00:00 AM
32910	Wetland-001	Marsh-O-Muck Wetland Area			NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	31-May-05	11:03:00 AM
32911	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	18-May-05	9:15:00 AM
32990	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	14-Jun-05	9:30:00 AM
32991	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	15-Jun-05	9:55:00 AM
32992	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	27-Jun-05	8:30:00 AM
32993	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	28-Jun-05	8:40:00 AM
32994	Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111	NW¼ Section 23 13E 18N	Tulsa	OK	29-Jun-05	4:00:00 PM
32995	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	30-Jun-05	9:45:00 AM
32996	Wetland-001	Marsh-O-Muck Wetland Area			NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	30-Jun-05	11:00:00 AM
33397	Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556	SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	13-Jul-05	9:00:00 AM
33398	Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111	NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	13-Jul-05	10:00:00 AM
33399	Wetland-003	Midwest City Wetland	35.50408333	-97.40133333	NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	26-Jul-05	9:20:00 AM
33400	Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889	SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	27-Jul-05	10:00:00 AM
33401	Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111	NW¼ Section 23 13E 18N	Tulsa	OK	29-Jul-05	2:00:00 PM
33402	Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111	NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	30-Jul-05	12:55:00 PM

33876 Wetland-001	Marsh-O-Muck Wetland Area		NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	23-Feb-05	8:45:00 AM
33877 Wetland-001	Marsh-O-Muck Wetland Area		NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	29-Jul-05	10:23:00 AM
33878 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	01-Aug-05	9:10:00 AM
33879 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	19-Aug-05	9:10:00 AM
33880 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	23-Aug-05	8:45:00 AM
33881 Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889 SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	29-Aug-05	8:30:00 AM
33882 Wetland-001	Marsh-O-Muck Wetland Area		NE¼ NE¼ NW¼ Section 17 13N 22W	Roger Mills	OK	31-Aug-05	9:00:00 AM
33883 Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111 NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	31-Aug-05	1:00:00 PM
33884 Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111 NW¼ Section 23 13E 18N	Tulsa	OK	31-Aug-05	5:55:00 AM
33885 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	20-Sep-05	9:00:00 AM
33886 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	21-Sep-05	8:10:00 AM
33887 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	22-Sep-05	9:00:00 AM
33888 Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889 SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	23-Sep-05	8:00:00 AM
33889 Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111 NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	30-Sep-05	8:35:00 AM
33890 Wetland-008	Heather Ridge Wetland	36.02677778	-95.89761111 NW¼ Section 23 13E 18N	Tulsa	OK	30-Sep-05	9:30:00 AM
34310 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	17-Oct-05	9:00:00 AM
34311 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	17-Oct-05	9:45:00 AM
34312 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	20-Oct-05	9:55:00 AM
34313 Wetland-004	4-Corners Pond Wetland	35.66583333	-95.06388889 SE¼ SW¼ SE¼ Section 8 11N 22E	Sequoyah	OK	26-Oct-05	2:35:00 PM
34314 Wetland-007	Stinchcomb Wildlife Refuge Wetland	35.52291667	-97.66386111 NE¼ SE¼ SW¼ Section 7 12N 4W	Oklahoma	OK	29-Oct-05	3:15:00 PM
34315 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	18-Nov-05	10:00:00 AM
34316 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	18-Nov-05	9:00:00 AM
34317 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	30-Nov-05	8:00:00 AM
34318 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	21-Dec-05	8:15:00 AM
34319 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	22-Dec-05	9:00:00 AM
34320 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	22-Dec-05	9:55:00 AM
34321 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	18-Jan-06	8:30:00 AM
34322 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	18-Jan-06	9:15:00 AM
34323 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	23-Feb-06	10:28:00 AM
34978 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	31-Jan-06	8:00:00 AM
34979 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	15-Feb-06	8:10:00 AM
34980 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	15-Feb-06	9:00:00 AM
34981 Wetland-005	Beaver Pond Wetland: Washita Nature Wildlife Refuge	35.63052778	-99.27936111 NE¼ NE¼ SW¼ Section 1 13N 20W	Custer	OK	22-Mar-06	9:15:00 AM
34982 Wetland-002	Turkey Flats Wetland: Washita Nature Wildlife Reserve	35.63266667	-99.27280556 SW¼ SW¼ NW¼ Section 1 13N 20W	Custer	OK	22-Mar-06	10:00:00 AM
34983 Wetland-003	Midwest City Wetland	35.50408333	-97.40133333 NW¼ NE¼ NW¼ Section 22 12N 2W	Oklahoma	OK	30-Mar-06	9:05:00 AM

SAMPLEID	SiteName	Date	Time	Weather Condition	Wind Direction	Wind Speed	Air Temp (°C)	Water Temp (°C)	Skins	Feathers	Tracks/Prints	Shells	Dead Animals	Burrows	Feeding Evidence (fur, bones, etc)	See Billfrogs?	Hear Billfrogs?	See/Hear Other Amphibians?
31673	Marsh-O-Muck	1/25/2005	10:15 AM	Fair Skies	NE	Slight; Smoke Drift	1-3 mph	27	11		Y							
33876	Marsh-O-Muck	2/23/2005	8:45 AM	Fair Skies	Calm/None	Calm <1 mph		10	11		Y			Y	Y			
32621	Marsh-O-Muck	3/31/2005	8:36 AM	Fair Skies	NE	Slight; Smoke Drift	1-3 mph	18	14									
32627	Marsh-O-Muck	4/28/2005	1:45 PM	Overcast	NE	Small Trees Sway	19-24 mph	26	18		Y				Y			Y
32910	Marsh-O-Muck	5/31/2005	11:03 AM	Fair Skies	SW	Small Trees Sway	19-24 mph	27	20				Y		Y			
32996	Marsh-O-Muck	6/30/2005	11:00 AM	Rain	S	Calm <1 mph		23	21									
33877	Marsh-O-Muck	7/29/2005	10:23 AM					25	23						Y			
33882	Marsh-O-Muck	8/31/2005	9:00 AM	Fair Skies		Slight; Smoke Drift	1-3 mph	26	17									
31674	Turkey Flats	1/11/2005	9:00 AM		NE	Slight; Smoke Drift	1-3 mph	2										
32608	Turkey Flats	2/14/2005	11:45 AM	Fair Skies	SE	Light; Felt on Face	4-7 mph			Y					Y			
32615	Turkey Flats	3/16/2005	10:15 AM	Fair Skies	NW	Light; Felt on Face	4-7 mph	10	9		Y							
32623	Turkey Flats	4/18/2005	10:20 AM	Fair Skies	S	Branches Move	13-18 mph	17			Y							
32911	Turkey Flats	5/18/2005	9:15 AM	Fair Skies	S	Leaves/Twigs Move	8-12 mph	22.5	20		Y							
32990	Turkey Flats	6/14/2005	9:30 AM	Fair Skies	NW	Leaves/Twigs Move	8-12 mph	24	21		Y							Y
33397	Turkey Flats	7/13/2005	9:00 AM	Fair Skies	SE	Slight; Smoke Drift	1-3 mph			Y					Y			
33879	Turkey Flats	8/19/2005	9:10 AM	Fair Skies	S	Light; Felt on Face	4-7 mph			Y								
33885	Turkey Flats	9/20/2005	9:00 AM	Fair Skies	NW	Slight; Smoke Drift	1-3 mph			Y				Y	Y			
34310	Turkey Flats	10/17/2005	9:00 AM	Fair Skies	SW	Slight; Smoke Drift	1-3 mph			Y								
34315	Turkey Flats	11/18/2005	10:00 AM	Fair Skies	NW	Light; Felt on Face	4-7 mph			Y								
34319	Turkey Flats	12/22/2005	9:00 AM	Fair Skies	N	Slight; Smoke Drift	1-3 mph	-1		Y								
34322	Turkey Flats	1/18/2006	9:15 AM	Fair Skies	S	Slight; Smoke Drift	1-3 mph			Y								
34980	Turkey Flats	2/15/2006	9:00 AM															
34982	Turkey Flats	3/22/2006	10:00 AM															
31675	Midwest City	1/21/2005	11:00 AM	Fair Skies	SE	Slight; Smoke Drift	1-3 mph	18	5		Y				Y			
32614	Midwest City	2/28/2005	3:00 PM	Overcast	W	Light; Felt on Face	4-7 mph	8	11		Y				Y			
32617	Midwest City	3/27/2005	9:00 AM	Fair Skies	NW	Light; Felt on Face	4-7 mph	16	10									
32628	Midwest City	4/30/2005	1:50 PM	Overcast	N	Branches Move	13-18 mph	24	20		Y				Y		Y	
32905	Midwest City	5/26/2005	4:00 PM	Fair Skies	NNW	Leaves/Twigs Move	8-12 mph	21	25		Y						Y	Y
32993	Midwest City	6/28/2005	8:40 AM	Fair Skies	S	Light; Felt on Face	4-7 mph	29	25						Y		Y	
33399	Midwest City	7/26/2005	9:20 AM	Fair Skies	W	Branches Move	13-18 mph	28	26		Y				Y		Y	
33880	Midwest City	8/23/2005	8:45 AM	Overcast	Calm/None	Calm <1 mph		24	23									
33886	Midwest City	9/21/2005	8:10 AM	Fair Skies	Calm/None	Calm <1 mph		22	22									
34312	Midwest City	10/20/2005	9:55 AM	Fair Skies	NW	Branches Move	13-18 mph	14	15									
34317	Midwest City	11/30/2005	8:00 AM	Fair Skies	S	Light; Felt on Face	4-7 mph	0	0									
34320	Midwest City	12/22/2005	9:55 AM	Fair Skies	SE	Branches Move	13-18 mph	8	12									
34978	Midwest City	1/31/2006	8:00 AM	Fair Skies	S	Slight; Smoke Drift	1-3 mph	3	6									
34323	Midwest City	2/23/2006	10:28 AM	Overcast	W	Slight; Smoke Drift	1-3 mph	14	4									
34983	Midwest City	3/30/2006	9:05 AM															
31676	4-Corners Pond	1/27/2005	9:33 AM	Overcast	NE	Branches Move	13-18 mph	8	8									
32612	4-Corners Pond	2/25/2005	9:47 AM	Fair Skies	SE	Leaves/Twigs Move	8-12 mph	9	10									
32618	4-Corners Pond	3/27/2005	10:20 AM	Fair Skies	SSE	Slight; Smoke Drift	1-3 mph	15	13								Y	
32624	4-Corners Pond	4/19/2005	8:00 AM	Overcast	ESE	Leaves/Twigs Move	8-12 mph	18	20						Y		Y	
32908	4-Corners Pond	5/23/2005	8:15 AM		E	Branches Move	13-18 mph	22	27									
32992	4-Corners Pond	6/27/2005	8:30 AM	Fair Skies	SSW	Slight; Smoke Drift	1-3 mph	31	30								Y	
33400	4-Corners Pond	7/27/2005	10:00 AM	Overcast	ESE	Branches Move	13-18 mph	22	27									
33881	4-Corners Pond	8/29/2005	8:30 AM	Fair Skies	S	Slight; Smoke Drift	1-3 mph	26	28		Y							
33888	4-Corners Pond	9/23/2005	8:00 AM	Fair Skies	S	Calm <1 mph		20										
34313	4-Corners Pond	10/26/2005	2:35 PM	Fair Skies	E	Leaves/Twigs Move	8-12 mph	18										
31677	Beaver Pond	1/11/2005	9:40 AM		NE	Slight; Smoke Drift	1-3 mph	2	4									
32610	Beaver Pond	2/15/2005	9:00 AM	Fair Skies	NW	Branches Move	13-18 mph	7.5	9		Y	Y	Y		Y			
32616	Beaver Pond	3/17/2005	10:00 AM	Fair Skies	S	Small Trees Sway	19-24 mph	12	8		Y	Y						
32622	Beaver Pond	4/18/2005	8:45 AM	Fair Skies	S	Branches Move	13-18 mph	17	18		Y	Y						Y
32906	Beaver Pond	5/17/2005	9:00 AM	Fair Skies	S	Branches Move	13-18 mph	20	19		Y	Y	Y			Y	Y	
32991	Beaver Pond	6/15/2005	9:55 AM		NW	Calm <1 mph		26	22		Y						Y	
33398	Beaver Pond	7/13/2005	10:00 AM	Fair Skies	SE	Slight; Smoke Drift	1-3 mph	29	28	Y	Y	Y		Y	Y		Y	
33878	Beaver Pond	8/1/2005	9:10 AM	Fair Skies	SE	Light; Felt on Face	4-7 mph	27	25	Y	Y							
33887	Beaver Pond	9/22/2005	9:00 AM	Fair Skies	S	Light; Felt on Face	4-7 mph	22	21		Y			Y				
34311	Beaver Pond	10/17/2005	9:45 AM	Fair Skies	SW	Light; Felt on Face	4-7 mph	19	16	Y		Y	Y	Y	Y			
34316	Beaver Pond	11/18/2005	9:00 AM	Fair Skies	NW	Light; Felt on Face	4-7 mph	7	4		Y							
34318	Beaver Pond	12/21/2005	8:15 AM	Fair Skies	N	Slight; Smoke Drift	1-3 mph	-1	2		Y	Y		Y				
34321	Beaver Pond	1/18/2006	8:30 AM	Fair Skies	S	Slight; Smoke Drift	1-3 mph	5	2	Y	Y							
34979	Beaver Pond	2/15/2006	8:10 AM							Y	Y			Y	Y			
34981	Beaver Pond	3/22/2006	9:15 AM															
32177	Stinchcomb	1/29/2005	9:00 AM	Overcast	SE	Slight; Smoke Drift	1-3 mph	3	4									
32613	Stinchcomb	2/26/2005	9:15 AM	Overcast	S	Light; Felt on Face	4-7 mph	12.5	10									
32619	Stinchcomb	3/27/2005	12:00 PM	Fair Skies	N	Branches Move	13-18 mph	13.89			Y							
32626	Stinchcomb	4/28/2005	8:00 AM	Fair Skies	N	Branches Move	13-18 mph	20	14		Y							
32907	Stinchcomb	5/19/2005	10:24 AM	Fair Skies	S	Leaves/Twigs Move	8-12 mph	25	23									
32995	Stinchcomb	6/30/2005	9:45 AM	Fair Skies	SW	Branches Move	13-18 mph	29	27									
33402	Stinchcomb	7/30/2005	12:55 PM	Fair Skies	SW	Slight; Smoke Drift	1-3 mph	31	29									
33883	Stinchcomb	8/31/2005	1:00 PM	Fair Skies	SW	Slight; Smoke Drift	1-3 mph	30	31		Y							
33889	Stinchcomb	9/30/2005	8:35 AM	Overcast	S	Branches Move	13-18 mph	17	17		Y			Y				
34314	Stinchcomb	10/29/2005	3:15 PM	Fair Skies	S	Branches Move	13-18 mph	23	19		Y							
32781	Heather Ridge	12/20/2004	2:56 PM															
32175	Heather Ridge	1/21/2005	3:00 PM	Fair Skies	Calm/None	Calm <1 mph		22	9		Y	Y			Y			
32780	Heather Ridge	3/31/2005	4:57 PM	Overcast	NE	Small Trees Sway	19-24 mph	15	15		Y	Y						
32994	Heather Ridge	6/29/2005	4:00 PM	Fair Skies	SE	Branches Move	13-18 mph	32	27		Y				Y		Y	
33401	Heather Ridge	7/29/2005	2:00 PM	Fair Skies	S	Slight; Smoke Drift	1-3 mph	30	31		Y						Y	
33890	Heather Ridge	9/30/2005	9:30 AM	Fair Skies	SW	Small Trees Sway	19-24 mph	19	16						Y			
32176	Durrett	1/21/2005	3:35 PM	Fair, Overcast Skies	SW	Light; Felt on Face	4-7 mph	22	11	Y	Y	Y		Y				
32611	Durrett	2/19/2005	8:00 AM	Fair Skies	SW			25	16		Y	Y						
32620	Durrett	3/29/2005	8:00 AM	Fair, Overcast Skies	SW	Leaves/Twigs Move	8-12 mph	25	17					Y	Y			
32625	Durrett	4/22/2005	8:00 AM		SW	Light; Felt on Face	4-7 mph	23	18		Y			Y	Y			Y
32909	Durrett	5/25/2005	8:00 AM		SE	Light; Felt on Face	4-7 mph	30	25			Y	Y	Y				Y
32178	Beaver Creek	1/31/2005	10:45 AM		NE	Calm <1 mph		6	5									
32609	Beaver Creek	2/14/2005	1:30 PM	Fair Skies	N	Leaves/Twigs Move	8-12 mph	20	18								Y	

SAMPLEID	SiteName	Date	Wildlife1	Wildlife2	Wildlife3
31673	Marsh-O-Muck	1/25/2005	Armadillo, 2, Alive	Quail, 10, Alive	Morning Dove, 2, Alive
33876	Marsh-O-Muck	2/23/2005	Dove, 1, Alive	Meadowlark, 1, Alive	Robin, 1, Alive
32621	Marsh-O-Muck	3/31/2005	Red-wing blackbird, 3, Alive		
32627	Marsh-O-Muck	4/28/2005	Cardinal, 1, Alive	Dove, 2, Alive	Red-winged blackbirds, 8, Alive
32910	Marsh-O-Muck	5/31/2005	Bullsnake, 1, Dead		
32996	Marsh-O-Muck	6/30/2005	Cottontails, 2, Alive		
33877	Marsh-O-Muck	7/29/2005	Robin, 3, Alive		
33882	Marsh-O-Muck	8/31/2005			
31674	Turkey Flats	1/11/2005			
32608	Turkey Flats	2/14/2005	American robin, Many, Heard/Saw	American crow, Many, Heard/Saw	Eastern meadowlarks, Many, Heard/Seen
32615	Turkey Flats	3/16/2005	Sanhill crane, 20, Alive	American robin, 100, Alive	Tiger beetles, 2, Alive
32623	Turkey Flats	4/18/2005	Brown-headed cowbird, 1, Heard Only	American robin, 10, Heard Only	Northern cardinal, 10, Heard Only
32911	Turkey Flats	5/18/2005	Killdeer, 10, Heard Only	Red-bellied woodpecker, 5, Heard Only	Mallard, 1, Alive
32990	Turkey Flats	6/14/2005	Plains leopard frog, 6, Alive	Mississippi kite, 21, Alive	Northern cardinal Heard Only
33397	Turkey Flats	7/13/2005	Dickcissel (sp?), 5, Heard Only	Bobwhite, 10, Alive	Blue-gray gnatcatcher, 1, Alive
33879	Turkey Flats	8/19/2005	Mississippi kite, 5, Alive	Northern cardinal, 2, Heard Only	Mourning dove, 20, Alive
33885	Turkey Flats	9/20/2005	White-tailed deer, 1, Alive	Northern cardinal, 3, Heard Only	American crow, 5, Heard Only
34310	Turkey Flats	10/17/2005	Northern cardinal, 5, Heard Only	Red-tailed hawk, 2, Heard Only	Northern flicker, 5, Heard Only
34315	Turkey Flats	11/18/2005	Sparrow, 10, Alive	Meadowlark, 3, Alive	Northern flicker, 2, Alive
34319	Turkey Flats	12/22/2005	Northern flicker, 2, Alive	Sparrow spp., 10, Alive	Meadowlark, 10, Alive
34322	Turkey Flats	1/18/2006	Red-winged blackbirds, 50, Alive	White-crowned sparrow, 10, Alive	American crow, 3, Alive
34980	Turkey Flats	2/15/2006			
34982	Turkey Flats	3/22/2006			
31675	Midwest City	1/21/2005	Canadian Geese flying overhead, approx 30, Alive	Mallards in water, 8, Alive	Widgeons in water, 4, Alive
32614	Midwest City	2/28/2005	Great blue heron, 1, Alive	Ducks, 6, Alive	Canada geese, 10, Alive
32617	Midwest City	3/27/2005	Ducks, Approx 20, Alive	Canada geese, 4, Alive	Frog, 1, Alive
32628	Midwest City	4/30/2005	Juvenile Little blue herons, 3, Alive	Red-winged blackbirds, 4, Alive	Canada geese, 2, Alive
32905	Midwest City	5/26/2005	Hawk, 1, Alive	Redwing blackbird, 4, Alive	Egret, 3, Alive
32993	Midwest City	6/28/2005	Egrets, 6, Alive	Hawk, 1, Alive	Great Blue Heron, 1, Alive
33399	Midwest City	7/26/2005	Egret, 2, Alive	Duck, 1, Alive	Turtles, 6, Alive
33880	Midwest City	8/23/2005	Chickadees Heard Only	Canada geese Heard Only	Frogs, possibly Leopard, lots, Alive
33886	Midwest City	9/21/2005	Crows, 3, Alive	Little blue heron, 1, Alive	Ducks, 5, Alive
34312	Midwest City	10/20/2005	Ducks, 12, Alive	Bluebirds, 4, Alive	Frogs, 2, Alive
34317	Midwest City	11/30/2005	Ducks, Approx 50, Alive	Hawk, 1, Alive	Crow, 1, Alive
34320	Midwest City	12/22/2005	Ducks, Approx 30, Alive	Crow, Approx 3, Heard Only	Canada geese, Approx 3, Heard Only
34978	Midwest City	1/31/2006	Ducks (mallards & others), 30, Alive	Muskrat, 1, Alive	Canada gees flying over and around, 100, Alive
34323	Midwest City	2/23/2006	Birds: chickadees, mockingbird, blue jays, etc., Lots, Alive	Ducks Alive	Canada geese, Approx 20, Alive
34983	Midwest City	3/30/2006			
31676	4-Corners Pond	1/27/2005	Pied-billed grebe, 1, Alive	Mallards, 8, Alive	Red-winged blackbirds, >20, Alive
32612	4-Corners Pond	2/25/2005	Barred owl, 1, Alive	Gadwall, 16, Alive	Ring-necked duck, 3, Alive
32618	4-Corners Pond	3/27/2005	Ring-necked ducks, 13, Alive	Redhead duck, 1, Alive	Amerian coots, 3, Alive
32624	4-Corners Pond	4/19/2005	Pied-billed grebe, 4, Alive	Red-winged blackbirds, >30, Alive	Northern cardinals, 2, Heard Only
32908	4-Corners Pond	5/23/2005	Red-winged blackbirds, >20, Alive	Common yellow throat (?), 3, Alive	Blue jay, 2, Alive
32992	4-Corners Pond	6/27/2005	Northern mockingbird, 1, Alive	Pileated woodpecker, 2, Alive	Blue jay, 7, Alive
33400	4-Corners Pond	7/27/2005	Wood ducks, 3, Alive	Great egrets, 10, Alive	Northern cardinal, >6, Alive
33881	4-Corners Pond	8/29/2005	Great egret, 7, Alive	Blue jay, 4, Alive	Raccoon, 1, Alive
33888	4-Corners Pond	9/23/2005	American crow, 7, Alive	Blue jay, >10, Alive	Raccoon, 1, Alive
34313	4-Corners Pond	10/26/2005	White-tailed deer, 5, Alive	Armadillo, 1, Alive	Red-tailed hawk, 1, Alive
31677	Beaver Pond	1/11/2005			
32610	Beaver Pond	2/15/2005	Doe skeleton, 1, Dead	American wigeon, 3, Alive	Rat (under water), 1, Dead
32616	Beaver Pond	3/17/2005	Mallards, 6, Alive	Red-winged blackbird, 100, Alive	Eastern phoebe Heard Only
32622	Beaver Pond	4/18/2005	Red-bellied woodpecker, 1, Heard Only	Red-winged blackbird, 10, Heard Only	Heard Northern cardinal, 10, Heard Only
32906	Beaver Pond	5/17/2005	Unknown, Viero maybe, 5, Alive	Unknown sparrow, 5, Alive	Morning dove, 5, Heard Only
32991	Beaver Pond	6/15/2005	Belted kingfisher, 2, Alive	Warbling vireo (?) Heard Only	Redwinged blackbirds Heard Only
33398	Beaver Pond	7/13/2005	Northern cardinal, 2, Alive	Great blue heron, 1, Heard Only	Great egret, 1, Alive
33878	Beaver Pond	8/1/2005	Carolina wren, 4, Alive	Northern cardinal, 2, Alive	Mouring dove, 3, Heard Only
33887	Beaver Pond	9/22/2005	Northern cardinal, 15, Heard Only	Plains leopard frogs, 20, Alive	Red-billed woodpecker, 3, Heard Only
34311	Beaver Pond	10/17/2005	Northern cardinal, 5, Heard Only	Grackle, 1, Heard Only	Carolina chickadee, 10, Heard Only
34316	Beaver Pond	11/18/2005	Carolina chickadee, 10, Heard Only	Crow, 3, Alive	Red shouldered hawk, 1, Alive
34318	Beaver Pond	12/21/2005	C. bluebird, 20, Alive	Belted kingfisher, 1, Alive	Canada geese, 200, Alive
34321	Beaver Pond	1/18/2006	Mallard, 2, Alive	American coot, 2, Alive	American crow, 5, Alive
34979	Beaver Pond	2/15/2006	American, 1, Alive	Mallard, 2, Alive	Northern harrier, 1, Alive
34981	Beaver Pond	3/22/2006			
32177	Stinchcomb	1/29/2005	Carolina wren, 2, Alive	Mockingbird, 2, Alive	Common crow, 1, Alive
32613	Stinchcomb	2/26/2005	Mallards, 6, Alive	Red-winged blackbirds, 20-25, Alive	Ringbilled gull, 1, Alive
32619	Stinchcomb	3/27/2005	Double-crested cormorant, 50, Alive	Northern cardinal, 1, Alive	Red-bellied woodpecker, 1, Alive
32626	Stinchcomb	4/28/2005	Red-winged blackbirds, many, Heard Only		
32907	Stinchcomb	5/19/2005	Cardinal, 2, Alive		
32995	Stinchcomb	6/30/2005	Mallard drakes, 2, Alive		
33402	Stinchcomb	7/30/2005	Cattle egret, 1, Alive		
33883	Stinchcomb	8/31/2005	Duck, many, Alive		
33889	Stinchcomb	9/30/2005	Crow, 1, Alive		
34314	Stinchcomb	10/29/2005			
32781	Heather Ridge	12/20/2004			
32175	Heather Ridge	1/21/2005	Ducks, >20, Alive	Crawfish, 1, Alive	Minnows, Many, Alive
32780	Heather Ridge	3/31/2005	Ducks, >20, Alive	Geese, >20, Alive	Redwing black birds, >20, Alive
32994	Heather Ridge	6/29/2005	Ducks	Black birds with red wings, >10, Alive	Minnows, >5, Alive
33401	Heather Ridge	7/29/2005	Turtle, 1, Dead	Ducks, some, Alive	Minnows, many, Alive
33890	Heather Ridge	9/30/2005	Ducks, >20, Alive	Killdeer, 8,	Turtle, 1,
32176	Durrett	1/21/2005	Fish, Several, Alive	Raccoon, 1, Alive	
32611	Durrett	2/19/2005	Birds, 5, Alive	Canada geese, 4, Alive	
32620	Durrett	3/29/2005	Songbirds, several, Alive	Insects, lots, Alive	Crayfish, 1, Dead
32625	Durrett	4/22/2005	Crawdadd, 12, Alive	Fish, several, Alive	Frogs, 8, Alive
32909	Durrett	5/25/2005	Beaver, 1, Alive	Fish, 2, Alive	Songbirds, 5, Alive
32178	Beaver Creek	1/31/2005	Rabbits, 3, Alive	Coyote, 3, Alive	
32609	Beaver Creek	2/14/2005	Frogs croaking, Several, Alive		

SAMPLEID	SiteName	Date	Wildlife1	Wildlife2	Wildlife3
31673	Marsh-O-Muck	1/25/2005	Armadillo, 2, Alive	Quail, 10, Alive	Morning Dove, 2, Alive
33876	Marsh-O-Muck	2/23/2005	Dove, 1, Alive	Meadowlark, 1, Alive	Robin, 1, Alive
32621	Marsh-O-Muck	3/31/2005	Red-wing blackbird, 3, Alive		
32627	Marsh-O-Muck	4/28/2005	Cardinal, 1, Alive	Dove, 2, Alive	Red-winged blackbirds, 8, Alive
32910	Marsh-O-Muck	5/31/2005	Bullsnake, 1, Dead		
32996	Marsh-O-Muck	6/30/2005	Cottontails, 2, Alive		
33877	Marsh-O-Muck	7/29/2005	Robin, 3, Alive		
33882	Marsh-O-Muck	8/31/2005			
31674	Turkey Flats	1/11/2005			
32608	Turkey Flats	2/14/2005	American robin, Many, Heard/Saw	American crow, Many, Heard/Saw	Eastern meadowlarks, Many, Heard/Seen
32615	Turkey Flats	3/16/2005	Sanhill crane, 20, Alive	American robin, 100, Alive	Tiger beetles, 2, Alive
32623	Turkey Flats	4/18/2005	Brown-headed cowbird, 1, Heard Only	American robin, 10, Heard Only	Northern cardinal, 10, Heard Only
32911	Turkey Flats	5/18/2005	Killdeer, 10, Heard Only	Red-bellied woodpecker, 5, Heard Only	Mallard, 1, Alive
32990	Turkey Flats	6/14/2005	Plains leopard frog, 6, Alive	Mississippi kite, 21, Alive	Northern cardinal Heard Only
33397	Turkey Flats	7/13/2005	Dickcissel (sp?), 5, Heard Only	Bobwhite, 10, Alive	Blue-gray gnatcatcher, 1, Alive
33879	Turkey Flats	8/19/2005	Mississippi kite, 5, Alive	Northern cardinal, 2, Heard Only	Mourning dove, 20, Alive
33885	Turkey Flats	9/20/2005	White-tailed deer, 1, Alive	Northern cardinal, 3, Heard Only	American crow, 5, Heard Only
34310	Turkey Flats	10/17/2005	Northern cardinal, 5, Heard Only	Red-tailed hawk, 2, Heard Only	Northern flicker, 5, Heard Only
34315	Turkey Flats	11/18/2005	Sparrow, 10, Alive	Meadowlark, 3, Alive	Northern flicker, 2, Alive
34319	Turkey Flats	12/22/2005	Northern flicker, 2, Alive	Sparrow spp., 10, Alive	Meadowlark, 10, Alive
34322	Turkey Flats	1/18/2006	Red-winged blackbirds, 50, Alive	White-crowned sparrow, 10, Alive	American crow, 3, Alive
34980	Turkey Flats	2/15/2006			
34982	Turkey Flats	3/22/2006			
31675	Midwest City	1/21/2005	Canadian Geese flying overhead, approx 30, Alive	Mallards in water, 8, Alive	Widgeons in water, 4, Alive
32614	Midwest City	2/28/2005	Great blue heron, 1, Alive	Ducks, 6, Alive	Canada geese, 10, Alive
32617	Midwest City	3/27/2005	Ducks, Approx 20, Alive	Canada geese, 4, Alive	Frog, 1, Alive
32628	Midwest City	4/30/2005	Juvenile Little blue herons, 3, Alive	Red-winged blackbirds, 4, Alive	Canada geese, 2, Alive
32905	Midwest City	5/26/2005	Hawk, 1, Alive	Redwing blackbird, 4, Alive	Egret, 3, Alive
32993	Midwest City	6/28/2005	Egrets, 6, Alive	Hawk, 1, Alive	Great Blue Heron, 1, Alive
33399	Midwest City	7/26/2005	Egret, 2, Alive	Duck, 1, Alive	Turtles, 6, Alive
33880	Midwest City	8/23/2005	Chickadees Heard Only	Canada geese Heard Only	Frogs, possibly Leopard, lots, Alive
33886	Midwest City	9/21/2005	Crows, 3, Alive	Little blue heron, 1, Alive	Ducks, 5, Alive
34312	Midwest City	10/20/2005	Ducks, 12, Alive	Bluebirds, 4, Alive	Frogs, 2, Alive
34317	Midwest City	11/30/2005	Ducks, Approx 50, Alive	Hawk, 1, Alive	Crow, 1, Alive
34320	Midwest City	12/22/2005	Ducks, Approx 30, Alive	Crow, Approx 3, Heard Only	Canada geese, Approx 3, Heard Only
34978	Midwest City	1/31/2006	Ducks (mallards & others), 30, Alive	Muskrat, 1, Alive	Canada gees flying over and around, 100, Alive
34323	Midwest City	2/23/2006	Birds: chickadees, mockingbird, blue jays, etc., Lots, Alive	Ducks Alive	Canada geese, Approx 20, Alive
34983	Midwest City	3/30/2006			
31676	4-Corners Pond	1/27/2005	Pied-billed grebe, 1, Alive	Mallards, 8, Alive	Red-winged blackbirds, >20, Alive
32612	4-Corners Pond	2/25/2005	Barred owl, 1, Alive	Gadwall, 16, Alive	Ring-necked duck, 3, Alive
32618	4-Corners Pond	3/27/2005	Ring-necked ducks, 13, Alive	Redhead duck, 1, Alive	Amerian coots, 3, Alive
32624	4-Corners Pond	4/19/2005	Pied-billed grebe, 4, Alive	Red-winged blackbirds, >30, Alive	Northern cardinals, 2, Heard Only
32908	4-Corners Pond	5/23/2005	Red-winged blackbirds, >20, Alive	Common yellow throat (?), 3, Alive	Blue jay, 2, Alive
32992	4-Corners Pond	6/27/2005	Northern mockingbird, 1, Alive	Pileated woodpecker, 2, Alive	Blue jay, 7, Alive
33400	4-Corners Pond	7/27/2005	Wood ducks, 3, Alive	Great egrets, 10, Alive	Northern cardinal, >6, Alive
33881	4-Corners Pond	8/29/2005	Great egret, 7, Alive	Blue jay, 4, Alive	Raccoon, 1, Alive
33888	4-Corners Pond	9/23/2005	American crow, 7, Alive	Blue jay, >10, Alive	Raccoon, 1, Alive
34313	4-Corners Pond	10/26/2005	White-tailed deer, 5, Alive	Armadillo, 1, Alive	Red-tailed hawk, 1, Alive
31677	Beaver Pond	1/11/2005			
32610	Beaver Pond	2/15/2005	Doe skeleton, 1, Dead	American wigeon, 3, Alive	Rat (under water), 1, Dead
32616	Beaver Pond	3/17/2005	Mallards, 6, Alive	Red-winged blackbird, 100, Alive	Eastern phoebe Heard Only
32622	Beaver Pond	4/18/2005	Red-bellied woodpecker, 1, Heard Only	Red-winged blackbird, 10, Heard Only	Heard Northern cardinal, 10, Heard Only
32906	Beaver Pond	5/17/2005	Unknown, Viero maybe, 5, Alive	Unknown sparrow, 5, Alive	Morning dove, 5, Heard Only
32991	Beaver Pond	6/15/2005	Belted kingfisher, 2, Alive	Warbling vireo (?) Heard Only	Redwinged blackbirds Heard Only
33398	Beaver Pond	7/13/2005	Northern cardinal, 2, Alive	Great blue heron, 1, Heard Only	Great egret, 1, Alive
33878	Beaver Pond	8/1/2005	Carolina wren, 4, Alive	Northern cardinal, 2, Alive	Mouring dove, 3, Heard Only
33887	Beaver Pond	9/22/2005	Northern cardinal, 15, Heard Only	Plains leopard frogs, 20, Alive	Red-billed woodpecker, 3, Heard Only
34311	Beaver Pond	10/17/2005	Northern cardinal, 5, Heard Only	Grackle, 1, Heard Only	Carolina chickadee, 10, Heard Only
34316	Beaver Pond	11/18/2005	Carolina chickadee, 10, Heard Only	Crow, 3, Alive	Red shouldered hawk, 1, Alive
34318	Beaver Pond	12/21/2005	C. bluebird, 20, Alive	Belted kingfisher, 1, Alive	Canada geese, 200, Alive
34321	Beaver Pond	1/18/2006	Mallard, 2, Alive	American coot, 2, Alive	American crow, 5, Alive
34979	Beaver Pond	2/15/2006	American, 1, Alive	Mallard, 2, Alive	Northern harrier, 1, Alive
34981	Beaver Pond	3/22/2006			
32177	Stinchcomb	1/29/2005	Carolina wren, 2, Alive	Mockingbird, 2, Alive	Common crow, 1, Alive
32613	Stinchcomb	2/26/2005	Mallards, 6, Alive	Red-winged blackbirds, 20-25, Alive	Ringbilled gull, 1, Alive
32619	Stinchcomb	3/27/2005	Double-crested cormorant, 50, Alive	Northern cardinal, 1, Alive	Red-bellied woodpecker, 1, Alive
32626	Stinchcomb	4/28/2005	Red-winged blackbirds, many, Heard Only		
32907	Stinchcomb	5/19/2005	Cardinal, 2, Alive		
32995	Stinchcomb	6/30/2005	Mallard drakes, 2, Alive		
33402	Stinchcomb	7/30/2005	Cattle egret, 1, Alive		
33883	Stinchcomb	8/31/2005	Duck, many, Alive		
33889	Stinchcomb	9/30/2005	Crow, 1, Alive		
34314	Stinchcomb	10/29/2005			
32781	Heather Ridge	12/20/2004			
32175	Heather Ridge	1/21/2005	Ducks, >20, Alive	Crawfish, 1, Alive	Minnows, Many, Alive
32780	Heather Ridge	3/31/2005	Ducks, >20, Alive	Geese, >20, Alive	Redwing black birds, >20, Alive
32994	Heather Ridge	6/29/2005	Ducks	Black birds with red wings, >10, Alive	Minnows, >5, Alive
33401	Heather Ridge	7/29/2005	Turtle, 1, Dead	Ducks, some, Alive	Minnows, many, Alive
33890	Heather Ridge	9/30/2005	Ducks, >20, Alive	Killdeer, 8,	Turtle, 1,
32176	Durrett	1/21/2005	Fish, Several, Alive	Raccoon, 1, Alive	
32611	Durrett	2/19/2005	Birds, 5, Alive	Canada geese, 4, Alive	
32620	Durrett	3/29/2005	Songbirds, several, Alive	Insects, lots, Alive	Crayfish, 1, Dead
32625	Durrett	4/22/2005	Crawdadd, 12, Alive	Fish, several, Alive	Frogs, 8, Alive
32909	Durrett	5/25/2005	Beaver, 1, Alive	Fish, 2, Alive	Songbirds, 5, Alive
32178	Beaver Creek	1/31/2005	Rabbits, 3, Alive	Coyote, 3, Alive	
32609	Beaver Creek	2/14/2005	Frogs croaking, Several, Alive		

SAMPLEID	SiteName	Date	Wildlife4	Wildlife5	Wildlife6
31673	Marsh-O-Muck	1/25/2005	Red-wing blackbird, 10, Alive Robin, 2, Alive	Leopard toads, 2, Alive	
33876	Marsh-O-Muck	2/23/2005			
32621	Marsh-O-Muck	3/31/2005			
32627	Marsh-O-Muck	4/28/2005			
32910	Marsh-O-Muck	5/31/2005			
32996	Marsh-O-Muck	6/30/2005			
33877	Marsh-O-Muck	7/29/2005			
33882	Marsh-O-Muck	8/31/2005			
31674	Turkey Flats	1/11/2005	Western meadowlarks, Many, Heard/Seen Carolina chickadee Heard Only Mourning dove, 10, Heard Only Unknown species of sparrow, 10, Heard Only Northern bobwhite Heard Only Mississippi Kite, 1, Alive Turkey, 2 hens, 9 poults 1/2 grown, 11, Alive Sparrow species, 5, Alive Carolina chickadee, 3, Heard Only Canada geese, 54, Alive Canada geese, 200, Alive Geese flew overhead, 50, Alive	Dark-eyed junco, Many, Heard/Seen Sandhill crane Heard Only Northern bobwhite, 1, Heard Only Sweat bees, 100's, Alive Carolina chickadee, 1, Heard Only Northern flicker, 4, Alive Carolina chickadee, 2, Alive Canada geese, 100's, Heard Only American crow, 5, Alive Northern flicker, 2, Alive	Sparrows Heard Only Brown-headed cowbird, 2, Heard Only Unidentified lizard, 1, Alive Northern cardinal, 2, Heard Only Carolina chickadee, 1, Alive Meadowlark, 5, Alive
32608	Turkey Flats	2/14/2005			
32615	Turkey Flats	3/16/2005			
32623	Turkey Flats	4/18/2005			
32911	Turkey Flats	5/18/2005			
32990	Turkey Flats	6/14/2005			
33397	Turkey Flats	7/13/2005			
33879	Turkey Flats	8/19/2005			
33885	Turkey Flats	9/20/2005			
34310	Turkey Flats	10/17/2005			
34315	Turkey Flats	11/18/2005			
34319	Turkey Flats	12/22/2005			
34322	Turkey Flats	1/18/2006			
34980	Turkey Flats	2/15/2006			
34982	Turkey Flats	3/22/2006			
31675	Midwest City	1/21/2005	Robins Alive Small fish, Many, Alive Dragonfly, 4, Alive Dragon flies, lots, Alive Frogs, 8, Alive Dragonflies, lots, Alive Hawk, 1, Alive Vulture, 2, Alive Various songbirds Heard Only Songbirds, Approx 5, Heard Only Red-winged blackbird, 1, Alive Hawk, 1, Heard Only	Hawk, 1, Alive Blue-winged teals, 3, Alive Canada geese, 8, Alive Songbirds Heard Only Red-winged blackbird Heard Only Butterflies, lots, Alive Chickadees Heard Only Hawk, 1, Alive Robin Heard Only	Woodpecker Heard Only Grebes (?), 2, Alive Turkey vulture, 1, Alive Woodpecker Heard Only Small frogs Heard Only Hawk Heard Only
32614	Midwest City	2/28/2005			
32617	Midwest City	3/27/2005			
32628	Midwest City	4/30/2005			
32905	Midwest City	5/26/2005			
32993	Midwest City	6/28/2005			
33399	Midwest City	7/26/2005			
33880	Midwest City	8/23/2005			
33886	Midwest City	9/21/2005			
34312	Midwest City	10/20/2005			
34317	Midwest City	11/30/2005			
34320	Midwest City	12/22/2005			
34978	Midwest City	1/31/2006			
34323	Midwest City	2/23/2006			
34983	Midwest City	3/30/2006			
31676	4-Corners Pond	1/27/2005	Blue jay, 2, Alive Pied-bill grebe, 1, Alive Gadwall, 19, Alive Carolina wren, 2, Heard Only Yellow brushed chat (?), 2, Alive Wood ducks, 4, Alive Northern mocking bird, 1, Alive Virginia opossum, 1, Alive Mourning dove, 3, Alive Sharp-shinned hawk, 1, Alive	Mallard, 2, Alive Pied-billed grebe, 1, Alive Prothonetary warbles, 3, Heard Only Northern cardinal, 1, Alive Redwinged blackbird, 8, Alive Beaver, 1, Alive Rough-winged swallow, >40, Alive Great Egrets, 6, Alive	Eastern tufted titmouse, 1, Alive American robin, 4, Alive Osprey, 1, Alive Sharp shinned hawk, 1, Alive Northern cardinal, 2, Alive White ibis, 1, Alive Great blue herons, 3, Alive
32612	4-Corners Pond	2/25/2005			
32618	4-Corners Pond	3/27/2005			
32624	4-Corners Pond	4/19/2005			
32908	4-Corners Pond	5/23/2005			
32992	4-Corners Pond	6/27/2005			
33400	4-Corners Pond	7/27/2005			
33881	4-Corners Pond	8/29/2005			
33888	4-Corners Pond	9/23/2005			
34313	4-Corners Pond	10/26/2005			
31677	Beaver Pond	1/11/2005	American robin, Many, Heard/Seen Carolina chickadee Heard Only Sparrow spp., 20, Heard/Saw Carolina chickadee, 5, Heard Only Bluegray gnatcatcher Heard Only Red-bellied woodpecker, 2, Heard Only Great egret, 1, Alive Unknown frog species, 30, Alive Crow, 5, Heard Only Canada geese, 100's, Alive Red-bellied woodpecker, 3, Alive Belted kingfisher, 1, Alive Carolina chickadee, 5, Heard Only	Red-bellied woodpecker, Many, Heard/Seen Carolina chickadee, 20, Heard Only Blue-gray gnatcatcher, 5, Heard Only Yellowbilled cuckoo Heard Only Little blue heron, 5, Alive Plainbelly watersnake, 1, Alive Bluejay, 2, Heard Only Red-winged blackbird, 150, Alive Greater white-fronted goose, 35, Heard/Saw Sparrow spp., 20, Alive Red-bellied woodpecker, 2, Alive	Dark-eye junco, Many, Heard/Seen Mourning dove, 10, Heard Only Red-bellied woodpecker, 5, Heard Only Sparrow, spp unknown Heard Only Mourning dove, 1, Heard Only Red-bellied woodpecker Heard Only American crow, 5, Heard Only Belted kingfisher, 1, Heard Only Belted kingfisher, 1, Alive Northern flicker Alive White-crowned sparrow, 1, Alive
32616	Beaver Pond	3/17/2005			
32622	Beaver Pond	4/18/2005			
32906	Beaver Pond	5/17/2005			
32991	Beaver Pond	6/15/2005			
33398	Beaver Pond	7/13/2005			
33878	Beaver Pond	8/1/2005			
33887	Beaver Pond	9/22/2005			
34311	Beaver Pond	10/17/2005			
34316	Beaver Pond	11/18/2005			
34318	Beaver Pond	12/21/2005			
34321	Beaver Pond	1/18/2006			
34979	Beaver Pond	2/15/2006			
34981	Beaver Pond	3/22/2006			
32177	Stinchcomb	1/29/2005	Ducks, 5, Alive Canada geese, 20, Alive	Northern cardinal, 2, Alive	
32613	Stinchcomb	2/26/2005			
32619	Stinchcomb	3/27/2005			
32626	Stinchcomb	4/28/2005			
32907	Stinchcomb	5/19/2005			
32995	Stinchcomb	6/30/2005			
33402	Stinchcomb	7/30/2005			
33883	Stinchcomb	8/31/2005			
33889	Stinchcomb	9/30/2005			
34314	Stinchcomb	10/29/2005			
32781	Heather Ridge	12/20/2004	Frog, 1, Alive Heron, 1, Alive		
32175	Heather Ridge	1/21/2005			
32780	Heather Ridge	3/31/2005			
32994	Heather Ridge	6/29/2005			
33401	Heather Ridge	7/29/2005			
33890	Heather Ridge	9/30/2005			
32176	Durrett	1/21/2005	Frog, 1, Alive	Snake, 1, Dead	
32611	Durrett	2/19/2005			
32620	Durrett	3/29/2005			
32625	Durrett	4/22/2005			
32909	Durrett	5/25/2005			
32178	Beaver Creek	1/31/2005			
32609	Beaver Creek	2/14/2005			

SAMPLEID	SiteName	Date	Wildlife7	Wildlife8	Wildlife9
31673	Marsh-O-Muck	1/25/2005			
33876	Marsh-O-Muck	2/23/2005			
32621	Marsh-O-Muck	3/31/2005			
32627	Marsh-O-Muck	4/28/2005			
32910	Marsh-O-Muck	5/31/2005			
32996	Marsh-O-Muck	6/30/2005			
33877	Marsh-O-Muck	7/29/2005			
33882	Marsh-O-Muck	8/31/2005			
31674	Turkey Flats	1/11/2005			
32608	Turkey Flats	2/14/2005			
32615	Turkey Flats	3/16/2005	Red-bellied woodpecker Heard Only	Killdeer Heard Only	
32623	Turkey Flats	4/18/2005			
32911	Turkey Flats	5/18/2005	Spotted sandpiper, 1, Alive		
32990	Turkey Flats	6/14/2005	White-tail deer (does), 2, Alive	Unidentified calling frogs (PL?) Heard Only	
33397	Turkey Flats	7/13/2005	Western kingbird, 5, Alive	Cottontail, 2, Alive	
33879	Turkey Flats	8/19/2005			
33885	Turkey Flats	9/20/2005	Carolina chickadee, 10, Heard Only		
34310	Turkey Flats	10/17/2005			
34315	Turkey Flats	11/18/2005			
34319	Turkey Flats	12/22/2005			
34322	Turkey Flats	1/18/2006			
34980	Turkey Flats	2/15/2006			
34982	Turkey Flats	3/22/2006			
31675	Midwest City	1/21/2005			
32614	Midwest City	2/28/2005			
32617	Midwest City	3/27/2005			
32628	Midwest City	4/30/2005			
32905	Midwest City	5/26/2005	Frogs Heard Only	Bullfrog Heard Only	
32993	Midwest City	6/28/2005	Saw & heard lots of frogs, lots, Alive		
33399	Midwest City	7/26/2005	Mississippi kites, 3, Alive		
33880	Midwest City	8/23/2005			
33886	Midwest City	9/21/2005	Dragonflies Alive	Dansel flies Alive	Butterflies, sulphur, 1000's, Alive
34312	Midwest City	10/20/2005			
34317	Midwest City	11/30/2005			
34320	Midwest City	12/22/2005			
34978	Midwest City	1/31/2006	Chickadee Heard Only	Field lark, not sure Heard Only	
34323	Midwest City	2/23/2006			
34983	Midwest City	3/30/2006			
31676	4-Corners Pond	1/27/2005			
32612	4-Corners Pond	2/25/2005	Blue Jay, 2, Alive	Carolina wren, 1, Alive	Northern cardinal, 1, Alive
32618	4-Corners Pond	3/27/2005	Red-winged blackbird, >10, Alive	Great-blue heron, 1, Alive	Blue-winged teal, 5, Alive
32624	4-Corners Pond	4/19/2005	Blue-wings teal, 56, Alive	Wood ducks, 2, Alive	Blue jay, 3, Alive
32908	4-Corners Pond	5/23/2005	Cedar waxwing, 6, Alive	Bobwhite quail, 1, Alive	Bald eagle, 1, Alive
32992	4-Corners Pond	6/27/2005	Prokoontary(?) warbler, 1, Alive	Flea beetles in smartweed Alive	Bullfrog calling, 1, Alive
33400	4-Corners Pond	7/27/2005			
33881	4-Corners Pond	8/29/2005	Great blue heron, 3, Alive		
33888	4-Corners Pond	9/23/2005	Shad spp., >100, Dead	Alligator/spotted gar, 12, Dead	
34313	4-Corners Pond	10/26/2005			
31677	Beaver Pond	1/11/2005			
32610	Beaver Pond	2/15/2005	Eastern meadowlark, Many, Heard/Seen	Western meadowlark, Many, Heard/Seen	r-t hawk, Many, Heard/Seen
32616	Beaver Pond	3/17/2005			
32622	Beaver Pond	4/18/2005	Killdeer, 1, Heard Only	Eastern phoebe, 1, Heard Only	Belted kingfisher, 2, Heard/Saw
32906	Beaver Pond	5/17/2005	Yellow-billed cuckoo, 2, Heard Only	Northern cardinals, 10, Alive	Red-winged blackbirds, 2, Alive
32991	Beaver Pond	6/15/2005	Carp spp. Alive		
33398	Beaver Pond	7/13/2005	Mississippi kite, 1, Alive	Redwing blackbird, 1, Heard Only	Yellow-billed cuckoo, 2, Heard Only
33878	Beaver Pond	8/1/2005	Mississippi kite, 1, Alive	Carolina chickadee, 2, Heard Only	Woodpecker, downy or hairy, 1, Alive
33887	Beaver Pond	9/22/2005			
34311	Beaver Pond	10/17/2005	Fox squirrel, 1, Dead		
34316	Beaver Pond	11/18/2005			
34318	Beaver Pond	12/21/2005	American crow, 2, Alive	Redtailed hawk, 1,	Bobwhite, 9, Alive
34321	Beaver Pond	1/18/2006			
34979	Beaver Pond	2/15/2006			
34981	Beaver Pond	3/22/2006			
32177	Stinchcomb	1/29/2005			
32613	Stinchcomb	2/26/2005			
32619	Stinchcomb	3/27/2005			
32626	Stinchcomb	4/28/2005			
32907	Stinchcomb	5/19/2005			
32995	Stinchcomb	6/30/2005			
33402	Stinchcomb	7/30/2005			
33883	Stinchcomb	8/31/2005			
33889	Stinchcomb	9/30/2005			
34314	Stinchcomb	10/29/2005			
32781	Heather Ridge	12/20/2004			
32175	Heather Ridge	1/21/2005			
32780	Heather Ridge	3/31/2005			
32994	Heather Ridge	6/29/2005			
33401	Heather Ridge	7/29/2005			
33890	Heather Ridge	9/30/2005			
32176	Durrett	1/21/2005			
32611	Durrett	2/19/2005			
32620	Durrett	3/29/2005			
32625	Durrett	4/22/2005			
32909	Durrett	5/25/2005			
32178	Beaver Creek	1/31/2005			
32609	Beaver Creek	2/14/2005			

SAMPLEID	SiteName	Date	Wildlife10	Wildlife11	Wildlife12
31673	Marsh-O-Muck	1/25/2005			
33876	Marsh-O-Muck	2/23/2005			
32621	Marsh-O-Muck	3/31/2005			
32627	Marsh-O-Muck	4/28/2005			
32910	Marsh-O-Muck	5/31/2005			
32996	Marsh-O-Muck	6/30/2005			
33877	Marsh-O-Muck	7/29/2005			
33882	Marsh-O-Muck	8/31/2005			
31674	Turkey Flats	1/11/2005			
32608	Turkey Flats	2/14/2005			
32615	Turkey Flats	3/16/2005			
32623	Turkey Flats	4/18/2005			
32911	Turkey Flats	5/18/2005			
32990	Turkey Flats	6/14/2005			
33397	Turkey Flats	7/13/2005			
33879	Turkey Flats	8/19/2005			
33885	Turkey Flats	9/20/2005			
34310	Turkey Flats	10/17/2005			
34315	Turkey Flats	11/18/2005			
34319	Turkey Flats	12/22/2005			
34322	Turkey Flats	1/18/2006			
34980	Turkey Flats	2/15/2006			
34982	Turkey Flats	3/22/2006			
31675	Midwest City	1/21/2005			
32614	Midwest City	2/28/2005			
32617	Midwest City	3/27/2005			
32628	Midwest City	4/30/2005			
32905	Midwest City	5/26/2005			
32993	Midwest City	6/28/2005			
33399	Midwest City	7/26/2005			
33880	Midwest City	8/23/2005			
33886	Midwest City	9/21/2005			
34312	Midwest City	10/20/2005			
34317	Midwest City	11/30/2005			
34320	Midwest City	12/22/2005			
34978	Midwest City	1/31/2006			
34323	Midwest City	2/23/2006			
34983	Midwest City	3/30/2006			
31676	4-Corners Pond	1/27/2005			
32612	4-Corners Pond	2/25/2005	Brownheaded cowbird, 1, Alive		
32618	4-Corners Pond	3/27/2005			
32624	4-Corners Pond	4/19/2005	Great blue heron, 1, Alive	Bullfrogs, 2, Heard Only	Spotted gars, >10, Alive
32908	4-Corners Pond	5/23/2005	Spotted gar, >15, Alive	Brown thrasher, 1, Alive	
32992	4-Corners Pond	6/27/2005			
33400	4-Corners Pond	7/27/2005			
33881	4-Corners Pond	8/29/2005			
33888	4-Corners Pond	9/23/2005			
34313	4-Corners Pond	10/26/2005			
31677	Beaver Pond	1/11/2005			
32610	Beaver Pond	2/15/2005	Sparrows, Many, Heard/Seen	Carolina chickadee, Many, Heard/Seen	
32616	Beaver Pond	3/17/2005			
32622	Beaver Pond	4/18/2005	Domestic dog, 1, Alive	Garter snake, 1, Alive	
32906	Beaver Pond	5/17/2005	Mississippi kite, 2, Alive	Crawfish, 10, Dead	
32991	Beaver Pond	6/15/2005			
33398	Beaver Pond	7/13/2005	Unknown vireo, 1, Heard Only	Blue-green gnatcatcher, 1, Alive	Duck spp., heard possibly b-w teal, 1, Heard Only
33878	Beaver Pond	8/1/2005	Turkey hen, 1, Heard Only	Eastern phoebe, 1, Alive	
33887	Beaver Pond	9/22/2005			
34311	Beaver Pond	10/17/2005			
34316	Beaver Pond	11/18/2005			
34318	Beaver Pond	12/21/2005			
34321	Beaver Pond	1/18/2006			
34979	Beaver Pond	2/15/2006			
34981	Beaver Pond	3/22/2006			
32177	Stinchcomb	1/29/2005			
32613	Stinchcomb	2/26/2005			
32619	Stinchcomb	3/27/2005			
32626	Stinchcomb	4/28/2005			
32907	Stinchcomb	5/19/2005			
32995	Stinchcomb	6/30/2005			
33402	Stinchcomb	7/30/2005			
33883	Stinchcomb	8/31/2005			
33889	Stinchcomb	9/30/2005			
34314	Stinchcomb	10/29/2005			
32781	Heather Ridge	12/20/2004			
32175	Heather Ridge	1/21/2005			
32780	Heather Ridge	3/31/2005			
32994	Heather Ridge	6/29/2005			
33401	Heather Ridge	7/29/2005			
33890	Heather Ridge	9/30/2005			
32176	Durrett	1/21/2005			
32611	Durrett	2/19/2005			
32620	Durrett	3/29/2005			
32625	Durrett	4/22/2005			
32909	Durrett	5/25/2005			
32178	Beaver Creek	1/31/2005			
32609	Beaver Creek	2/14/2005			

SAMPLEID	SiteName	Date	Wildlife13	Wildlife14
31673	Marsh-O-Muck	1/25/2005		
33876	Marsh-O-Muck	2/23/2005		
32621	Marsh-O-Muck	3/31/2005		
32627	Marsh-O-Muck	4/28/2005		
32910	Marsh-O-Muck	5/31/2005		
32996	Marsh-O-Muck	6/30/2005		
33877	Marsh-O-Muck	7/29/2005		
33882	Marsh-O-Muck	8/31/2005		
31674	Turkey Flats	1/11/2005		
32608	Turkey Flats	2/14/2005		
32615	Turkey Flats	3/16/2005		
32623	Turkey Flats	4/18/2005		
32911	Turkey Flats	5/18/2005		
32990	Turkey Flats	6/14/2005		
33397	Turkey Flats	7/13/2005		
33879	Turkey Flats	8/19/2005		
33885	Turkey Flats	9/20/2005		
34310	Turkey Flats	10/17/2005		
34315	Turkey Flats	11/18/2005		
34319	Turkey Flats	12/22/2005		
34322	Turkey Flats	1/18/2006		
34980	Turkey Flats	2/15/2006		
34982	Turkey Flats	3/22/2006		
31675	Midwest City	1/21/2005		
32614	Midwest City	2/28/2005		
32617	Midwest City	3/27/2005		
32628	Midwest City	4/30/2005		
32905	Midwest City	5/26/2005		
32993	Midwest City	6/28/2005		
33399	Midwest City	7/26/2005		
33880	Midwest City	8/23/2005		
33886	Midwest City	9/21/2005		
34312	Midwest City	10/20/2005		
34317	Midwest City	11/30/2005		
34320	Midwest City	12/22/2005		
34978	Midwest City	1/31/2006		
34323	Midwest City	2/23/2006		
34983	Midwest City	3/30/2006		
31676	4-Corners Pond	1/27/2005		
32612	4-Corners Pond	2/25/2005		
32618	4-Corners Pond	3/27/2005		
32624	4-Corners Pond	4/19/2005	Swamp sparrow, Alive	Aquatic invertebrate spp., Alive
32908	4-Corners Pond	5/23/2005		
32992	4-Corners Pond	6/27/2005		
33400	4-Corners Pond	7/27/2005		
33881	4-Corners Pond	8/29/2005		
33888	4-Corners Pond	9/23/2005		
34313	4-Corners Pond	10/26/2005		
31677	Beaver Pond	1/11/2005		
32610	Beaver Pond	2/15/2005		
32616	Beaver Pond	3/17/2005		
32622	Beaver Pond	4/18/2005		
32906	Beaver Pond	5/17/2005		
32991	Beaver Pond	6/15/2005		
33398	Beaver Pond	7/13/2005		
33878	Beaver Pond	8/1/2005		
33887	Beaver Pond	9/22/2005		
34311	Beaver Pond	10/17/2005		
34316	Beaver Pond	11/18/2005		
34318	Beaver Pond	12/21/2005		
34321	Beaver Pond	1/18/2006		
34979	Beaver Pond	2/15/2006		
34981	Beaver Pond	3/22/2006		
32177	Stinchcomb	1/29/2005		
32613	Stinchcomb	2/26/2005		
32619	Stinchcomb	3/27/2005		
32626	Stinchcomb	4/28/2005		
32907	Stinchcomb	5/19/2005		
32995	Stinchcomb	6/30/2005		
33402	Stinchcomb	7/30/2005		
33883	Stinchcomb	8/31/2005		
33889	Stinchcomb	9/30/2005		
34314	Stinchcomb	10/29/2005		
32781	Heather Ridge	12/20/2004		
32175	Heather Ridge	1/21/2005		
32780	Heather Ridge	3/31/2005		
32994	Heather Ridge	6/29/2005		
33401	Heather Ridge	7/29/2005		
33890	Heather Ridge	9/30/2005		
32176	Durrett	1/21/2005		
32611	Durrett	2/19/2005		
32620	Durrett	3/29/2005		
32625	Durrett	4/22/2005		
32909	Durrett	5/25/2005		
32178	Beaver Creek	1/31/2005		
32609	Beaver Creek	2/14/2005		

SAMPLE ID	Site Name	Date	Wildlife Comments
31673	Marsh-O-Muck	1/25/2005	Dog prints, coyote scat.
33876	Marsh-O-Muck	2/23/2005	Coon tracks.
32621	Marsh-O-Muck	3/31/2005	
32627	Marsh-O-Muck	4/28/2005	
32910	Marsh-O-Muck	5/31/2005	
32996	Marsh-O-Muck	6/30/2005	
33877	Marsh-O-Muck	7/29/2005	Scat from cottontail.
33882	Marsh-O-Muck	8/31/2005	Not sure if wind is from SW or NE.
31674	Turkey Flats	1/11/2005	No signs of wildlife, amphibians etc. recorded.
32608	Turkey Flats	2/14/2005	Tracks from deer, quail, cottontail, skunk, unknown small bird. Owl pellet by staff gauge.
32615	Turkey Flats	3/16/2005	Observed tracks of deer, medium sized wading bird, bobcat, and armadillo.
32623	Turkey Flats	4/18/2005	Many white deer and armadillo tracks.
32911	Turkey Flats	5/18/2005	Saw tracks for white-tail deer and armadillos.
32990	Turkey Flats	6/14/2005	Tracks from deer, armadillo, beaver, opossum, raccoon and bobcat. Also two sets of turtle/tortoise tracks.
33397	Turkey Flats	7/13/2005	Armadillo tracks, deer tracks, raccoon tracks and raccoon scat (droppings).
33879	Turkey Flats	8/19/2005	Armadillo, deer and bobcat tracks.
33885	Turkey Flats	9/20/2005	Coyote scat, white-tailed deer tracks and wild turkey tracks.
34310	Turkey Flats	10/17/2005	Tracks from whitetail deer, armadillo and turkey
34315	Turkey Flats	11/18/2005	No water. Tracks from deer and armadillo.
34319	Turkey Flats	12/22/2005	Tracks from white-tailed deer and armadillo.
34322	Turkey Flats	1/18/2006	No water. Tracks from white-tailed deer, turkey and armadillo.
34980	Turkey Flats	2/15/2006	No signs of wildlife, amphibians etc. recorded.
34982	Turkey Flats	3/22/2006	No signs of wildlife, amphibians etc. recorded.
31675	Midwest City	1/21/2005	Beaver tracks and cut vegetation.
32614	Midwest City	2/28/2005	Lots of geese tracks and scat seen. Raccoon tracks and tracks from a big dog or cat.
32617	Midwest City	3/27/2005	
32628	Midwest City	4/30/2005	Lots of aquatic vegetation now. Found two large owl pellets. Heard frogs but not sure what kind.
32905	Midwest City	5/26/2005	
32993	Midwest City	6/28/2005	
33399	Midwest City	7/26/2005	Raccoon tracks, wading bird prints and scat.
33880	Midwest City	8/23/2005	
33886	Midwest City	9/21/2005	
34312	Midwest City	10/20/2005	
34317	Midwest City	11/30/2005	
34320	Midwest City	12/22/2005	
34978	Midwest City	1/31/2006	
34323	Midwest City	2/23/2006	
34983	Midwest City	3/30/2006	No signs of wildlife, amphibians etc. recorded.
31676	4-Corners Pond	1/27/2005	No signs of wildlife, amphibians etc. recorded.
32612	4-Corners Pond	2/25/2005	No signs of wildlife, amphibians etc. recorded.
32618	4-Corners Pond	3/27/2005	
32624	4-Corners Pond	4/19/2005	Heavy rain early last week. Deer droppings observed on trail.
32908	4-Corners Pond	5/23/2005	
32992	4-Corners Pond	6/27/2005	
33400	4-Corners Pond	7/27/2005	
33881	4-Corners Pond	8/29/2005	Tracks from armadillo, raccoon, white-tailed deer, and river otter.
33888	4-Corners Pond	9/23/2005	Wetland is completely dry.
34313	4-Corners Pond	10/26/2005	
31677	Beaver Pond	1/11/2005	No signs of wildlife, amphibians etc. recorded.
32610	Beaver Pond	2/15/2005	Feathers from water fowl and owl. Raccoon, deer and coyote tracks. Heard and saw many birds.
32616	Beaver Pond	3/17/2005	Many armadillo holes and waterfowl feathers. White deer and bobcat tracks.
32622	Beaver Pond	4/18/2005	Beaver tracks & slides. Armadillo holes & tracks.
32906	Beaver Pond	5/17/2005	Saw tracks of white-tailed deer, armadillo, and opossum.
32991	Beaver Pond	6/15/2005	
33398	Beaver Pond	7/13/2005	Coyote droppings, armadillo tracks, white-tail deer tracks, beaver signs, raccoon tracks, crawfish burrow, turtle tracks, unknown species of frog, Plains leopard frog
33878	Beaver Pond	8/1/2005	Raccoon, dog and deer tracks.
33887	Beaver Pond	9/22/2005	Coyote scat. Tracks from white-tailed deer, dogs, and bobcat.
34311	Beaver Pond	10/17/2005	Tracks from white-tail deer, armadillo and beaver.
34316	Beaver Pond	11/18/2005	Tracks from armadillo and deer.
34318	Beaver Pond	12/21/2005	One turkey feather frozen in ice. Armadillo burrow. Tracks from bobcat, coyote, white-tailed deer, dog, beaver, racoon, cottontail, armadillo.
34321	Beaver Pond	1/18/2006	Tracks from white-tailed deer, dog, bobcat, small bird. Five armadillo burrows with foraging and digging.
34979	Beaver Pond	2/15/2006	
34981	Beaver Pond	3/22/2006	No signs of wildlife, amphibians etc. recorded.
32177	Stinchcomb	1/29/2005	No signs of wildlife, amphibians etc. recorded.
32613	Stinchcomb	2/26/2005	
32619	Stinchcomb	3/27/2005	Deer tracks.
32626	Stinchcomb	4/28/2005	Many whitetail deer tracks and raccoon tracks.
32907	Stinchcomb	5/19/2005	
32995	Stinchcomb	6/30/2005	
33402	Stinchcomb	7/30/2005	
33883	Stinchcomb	8/31/2005	Raccoon tracks.
33889	Stinchcomb	9/30/2005	
34314	Stinchcomb	10/29/2005	
32781	Heather Ridge	12/20/2004	Wetland monitoring training, no data.
32175	Heather Ridge	1/21/2005	Scat.
32780	Heather Ridge	3/31/2005	
32994	Heather Ridge	6/29/2005	
33401	Heather Ridge	7/29/2005	Pictures taken at outmost stake at all transects save HR4 where it was the third in first shot taken, and compass reading, facing 90 deg left of straight down transect
33890	Heather Ridge	9/30/2005	
32176	Durrett	1/21/2005	Lots of deer tracks. Signs of beaver, stripped sticks, etc.
32611	Durrett	2/19/2005	Evidence of beavers, stripped branches.
32620	Durrett	3/29/2005	Observed beaver lodge, crayfish burrow.
32625	Durrett	4/22/2005	Several feathers. Four crayfish burrows.
32909	Durrett	5/25/2005	Observed several deer and raccoon tracks.
32178	Beaver Creek	1/31/2005	No signs of wildlife, amphibians etc. recorded.
32609	Beaver Creek	2/14/2005	

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SAMPLE ID	Site Name	Date	Start Gauge (cm)	Crest (cm)	Well Depth, pipe top to ground (cm)	Distance from Pipe Top to Water (cm)	Groundwater Depth (cm)	Sketch Sheet(s) Available?	Soil Assessment Performed?	Vegetation Assessment Performed?	Photographs Available?
31673	Marsh-O-Muck	1/25/2005	30	31	0	0	0	Y			Y
33876	Marsh-O-Muck	2/23/2005	52	3	0	0	0				
32621	Marsh-O-Muck	3/31/2005	30	32			0				
32627	Marsh-O-Muck	4/28/2005	30	32							Y
32910	Marsh-O-Muck	5/31/2005	30	32	0	0	0		Y		
32996	Marsh-O-Muck	6/30/2005	28	30	0	0	0		Y		
33877	Marsh-O-Muck	7/29/2005	2.8	3	0	0	0		Y		
33882	Marsh-O-Muck	8/31/2005	3	3.1	0	0	0		Y	Y	
31674	Turkey Flats	1/11/2005	0	0			>45	Y			Y
32608	Turkey Flats	2/14/2005	0	0	30		>30		Y		
32615	Turkey Flats	3/16/2005	22	27.5	13	22	9				
32623	Turkey Flats	4/18/2005	0	0	14	>46.5	>32				Y
32911	Turkey Flats	5/18/2005	18	27	13	39	26	Y		Y	
32990	Turkey Flats	6/14/2005	0	20	13	41	28			Y	
33397	Turkey Flats	7/13/2005	0	0	13.5	>47	>33.5			Y	Y
33879	Turkey Flats	8/19/2005	0	3	12	>45.5	>33.5		Y	Y	
33885	Turkey Flats	9/20/2005	0	2	13	>46	>33			Y	
34310	Turkey Flats	10/17/2005	0	3							
34315	Turkey Flats	11/18/2005	0	0	13	>46	>53				
34319	Turkey Flats	12/22/2005	0	0	13	>46	>33				
34322	Turkey Flats	1/18/2006									
34980	Turkey Flats	2/15/2006									
34982	Turkey Flats	3/22/2006									
31675	Midwest City	1/21/2005	47	48	20	60	41				
32614	Midwest City	2/28/2005	49	52	16.5	58.5	42		Y		
32617	Midwest City	3/27/2005	46	50	18	64	0	Y			
32628	Midwest City	4/30/2005	47	48	18	>61	0				
32905	Midwest City	5/26/2005	47	51			0			Y	
32993	Midwest City	6/28/2005	40	40			0			Y	
33399	Midwest City	7/26/2005	33	40			0			Y	Y
33880	Midwest City	8/23/2005	36	47			0		Y	Y	
33886	Midwest City	9/21/2005	46	50	17.5	44	16.5		Y		
34312	Midwest City	10/20/2005	47	48			0				Y
34317	Midwest City	11/30/2005	46	49			0				
34320	Midwest City	12/22/2005	47	52			0				
34978	Midwest City	1/31/2006	50	51	61	19	42				Y
34323	Midwest City	2/23/2006	49	53				Y			
34983	Midwest City	3/30/2006									
31676	4-Corners Pond	1/27/2005	89	92				Y		Y	Y
32612	4-Corners Pond	2/25/2005	83	100						Y	
32618	4-Corners Pond	3/27/2005	81	90	15.8	2.7	13.1				
32624	4-Corners Pond	4/19/2005	82	94	15.5	1.7	13.8	Y			Y
32908	4-Corners Pond	5/23/2005	71	81	15.5	10.2	15.3			Y	
32992	4-Corners Pond	6/27/2005	62	94	12.8	22	-9.2			Y	
33400	4-Corners Pond	7/27/2005	25	28	14	0			Y	Y	Y
33881	4-Corners Pond	8/29/2005	5	35	14	0			Y	Y	
33888	4-Corners Pond	9/23/2005								Y	
34313	4-Corners Pond	10/26/2005									
31677	Beaver Pond	1/11/2005	75	75	15	8	+7				
32610	Beaver Pond	2/15/2005	80	85					Y		
32616	Beaver Pond	3/17/2005	70	78	16	15	1				
32622	Beaver Pond	4/18/2005	65	75	15	16.5	7.5				Y
32906	Beaver Pond	5/17/2005	62	115	16	19	3	Y		Y	
32991	Beaver Pond	6/15/2005	75	86	14	5	+5			Y	
33398	Beaver Pond	7/13/2005	55	103	13	49	36			Y	Y
33878	Beaver Pond	8/1/2005	6	11	13	>55	>42		Y	Y	
33887	Beaver Pond	9/22/2005	27	103	17	>54	>37			Y	
34311	Beaver Pond	10/17/2005	53	55	14	39	25				
34316	Beaver Pond	11/18/2005	71	100	17	21	4				
34318	Beaver Pond	12/21/2005				14					
34321	Beaver Pond	1/18/2006	75	78	15.5	8	7.5				
34979	Beaver Pond	2/15/2006									
34981	Beaver Pond	3/22/2006									
32177	Stinchcomb	1/29/2005									
32613	Stinchcomb	2/26/2005	39	75	54	54	0		Y		Y
32619	Stinchcomb	3/27/2005									Y
32626	Stinchcomb	4/28/2005	21	61	55.5						Y
32907	Stinchcomb	5/19/2005	40	60	55	0	0			Y	
32995	Stinchcomb	6/30/2005	50	137	46	0	0			Y	
33402	Stinchcomb	7/30/2005	69	50	59	59	0			Y	Y
33883	Stinchcomb	8/31/2005	60	80	60	54	6		Y	Y	
33889	Stinchcomb	9/30/2005	35	100	60	60	0			Y	
34314	Stinchcomb	10/29/2005	29	93	60	60	0				Y
32781	Heather Ridge	12/20/2004						Y			
32175	Heather Ridge	1/21/2005	50	68	21	46	25				
32780	Heather Ridge	3/31/2005	31	52			25		Y		
32994	Heather Ridge	6/29/2005	4.4	6.8	23	61				Y	
33401	Heather Ridge	7/29/2005	2.8	4.3	22	>60	n/a	Y		Y	Y
33890	Heather Ridge	9/30/2005	40	60						Y	
32176	Durrett	1/21/2005									Y
32611	Durrett	2/19/2005							Y		
32620	Durrett	3/29/2005									
32625	Durrett	4/22/2005								Y	
32909	Durrett	5/25/2005								Y	
32178	Beaver Creek	1/31/2005	42	42	16	15	31	Y			
32609	Beaver Creek	2/14/2005	46	46	51	13	30		Y		

SAMPLEID	SiteName	Date	Comments
31673	Marsh-O-Muck	1/25/2005	
33876	Marsh-O-Muck	2/23/2005	
32621	Marsh-O-Muck	3/31/2005	
32627	Marsh-O-Muck	4/28/2005	
32910	Marsh-O-Muck	5/31/2005	
32996	Marsh-O-Muck	6/30/2005	
33877	Marsh-O-Muck	7/29/2005	
33882	Marsh-O-Muck	8/31/2005	
31674	Turkey Flats	1/11/2005	This is a newly constructed, man-made wetland. It is not yet holding water therefore no water testing was possible this time.
32608	Turkey Flats	2/14/2005	Newly constructed wetland, not currently flooded. No water present in wetland or recorded in groundwater gauge.
32615	Turkey Flats	3/16/2005	Stopped pumping at 4pm yesterday. Dyke work with backhoe on east side today so took water sample from west side, near inlet pipe.
32623	Turkey Flats	4/18/2005	No water since last sampling event.
32911	Turkey Flats	5/18/2005	Water pumped in yesterday.
32990	Turkey Flats	6/14/2005	Source of water is recent rains, no recent pumping. Water sampled from a puddle approx 12cm deep near outlet (<1 acre).
33397	Turkey Flats	7/13/2005	No water this month.
33879	Turkey Flats	8/19/2005	Johnson grass has been mowed along inside of dikes in preparation for transplanting smartweed. Bentonite clay has been added along the south side to help with
33885	Turkey Flats	9/20/2005	No water.
34310	Turkey Flats	10/17/2005	No water.
34315	Turkey Flats	11/18/2005	
34319	Turkey Flats	12/22/2005	No water.
34322	Turkey Flats	1/18/2006	No water.
34980	Turkey Flats	2/15/2006	
34982	Turkey Flats	3/22/2006	
31675	Midwest City	1/21/2005	Fair skies with a few clouds. Site is next to a water treatment plant and periodically receives water from the plant via a pipe. Orthophosphate results invalidated due
32614	Midwest City	2/28/2005	
32617	Midwest City	3/27/2005	There was no water inside the groundwater pipe, so the "distance from pipe top to water" indicates where we hit the ground within the pipe (it was moist though).
32628	Midwest City	4/30/2005	Not water in pipe so distance from pipe top to dirt is >61cm. April sampling run!
32905	Midwest City	5/26/2005	No water in pipe.
32993	Midwest City	6/28/2005	No water in pipe.
33399	Midwest City	7/26/2005	No water in pipe.
33880	Midwest City	8/23/2005	
33886	Midwest City	9/21/2005	
34312	Midwest City	10/20/2005	Due to high water levels, unable to conduct soil test.
34317	Midwest City	11/30/2005	Iced over. Kim called the wastewater treatment plant (David Price) due to high results.
34320	Midwest City	12/22/2005	
34978	Midwest City	1/31/2006	Pipe flow from water treatment plant.
34323	Midwest City	2/23/2006	Couldn't complete hydrology assessment because groundwater sampler iced over. Sheet of ice covering entire body of water. Oxygen saturation exceeds testing
34983	Midwest City	3/30/2006	
31676	4-Corners Pond	1/27/2005	Water level extremely high so unable to check groundwater sampler. Water level is 3 cm above top of well head. Excessively high water levels. There is no indication of cattail or cattail within wetland. Algal bloom occurred since late
32612	4-Corners Pond	2/25/2005	Extremely high water levels again. Approx 7 cm above top of well head. There is no indication of cattail or cattail within wetland. Algal bloom occurred since late
32618	4-Corners Pond	3/27/2005	Water level finally low enough to measure well depth. Historically, levels should continued to drop off as summer proceeds.
32624	4-Corners Pond	4/19/2005	
32908	4-Corners Pond	5/23/2005	There is no indication of Cattail or False Indigo on wetland at this time. The most common species are Smartweed and Culgrass.
32992	4-Corners Pond	6/27/2005	There is no indication of Cattail or False Indigo on wetland at this time. The most common species are Smartweed and Culgrass.
33400	4-Corners Pond	7/27/2005	Water level down, nothing detected in well.
33881	4-Corners Pond	8/29/2005	Water level too low for well reading.
33888	4-Corners Pond	9/23/2005	
34313	4-Corners Pond	10/26/2005	Wetland is still dry, no water testing.
31677	Beaver Pond	1/11/2005	Water above ground.
32610	Beaver Pond	2/15/2005	Water is 4cm above ground. Greenish-brown scum on surface of water (not seen in past)
32616	Beaver Pond	3/17/2005	No film on water this month.
32622	Beaver Pond	4/18/2005	
32906	Beaver Pond	5/17/2005	
32991	Beaver Pond	6/15/2005	Only had enough reagent to re-do the Phosphorus blank, second blank result 0.0 mg/L.
33398	Beaver Pond	7/13/2005	
33878	Beaver Pond	8/1/2005	
33887	Beaver Pond	9/22/2005	
34311	Beaver Pond	10/17/2005	Scum on water. Lots of leaves floating. Installed duck nest boxes 10-1-05 (photos taken).
34316	Beaver Pond	11/18/2005	Tractor repairing road by site may have affected wildlife.
34318	Beaver Pond	12/21/2005	Unable to determine hydrology due to ice. Ice wasn't thick enough to stand on safely, approx 10 cm. Ice had to be broken to obtain water samples. DO samples
34321	Beaver Pond	1/18/2006	
34979	Beaver Pond	2/15/2006	
34981	Beaver Pond	3/22/2006	
32177	Stinchcomb	1/29/2005	Dissolved Oxygen results invalidated by Kim Shaw.
32613	Stinchcomb	2/26/2005	
32619	Stinchcomb	3/27/2005	No water at plot site.
32626	Stinchcomb	4/28/2005	No water in pipe.
32907	Stinchcomb	5/19/2005	No water. There was Bulrush there but I believe it was Scirpus validus not Scirpus pungens. It was in all three transects about 4ft tall.
32995	Stinchcomb	6/30/2005	Had trouble getting the lid off but could tell there was no water.
33402	Stinchcomb	7/30/2005	Got the lid off for the ground water this time. I will send PHOTOPOINTS soon. Water much more brown in color, floc is not settling as well.
33883	Stinchcomb	8/31/2005	First time well had water.
33889	Stinchcomb	9/30/2005	
34314	Stinchcomb	10/29/2005	
32781	Heather Ridge	12/20/2004	Wetland monitoring training, no data.
32175	Heather Ridge	1/21/2005	Walking trail. Insufficient reagent to complete Nitrate testing.
32780	Heather Ridge	3/31/2005	Secchi depth >0.3
32994	Heather Ridge	6/29/2005	The field person did not provide distance for the Vegetation Data Sheet, so I just made it up, mb.
33401	Heather Ridge	7/29/2005	DO Saturation is off our scale, >140%.
33890	Heather Ridge	9/30/2005	Water draining into wetland is on the NE corner from apparent storm drain from subdivision on East. Mower tracks that avoid an area where the turf and soil is sli
32176	Durrett	1/21/2005	Flooded, unable to determine hydrology.
32611	Durrett	2/19/2005	Wetland flooded, unable to determine hydrology. Wetland near highway.
32620	Durrett	3/29/2005	Wetland flooded.
32625	Durrett	4/22/2005	Unable to determine hydrology as site is flooded.
32909	Durrett	5/25/2005	Very flooded.
32178	Beaver Creek	1/31/2005	Turbidity 9.38 NTU. Photographs were printed out by the samplers.
32609	Beaver Creek	2/14/2005	

WATER CHEMISTRY

SAMPLEID	SiteName	Date	Time	Dissolved Oxygen-Sample (mg/L)	% Oxygen Saturation	pH-Sample(SU)	Nitrate Nitrogen-Sample (mg/L)	Ammonia Nitrogen-Sample (mg/L)	Orthophosphate Phosphorus-Sample (mg/L)
31673	Marsh-O-Muck	1/25/2005	10:15 AM	11	100	7.7	0.5	0.0 - 0.2 mg/L	0.027
33876	Marsh-O-Muck	2/23/2005	8:45 AM	15		7.5	0.21	0.0 - 0.2 mg/L	0.033
32621	Marsh-O-Muck	3/31/2005	8:36 AM	8		7.5	0.1	0.0 - 0.2 mg/L	
32627	Marsh-O-Muck	4/28/2005	1:45 PM	11		7.7	4.2	0.0 - 0.2 mg/L	0
32910	Marsh-O-Muck	5/31/2005	11:03 AM	8		7.5	0.1	0.0 - 0.2 mg/L	0.033
32996	Marsh-O-Muck	6/30/2005	11:00 AM	8		7.5	0.42	0.0 - 0.2 mg/L	0
33877	Marsh-O-Muck	7/29/2005	10:23 AM	8			0.44	0.0 - 0.2 mg/L	0
33882	Marsh-O-Muck	8/31/2005	9:00 AM	8		7.5		0.0 - 0.2 mg/L	0.033
31674	Turkey Flats	1/11/2005	9:00 AM						
32608	Turkey Flats	2/14/2005	11:45 AM						
32615	Turkey Flats	3/16/2005	10:15 AM	15	90	8	0.08	0.0 - 0.2 mg/L	0.02
32623	Turkey Flats	4/18/2005	10:20 AM						
32911	Turkey Flats	5/18/2005	9:15 AM	14	135	8	0.06	0.0 - 0.2 mg/L	0.027
32990	Turkey Flats	6/14/2005	9:30 AM	10	115	7.75	0.02	0.0 - 0.2 mg/L	0.033
33397	Turkey Flats	7/13/2005	9:00 AM						
33879	Turkey Flats	8/19/2005	9:10 AM						
33885	Turkey Flats	9/20/2005	9:00 AM						
34310	Turkey Flats	10/17/2005	9:00 AM						
34315	Turkey Flats	11/18/2005	10:00 AM						
34319	Turkey Flats	12/22/2005	9:00 AM						
34322	Turkey Flats	1/18/2006	9:15 AM						
34980	Turkey Flats	2/15/2006	9:00 AM						
34982	Turkey Flats	3/22/2006	10:00 AM						
31675	Midwest City	1/21/2005	11:00 AM	22		8.5	0.04	0.2 - 0.4 mg/L	
32614	Midwest City	2/28/2005	3:00 PM	16	140	8.7	0	0.0 - 0.2 mg/L	0.2
32617	Midwest City	3/27/2005	9:00 AM	13	115	8.5	0	0.4	0.26
32628	Midwest City	4/30/2005	1:50 PM	22	190	9.5	0.02	1.5	0.6
32905	Midwest City	5/26/2005	4:00 PM	10	115	8	0	0.2 - 0.4 mg/L	1.13
32993	Midwest City	6/28/2005	8:40 AM	0.4	5	7.6		0.0 - 0.2 mg/L	0.8
33399	Midwest City	7/26/2005	9:20 AM	0.4	18	7.6		0.0 - 0.2 mg/L	0.57
33880	Midwest City	8/23/2005	8:45 AM	0.2	3	7.2		0.2 - 0.4 mg/L	0.8
33886	Midwest City	9/21/2005	8:10 AM	0.2	3	7.5		0.0 - 0.2 mg/L	1
34312	Midwest City	10/20/2005	9:55 AM	0.2	5	7.4		0.0 - 0.2 mg/L	1.033
34317	Midwest City	11/30/2005	8:00 AM	8	55	7.4		>1.0 mg/L	1.5
34320	Midwest City	12/22/2005	9:55 AM	6	57	7.75		>1.0 mg/L	5.33
34978	Midwest City	1/31/2006	8:00 AM	16	122	8.85		0.0 - 0.2 mg/L	0.23
34323	Midwest City	2/23/2006	10:28 AM	26	9999	10		0.2 - 0.4 mg/L	0.067
34983	Midwest City	3/30/2006	9:05 AM						
31676	4-Corners Pond	1/27/2005	9:33 AM	14	106	7.4	0.05	0.0 - 0.2 mg/L	0.047
32612	4-Corners Pond	2/25/2005	9:47 AM	12	105	7.4	0.01	0.0 - 0.2 mg/L	0.043
32618	4-Corners Pond	3/27/2005	10:20 AM	12	104	7.8	0.01	0.0 - 0.2 mg/L	0.047
32624	4-Corners Pond	4/19/2005	8:00 AM	6	75	7.3	0	0.0 - 0.2 mg/L	0.04
32908	4-Corners Pond	5/23/2005	8:15 AM	4	55	7.2	0.01	0.0 - 0.2 mg/L	0.027
32992	4-Corners Pond	6/27/2005	8:30 AM	8	100	7.2	0.01	0.0 - 0.2 mg/L	0.04
33400	4-Corners Pond	7/27/2005	10:00 AM	8	105	7.6		0.0 - 0.2 mg/L	0.04
33881	4-Corners Pond	8/29/2005	8:30 AM	5	70	7.5		0.0 - 0.2 mg/L	0.166
33888	4-Corners Pond	9/23/2005	8:00 AM						
34313	4-Corners Pond	10/26/2005	2:35 PM						

31677	Beaver Pond	1/11/2005	9:40 AM	7	55	7.75	0.015	0.2 - 0.4 mg/L	0.133
32610	Beaver Pond	2/15/2005	9:00 AM	11	95	8	0.01	0.0 - 0.2 mg/L	0.067
32616	Beaver Pond	3/17/2005	10:00 AM	9	70	8	0.02	0.0 - 0.2 mg/L	0.053
32622	Beaver Pond	4/18/2005	8:45 AM	8	80	7.75	0.01	0.0 - 0.2 mg/L	0.013
32906	Beaver Pond	5/17/2005	9:00 AM	3	35	7.75	0.01	0.0 - 0.2 mg/L	0.127
32991	Beaver Pond	6/15/2005	9:55 AM	5	60	7.75	0.06	0.2 - 0.4 mg/L	0.173
33398	Beaver Pond	7/13/2005	10:00 AM	7	95	8	0.02	0.0 - 0.2 mg/L	0.33
33878	Beaver Pond	8/1/2005	9:10 AM	6	75	8		0.0 - 0.2 mg/L	0.04
33887	Beaver Pond	9/22/2005	9:00 AM	4	47	7.75	0	0.0 - 0.2 mg/L	0.107
34311	Beaver Pond	10/17/2005	9:45 AM	6	62	8		0.0 - 0.2 mg/L	0.093
34316	Beaver Pond	11/18/2005	9:00 AM	1.2	9	7.75		0.0 - 0.2 mg/L	0.2
34318	Beaver Pond	12/21/2005	8:15 AM	4	30	7.75		0.0 - 0.2 mg/L	0.1
34321	Beaver Pond	1/18/2006	8:30 AM	7	50	8		0.0 - 0.2 mg/L	0.06
34979	Beaver Pond	2/15/2006	8:10 AM						
34981	Beaver Pond	3/22/2006	9:15 AM						
32177	Stinchcomb	1/29/2005	9:00 AM			7.5	0		0.0066
32613	Stinchcomb	2/26/2005	9:15 AM	25		7.4	0	0.2 - 0.4 mg/L	0.11
32619	Stinchcomb	3/27/2005	12:00 PM						
32626	Stinchcomb	4/28/2005	8:00 AM	3		7.75	0	0.0 - 0.2 mg/L	0.07
32907	Stinchcomb	5/19/2005	10:24 AM	3		8	0	0.0 - 0.2 mg/L	0.2
32995	Stinchcomb	6/30/2005	9:45 AM	3		7.7	0.1	0.0 - 0.2 mg/L	0.23
33402	Stinchcomb	7/30/2005	12:55 PM	11		8.2	1	0.0 - 0.2 mg/L	0.27
33883	Stinchcomb	8/31/2005	1:00 PM	8		8	0	0.0 - 0.2 mg/L	0.08
33889	Stinchcomb	9/30/2005	8:35 AM	4		8	0	0.0 - 0.2 mg/L	0.19
34314	Stinchcomb	10/29/2005	3:15 PM	4		7.5	0	0.0 - 0.2 mg/L	0.18
32781	Heather Ridge	12/20/2004	2:56 PM						
32175	Heather Ridge	1/21/2005	3:00 PM	13	120	8	0.24	0.2 - 0.4 mg/L	0
32780	Heather Ridge	3/31/2005	4:57 PM	12	119	9.25	0	0.0 - 0.2 mg/L	0.047
32994	Heather Ridge	6/29/2005	4:00 PM	12	12	9.25	0	0.0 - 0.2 mg/L	0.073
33401	Heather Ridge	7/29/2005	2:00 PM	17	9999	9.5	0	0.0 - 0.2 mg/L	0.053
33890	Heather Ridge	9/30/2005	9:30 AM	6	6.5	7.5		0.0 - 0.2 mg/L	0
32176	Durrett	1/21/2005	3:35 PM	16		7.5	0.05	0.0 - 0.2 mg/L	1.6
32611	Durrett	2/19/2005	8:00 AM	11		8	0	0.0 - 0.2 mg/L	0.3
32620	Durrett	3/29/2005	8:00 AM	15		8	0	0.0 - 0.2 mg/L	0.04
32625	Durrett	4/22/2005	8:00 AM	8		7.5	0	0.0 - 0.2 mg/L	0.7
32909	Durrett	5/25/2005	8:00 AM	7		8	0	0.0 - 0.2 mg/L	0.07
32178	Beaver Creek	1/31/2005	10:45 AM	15	100	7.5	0	0.0 - 0.2 mg/L	0.06
32609	Beaver Creek	2/14/2005	1:30 PM	13	135	7.5	0	0.0 - 0.2 mg/L	0.047

SOILS

VEGETATION

SAMPLEID	SiteName	Date	Time	Transect	Distance	DistanceType	Green Ash Observed?	Silver Maple Observed?	Hackberry Observed?	Buttonbush Observed?	False Indigo Observed?	Black Willow Observed?	Cattails Observed?	American Bulrush Observed?	Spikerush Observed?	Duckweed Observed?	Pondweed Observed?	Coontail Observed?	Purple Loosestrife Observed?
31676	4-Corners Pond	1/27/2005	9:33 AM	1	0	Meters			1 unit			2 units			1 unit				
				1	10	Meters			1 unit							1 unit			
				1	20	Meters										1 unit			
				1	30	Meters													
				1	40	Meters													
				1	50	Meters													
				2	0	Meters									1 unit	2 units			
				2	11	Meters									2 units				
				2	22	Meters									2 units				
				2	33	Meters													
				2	44	Meters													
				2	55	Meters													
				3	0	Meters			2 units			4 units							
				3	12	Meters										2 units			
				3	24	Meters													
				3	36	Meters													
				3	48	Meters													
				3	60	Meters													
				4	0	Meters			6 units							5 units	2 units		
				4	10	Meters						1 unit				2 unit			
				4	20	Meters													
				4	30	Meters													
				4	40	Meters													
				4	50	Meters													
32612	4-Corners Pond	2/25/2005	9:47 AM	1	0	Meters						3 units		10%					
				1	10	Meters										Trace			
				1	20	Meters													
				1	30	Meters													
				1	40	Meters													
				1	50	Meters													
				2	0	Meters			1 unit					5%		1-2%			
				2	11	Meters								19%		1-2%			
				2	22	Meters													
				2	33	Meters													
				2	44	Meters													
				2	55	Meters													
				3	0	Meters		10 units							1 unit				
				3	12	Meters													
				3	24	Meters													
				3	36	Meters													
				3	48	Meters													
				3	60	Meters													
				4	0	Meters										2%			
				4	10	Meters						1 unit				2%			
				4	30	Meters													
				4	40	Meters													
				4	50	Meters													
32625	Durrett	4/22/2005	8:00 AM	1	0	Feet	Present							Present	Present				Present
				1	50	Feet								Present					
				1	100	Feet	Present			Present					Present				
				2	0	Meters	Present							Present			Present		Present
				2	50	Feet						Present		Present					
				2	100	Feet			Present				Present				Present		Present
				3	0	Feet													
				3	50	Feet				Present				Present					
				3	100	Feet													
				4	0	Feet						Present	Present				Present	Present	
				4	50	Feet			Present	Present			Present	Present					
				4	100	Feet	Present					Present	Present						

32909	Durrett	5/25/2005	8:00 AM	1	0	Feet	Present				Present	Present	Present
				1	50	Feet					Present		
				1	100	Feet	Present	Present				Present	
				2	0	Feet	Present						Present Present
				2	50	Feet			Present			Present	
				2	100	Feet		Present		Present			
				3	0	Feet			Present				Present Present
				3	50	Feet		Present			Present		
				3	100	Feet							
				4	0	Feet				Present	Present	Present	Present
				4	50	Feet		Present	Present		Present		
				4	100	Feet	Present			Present	Present		
32910	Marsh-O-Muck	5/31/2005	11:03 AM	1	0	Feet	Present				Present		
				1	50	Feet							
				1	100	Feet							
				2	0	Feet					Present		
				2	50	Feet	Present						
				2	100	Feet							
				3	0	Feet	Present				Present		
				3	50	Feet	Present						
				3	100	Feet							
				4	0	Feet							
				4	50	Feet							
				4	100	Feet							
32911	Turkey Flats	5/18/2005	9:15 AM	1	11	Meters							
				1	22	Meters							
				2	5	Meters							
				2	10	Meters							
				3	13	Meters							
				3	26	Meters							
				4	11	Meters							
				4	22	Meters							
32990	Turkey Flats	6/14/2005	9:30 AM	1	0	Meters							
				1	11	Meters							
				1	22	Meters							
				2	0	Meters							
				2	5	Meters							
				2	10	Meters							
				3	0	Meters							
				3	13	Meters							
				3	26	Meters							
				4	0	Meters							
				4	11	Meters							
				4	22	Meters			2 units		1 unit		
32991	Beaver Pond	6/15/2005	9:55 AM	1	0	Meters							
				1	15	Meters					7 units		
				1	31	Meters							
				2	0	Meters		1 unit					
				2	17.5	Meters					10 units		
				2	35	Meters					16 units		
				2	52.5	Meters					11 units		
				2	70	Meters					1 unit		
				3	0	Meters							
				3	17.5	Meters					12 units		
				3	35	Meters					7 units		
				3	55	Meters					1 unit		
				4	0	Meters							
				4	15	Meters					6 units		
				4	31	Meters		1 unit					

32995	Stinchcomb	6/30/2005	9:45 AM	1	0	Feet	Present			
				1	50	Feet		Present	Present?	
				1	100	Feet			Present	
				2	0	Feet	Present			
				2	50	Feet	Present	Present		
				2	100	Feet			Present	
				3	0	Feet	Present			
				3	50	Feet		Present		
				3	100	Feet			Present	
32996	Marsh-O-Muck	6/30/2005	11:00 AM	1	0	Feet	1 unit			1 unit
				1	50	Feet				
				1	100	Feet				
				2	0	Feet				1 unit
				2	50	Feet	1 unit			
				2	100	Feet				
				3	0	Feet	1 unit			1 unit
				3	50	Feet	1 unit			
				3	100	Feet				
33397	Turkey Flats	7/13/2005	9:00 AM	1	0	Meters				
				1	11	Meters				
				1	22	Meters				
				2	0	Meters				
				2	5	Meters				
				2	10	Meters				
				3	0	Meters				
				3	13	Meters				
				3	26	Meters				
				4	0	Meters			6 units	
				4	11	Meters				
				4	22	Meters	2 units		2 units	
33398	Beaver Pond	7/13/2005	10:00 AM	1	0	Meters				
				1	15	Meters		2 units		
				1	31	Meters	1 unit			
				2	0	Meters				
				2	17.5	Meters		7 units		
				2	35	Meters		8 units		
				2	52.5	Meters		8 units		
				2	70	Meters		1 unit		
				3	0	Meters				
				3	17.5	Meters		11 units		
				3	35	Meters		2 units		
				3	55	Meters				
				4	0	Meters				
				4	15	Meters		3 units		
				4	31	Meters				
33399	Midwest City	7/26/2005	9:20 AM	1	0	Meters				
				1	4.8	Meters				
				1	9.7	Meters			12 units	20%
				2	0	Meters				
				2	11	Meters		3 ybuts	25%	19%
				2	18.7	Meters			35%	40%
				3	0	Meters				
				3	8.2	Meters				
				3	17	Meters			3 units	
				3	25.6	Meters				
				3	34.5	Meters				35%
				4	0	Meters				
				4	9.4	Meters		4 units	40%	60%
				4	18.8	Meters				

33400	4-Corners Pond	7/27/2005	10:00 AM	1	0	Meters		4 units	10%			
				1	10	Meters						
				1	20	Meters						
				1	30	Meters						
				1	40	Meters						
				1	50	Meters						
				2	0	Meters	1 unit		5%			
				2	11	Meters						
				2	22	Meters						
				2	33	Meters						
				2	44	Meters						
				2	55	Meters						
				3	0	Meters	5 units	5 units	6 units			
				3	12	Meters						
				3	24	Meters						
				3	36	Meters						
				3	48	Meters						
				3	60	Meters						
				4	0	Meters						
				4	10	Meters						
				4	20	Meters						
				4	30	Meters						
				4	40	Meters						
				4	50	Meters						
33401	Heather Ridge	7/29/2005	2:00 PM	1	2	Meters	2 units	1 unit				
				1	3	Meters		1 unit	10 units	1%		
				1	4	Meters		1 unit	1 unit		5%	80%
				1	5	Meters		1 unit				
				2	1	Meters						
				2	2	Meters						
				2	3	Meters		3 units				
				2	4	Meters		4 units	1 unit		10%	50%
				3	1	Meters						
				3	2	Meters		1 unit				
				3	3	Meters		4 units				
				3	4	Meters		2 units			5%	30%
				4	1	Meters						
				4	2	Meters						
				4	3	Meters		2 units				
				4	4	Meters		2 units	1 unit			
				4	5	Meters						30%
33402	Stinchcomb	7/30/2005	12:55 PM	1	0	Meters						
				1	50	Meters	12 units					
				1	100	Meters			100%			
				2	0	Meters	5 units					
				2	50	Meters						
				2	100	Meters			100%			
				3	0	Meters	4 units					
				3	50	Meters		1 unit				
				3	100	Meters			100%			
				4	0	Meters						
				4	50	Meters						
				4	100	Meters						
33877	Marsh-O-Muck	7/29/2005	10:23 AM	1	0	Feet	1 unit		1 unit			
				1	50	Feet						
				1	100	Feet						
				2	0	Feet			1 unit			
				2	50	Feet	1 unit					
				2	100	Feet						
				3	0	Feet	1 unit		1 unit			
				3	50	Feet	1 unit					
				3	100	Feet						
				4	0	Feet						
				4	50	Feet						
				4	100	Feet						

33883	Stinchcomb	8/31/2005	1:00 PM	1	0	Feet				100%	5%
				1	50	Feet	1 unit				
				1	100	Feet	5 units				
				2	0	Feet			100%	2%	
				2	50	Feet					
				2	100	Feet	8 units				
				3	0	Feet					
				3	50	Feet	3 units				
				3	100	Feet	1 unit				
				4	0	Feet					
				4	50	Feet					
				4	100	Feet					
33885	Turkey Flats	9/20/2005	9:00 AM	1	0	Meters					
				1	11	Meters					
				1	22	Meters					
				2	0	Meters				3 units	
				2	5	Meters					
				2	10	Meters					
				3	0	Meters					
				3	13	Meters					
				3	26	Meters					
				4	0	Meters		2 units		20%	
				4	11	Meters					
				4	22	Meters		1 unit			
33886	Midwest City	9/21/2005	8:10 AM	1	0	Meters					
				1	4.8	Meters					
				1	9.7	Meters		8 units	10 units		20%
				2	0	Meters					
				2	11	Meters		3 units	20%		1%
				2	18	Meters			55%		15%
				3	0	Meters					
				3	8.2	Meters					
				3	17	Meters			2 units		
				3	25.6	Meters					
				3	34.5	Meters					55%
				4	0	Meters					
				4	9.4	Meters		4 units	45%		50%
				4	18.8	Meters					25%
33887	Beaver Pond	9/22/2005	9:00 AM	1	0	Meters					
				1	15	Meters	5 units				
				1	31	Meters					
				2	0	Meters					
				2	17.5	Meters	4 units				
				2	35	Meters	5 units			50%	
				2	52.5	Meters	2 units			60%	
				2	70	Meters	1 unit				
				3	0	Meters				20%	
				3	17.5	Meters	4 units				
				3	35	Meters	1 unit				
				3	55	Meters					
				4	0	Meters	5 units				
				4	15	Meters	4 units				
				4	31	Meters					
33888	4-Corners Pond	9/23/2005	8:00 AM	1	0	Meters	5 units			2 units	
				1	12	Meters					
				1	24	Meters					
				1	36	Meters					
				1	48	Meters					
				1	60	Meters					
				2	0	Meters					
				2	10	Meters					
				2	20	Meters					
				2	30	Meters					
				2	40	Meters					
				2	50	Meters					
				3	0	Meters		5 units		10%	
				3	10	Meters					
				3	20	Meters					
				3	30	Meters					
				3	40	Meters					
				3	50	Meters					
				4	0	Meters				2%	
				4	11	Meters					
				4	22	Meters					
				4	33	Meters					
				4	44	Meters					
				4	55	Meters					

SUMMARY

The intent of this project was to implement a pilot volunteer wetlands monitoring program. However, there were a wide range of wetlands sites that were monitored and unfortunately reference sites were not available. At this time only general observations can be made about the condition of the wetlands.

Water Chemistry

The water chemistry of a wetland can tell you about the surrounding area by showing what is contained in the water. Generally the water chemistry data for the wetland sites was very good (see raw data above). Nearly every sample had adequate dissolved oxygen and very low nutrients. The ammonia nitrogen was usually below detection limits for the kits. However, there was one exception, the Midwest City Wetland. This wetland is adjacent to a wastewater treatment plant and is hydraulically fed by treated effluent. This wetland is understandably higher in nutrients than the other sites. These high nutrient levels make the system overly productive and causing very low dissolved oxygen levels over the warmer months. This low level of dissolved oxygen is not conducive for aquatic organisms.

Water chemistry data for Midwest City Wetland

SAMPLEID	SiteName	Date	Time	Dissolved Oxygen-Sample (mg/L)	% Oxygen Saturation	pH-Sample(SU)	Nitrate Nitrogen-Sample (mg/L)	Ammonia Nitrogen-Sample (mg/L)	Orthophosphate Phosphorus-Sample (mg/L)
31675	Midwest City	1/21/2005	11:00 AM	22		8.5	0.04	0.2 - 0.4 mg/L	
32614	Midwest City	2/28/2005	3:00 PM	16	140	8.7	0	0.0 - 0.2 mg/L	0.2
32617	Midwest City	3/27/2005	9:00 AM	13	115	8.5	0	0.4	0.26
32628	Midwest City	4/30/2005	1:50 PM	22	190	9.5	0.02	1.5	0.6
32905	Midwest City	5/26/2005	4:00 PM	10	115	8	0	0.2 - 0.4 mg/L	1.13
32993	Midwest City	6/28/2005	8:40 AM	0.4	5	7.6		0.0 - 0.2 mg/L	0.8
33399	Midwest City	7/26/2005	9:20 AM	0.4	18	7.6		0.0 - 0.2 mg/L	0.57
33880	Midwest City	8/23/2005	8:45 AM	0.2	3	7.2		0.2 - 0.4 mg/L	0.8
33886	Midwest City	9/21/2005	8:10 AM	0.2	3	7.5		0.0 - 0.2 mg/L	1
34312	Midwest City	10/20/2005	9:55 AM	0.2	5	7.4		0.0 - 0.2 mg/L	1.033
34317	Midwest City	11/30/2005	8:00 AM	8	55	7.4		>1.0 mg/L	1.5
34320	Midwest City	12/22/2005	9:55 AM	6	57	7.75		>1.0 mg/L	5.33
34978	Midwest City	1/31/2006	8:00 AM	16	122	8.85		0.0 - 0.2 mg/L	0.23
34323	Midwest City	2/23/2006	10:28 AM	26	9999	10		0.2 - 0.4 mg/L	0.067

Soils

Soils are a key characteristic that are used to legally define a wetland and its boundary. Soils and features contained within them can be difficult to decipher, even for soil experts. That makes this category of data collection hard to implement with volunteers. However, soils are an important component of wetlands and the volunteers should be exposed to that by making observations about the soil at their wetland sites. While the wetland sites did not contain all of the soil features, many of them were present. The majority

of the sites contained a muck layer indicating those wetlands are have productive vegetation and enough water present to keep the vegetation from completely decomposing, indicating saturated soil conditions. However, very few of the wetland sites had a sulfur smell. The lack of the sulfur smell could indicate that those systems have lower bacterial and microbial activity.

Soil features present at wetland sites

	Sulfur Smell @ 15cm?	Sulfur Smell @ 30cm?	Sulfur Smell @ 45cm?	Mottles @ 15cm?	Mottles @ 30cm?	Mottles @ 45cm?	Standing Water?	Muck Layer?
sites present	2	0	0	5	6	5	3	6
% presence	22%	0%	0%	56%	67%	56%	33%	67%

Vegetation

The condition, composition, and location of a wetland's vegetation are important to understanding the wetlands condition. The plant list contained in the WHAM methodology contains species that would be commonly found in Oklahoma's wetlands. The list of species is short, which makes it manageable for volunteers to learn, but many other plant species will be missed during monitoring that may play just as an important role. It appears from the table below that a majority of the sites are emergent marsh systems, based on the percent of emergent vegetation present. None of the sites contained false indigo, which may indicate that it is not appropriate for the list. Also, only two sites contained the invasive purple loosestrife.

Species present at wetland sites

	Green Ash Observed?	Silver Maple Observed?	Hackberry Observed?	Buttonbush Observed?	False Indigo Observed?	Black Willow Observed?	Cattails Observed?	American Bulrush Observed?	Spikerush Observed?	Duckweed Observed?	Pondweed Observed?	Coontail Observed?	Purple Loosestrife Observed?
sites present	2	1	5	5	0	7	6	4	5	4	2	2	2
% presence	25%	13%	63%	63%	0%	88%	75%	50%	63%	50%	25%	25%	25%

With additional analysis and an added staff member, a volunteer wetlands monitoring could be fully and successfully implemented in the State of Oklahoma. Although the WHAM methodology has some shortcomings (e.g. limited plant list) it generally provides good general information about a wetland site. By conducting more monitoring and developing reference sites for the different types of wetlands, the methodology could be fine-tuned to give a more accurate picture of the monitoring sites. The results from the reference sits could then be used to determine the condition of the monitoring sites.

Most importantly volunteer wetland monitoring gets the public involved and educated about the importance of wetlands. Volunteer monitoring has been done for years on streams, and many more people are educated and familiar with functions of streams. By implementing a volunteer program for wetlands steps would be taken to better educate the public about the important functions that wetlands perform and the values they provide.

Task 3: Wetland Education

- Agendas
- Curricula
- Locations
- Attendees



**for EPA Wetlands Grant:
 Implementation of Wetland Health Assessment
 Monitoring Programs (WHAM)**

Schedule

Four educator workshops were conducted between June 2005 and December 2005 (see Table 1).

Table 1. Workshop Schedule

DATE	LOCATION	TIME
6/25/05	NE State University, Broken Arrow Campus	9:00 am to 3:00 pm
8/6/05	Great Salt Plains National Wildlife Refuge, Jet	9:00 am to 3:00 pm
10/29/05	NE State University, Broken Arrow Campus	9:00 am to 3:00 pm
11/12/05 & 11/13/05	Cameron University, Lawton	8:00 am to 4:00 pm & 8:00 am to 4:00 pm

Participation

A total of 49 educators attended the trainings (see Table 2). Workshop participant lists for each workshop are attached.

Table 2. Breakdown of workshop participants.

DATE	# HOURS	CURR	TOTAL	ELEM	SECOND	NON- FORMAL	AGENCY	OTHER
6/25/05	6	WOW	9	9 preservice				
8/6/05	6	WOW	8	3 inservice	3 inservice		2	
10/29/05	6	WOW	20	20 preservice				
11/12/05	16	WOW	12	1 preservice	2 preservice	2		7

Curriculum

The agendas for these workshops were based on WOW! the Wonders of Wetlands Educator's Guide published by Project WET and Environmental Concern. Agenda items included several activities from the WOW guide in addition to field experiences. Activities were led by a certified workshop facilitator. Some of the activities presented at the workshops included:

- Wetland Habitats - a flowchart key to types of wetlands
- Wetland Metaphors - wetland values and functions
- Soak It Up - how do wetlands get wet
- Do You Dig Wetland Soils? - physical features of wetlands soils
- This Plant Key is All Wet - key to wetland plants

WOW! the Wonders of Wetlands
Workshop Participants
June 25, 2005 @ NE State University, BA Campus

<i>FIRST NAME</i>	<i>LAST NAME</i>	<i>ADDRESS</i>	<i>CITY</i>	<i>STATE</i>	<i>ZIP CODE</i>
CHRIS	BYCROFT	532 N RRSOEDALE	TULSA	OK	74127
MEGAN	CHADDICK	3126 S 214 E AVE	BROKEN ARROW	OK	74014
TAMMY	HALLUM	5638 S 80TH E AVE	TULSA	OK	74145
APRIL	MC MILLAN	25455 E 118TH ST S	COWETA	OK	74429
JAMI	ROBINSON	PO BOX 602	WYNONA	OK	74084
PRESTON	ROGERS	1301 N 48TH	MUSKOGEE	OK	74401
BILLY H.	SMITH	11358 N 510 RD	TAHLEQUAH	OK	74464
JOANNIE S.	SMITH	11358 N 510 RD	TAHLEQUAH	OK	74464
CODI	YANDELL	209 N HUGHES	MORRIS	OK	74445

WOW! the Wonders of Wetlands
Workshop Participants
August 6, 2005 @ Great Salt Plains Wildlife Refuge

<i>FIRST NAME</i>	<i>LAST NAME</i>	<i>ADDRESS</i>	<i>CITY</i>	<i>STATE</i>	<i>ZIP CODE</i>
CAROLYN	ROBERTS	BOX 278	DRUMMOND	OK	73735
JANEL M.	POWELL	RT 2 BOX 37A	MENO	OK	73780
CAROLE	STAKE	3223 ROBIN RIDGE RD	WOODWARD	OK	73801
JULIE	ANGLE	RR 1 BOX 190	MEDFORD	OK	73759
TAMARA	GOEKEN	RR 2 BOX 85	CHEROKEE	OK	73728
DON	BEADLES	817 NOBLE ST	ALVA	OK	73717
RON	PRICE	PO BOX 816	OKMULGEE	OK	74449
EMILY	HILE	RR 1 BOX 78	JET	OK	73749

WOW! the Wonders of Wetlands
Workshop Participants
October 29, 2005 @ NE State University, BA Campus

<i>FIRST NAME</i>	<i>LAST NAME</i>	<i>ADDRESS</i>	<i>CITY</i>	<i>STATE</i>	<i>ZIP CODE</i>
DANIEL	BROW	6523 S 96TH E AVE	TULSA	OK	74133
AMBER	BRANNAN	1601 S 293RD E AVE	BROKEN ARROW	OK	74014
GREG	NEWMAN	2707 S 119TH E AVE	TULSA	OK	74109
SONYA	JOBE	9102 N 50 W AVE	SPERRY	OK	74073
SUSAN	BAUGHER	PO BOX 174	PRUE	OK	74080
MICHELE	FLOWERS	2328 W GARY ST	BROKEN ARROW	OK	74012
JENNIFER	ROZELL	10130 E ADMIRAL BLVD	TULSA	OK	74118
SHONNA	BURNS	8920 E 134TH ST S	BIXBY	OK	74008
ILA	FRANKLIN	6940 E LATIMER PL	TULSA	OK	74115
LAURA	YOST	3717 E 211ST ST S	MOUNDS	OK	74047
AMY	POTEETE	404 E 12TH ST #8	TULSA	OK	74120
CINDI	COLLIN	41574 S 559 RD	ELUCHA	OK	74342
MELINDA	TEAGUE	PO BOX 1138	JAY	OK	74348
TANYA	HORTON	4524 BARLOW DR	BARTLESVILLE	OK	74006
HEATHER	HANKINS	314 W RALEIGH CT	BROKEN ARROW	OK	74011
DONNA	EMBERTON	PO BOX 944	COLEENPOOL	OK	74033
RANDI	FOUST	24800 S 690 RD LOT 15	GROVE	OK	74344
TRICIA	GRUENWALD	15832 S LEWIS	BIXBY	OK	74008
BONNIE	JACKSON	PO BOX 33157	TULSA	OK	74153

WOW! the Wonders of Wetlands
Workshop Participants
November 12, 2005 @ Cameron University

<i>FIRST NAME</i>	<i>LAST NAME</i>	<i>ADDRESS</i>	<i>CITY</i>	<i>STATE</i>	<i>ZIP CODE</i>
JEREMY	PLUMLEY	1710 W PLATO APT 905	DUNCAN	OK	73633
ADRIAN	HEARNS	220 HEATHER LN	LAWTON	OK	73507
ALISON	TURNER	1818 NW LINCOLN AVE	LAWTON	OK	73507
MARY L.	GOSSETT	808 1ST	CHATTANOOGA	OK	73528
RYAN	MCCAULEY	7808 SW LAKE UNITY DR	LAWTON	OK	73506
LATH G.	COX	907 SW 18TH ST	LAWTON	OK	73501
XOMARYS	RODRIGUEZ	10805-B SNOW RD	FT SILL	OK	73503
BAYLEE	BOYDSTUN	PO BOX 28	APACHE	OK	73008
ALICIA	MCNUTT	509 N 2ND ST	DUNCAN	OK	73533
APRIL	LAWSON	1821 NW 82ND ST #704	LAWTON	OK	73505
VICKY	FLORES	2317 NW 78TH ST	LAWTON	OK	73506
ELAINE S.	BARBER	2214 CHISHOLM DR	DUNCAN	OK	73533

Task 4: Final Report

- “How to” aspects of implementing a volunteer monitoring program for wetlands

The Wetland Health Assessment Monitoring (WHAM) program was developed by The University of Oklahoma Environmental Science program and the Oklahoma Water Resources Board, with funding from EPA. The WHAM volunteering monitoring program established protocols to evaluate and protect the ecological health of wetland ecosystems, by providing baseline environmental data on water quality, wildlife, vegetation, groundwater, surface water and soils. The intent of this grant was to implement this methodology in the State of Oklahoma.

The goal of WHAM implementation is two-fold 1) to provide an abundance of quality environmental data assessing the health of critical wetlands in Oklahoma and 2) to encourage a wetland conservation ethic within local communities through education and volunteer monitoring efforts.

Both of these goals were met through the process of implementing this project. Over 20 volunteers were trained for wetland monitoring at 9 sites across the state. In addition, a database was created to store all data collected by the volunteer monitors. Although this project was a one-year success, an additional staff member would be required to implement the program on a full-time basis. This is how it was done.

1. Form planning committee

This committee will be invaluable as you try to implement a volunteer wetland monitoring program. By including individuals with diverse backgrounds it will broaden the knowledge base of the group. For instance by including individuals specializing in wetlands, water quality, education, and wildlife many different areas can be addressed thoroughly. This group should meet regularly to discuss ideas and make decisions about the monitoring program. Tasks should be assigned to each member to help spread out the work load of developing the program.

In this case the monitoring program was combined with an existing stream volunteer monitoring program "Blue Thumb". The expertise of the Blue Thumb staff greatly aided the implementation of the wetland volunteer monitoring program.

2. Develop training materials

The planning committee met to discuss an appropriate agenda and to assign tasks for the development of the training workshop. Various subjects needed to be covered to give our volunteers the tools necessary to perform the monitoring activities that we needed. As seen in the workshop agenda topics included wetlands functions and value, on-site observations, wetland plant identification, running transects, observing soil properties, identifying amphibian calls, and conducting water quality chemical monitoring. It was decided that the workshop needed to be a two-day event on the weekend in order to cover all of the materials and to reach our target audience.

3. Develop data sheets

Data sheets were based on the Blue Thumb volunteer stream monitoring format with additions to account for the WHAM methodology, which can be seen under Task 2. It is important to compile these data sheets into a user-friendly format with a logical sequence. This helps to allow as much accurate data as possible to be captured during the field visit. For example, you will want to make wildlife observations and collect water samples before walking about and disturbing the site, which should be reflected in the order on the data sheet.

4. Build monitoring kits

Supplies for the monitoring kits were ordered and compiled as outlined in the WHAM Addendum. It is important to include everything in the kit that the volunteer monitors will need while on a site visit. Omitted items could lead to inaccurate or less data collected, making for a

less efficient site visit. In addition, staff gauges and groundwater samplers will need to be assembled for installation at the wetland sites.

5. Find suitable training location

A training location should have indoor accommodations that are appropriate for wetland training, but also have a wetland nearby for field training purposes. The indoor facilities should have large tables and enough space for the volunteers and the equipment associated with the monitoring kits. In addition, sinks should be available for use with the chemical monitoring activities. Be sure that the facility approves of working with water and soils because spills may occur.

6. Advertise for volunteers

Reaching your target audience is a key component of implementing a successful volunteer monitoring program. Without volunteers there would be no program. In this case the foundation was already set up through the Blue Thumb stream monitoring program. Press releases were sent out to area newspapers, a statewide education journal, and the Blue Thumb monthly newsletter. In addition, flyers were sent out through all 88 conservation districts in the state and existing Blue Thumb volunteers were solicited. The training was also advertised on public radio calendar of event.

7. Conduct training

At the outset of the training an icebreaker exercise should be conducted to loosen up the group and get everyone familiar with each other. This will make everyone more comfortable and will be conducive to their learning experience. Next, the volunteers should be asked to complete a pre-training test to determine what was learned from the workshop. The goals of the training and the important role that the volunteers will play should then be conveyed. The importance of wetlands functions and values should be communicated so that the volunteers can see that actions will help to promote and protect a vital resource.

All aspects of the WHAM methodology will need to be covered in detail so that volunteers will know what they will be expected to do while monitoring their wetland site. The volunteers should also be instructed on the contents of their monitoring kits and how to care for the equipment to keep in working order.

It is important to have a hands-on demonstration of the monitoring techniques by visiting a nearby wetland. This on-site training will help reinforce the concepts that were presented in the classroom. This will allow the volunteers to get a true sense of what they will be doing at their own monitoring location.

8. Choose monitoring sites

Monitoring sites should be chosen in close proximity to the residences of volunteers. This will increase the odds of the volunteers being able to make it to their wetland site on a monthly basis. Volunteers will also more likely relate to wetlands near their community. By having a stake in the protection of a wetland, volunteers will take pride in their monitoring efforts. These monitoring efforts will empower the volunteers to educate their communities about the importance of wetlands, especially if activities are proposed that could harm these areas.

9. Visit sites

After sites are deemed appropriate by the volunteers and staff, a site visit should be made to help the volunteers get started. There are five major activities that will need to be done during this visit. 1. Photopoint locations will need to be determined. Photos will be taken from these same points at different times during the year, which will show visual changes in the wetland

throughout the year. 2. Transects should be measured and staked. These transects will be used to monitor vegetation and soils. 3. The staff gauge should be installed in an area of the wetland that typically holds water. This will allow for the measurement of changes in water depths and ability to determine peak water levels between site visits. 4. The groundwater sample should be installed near the edge of standing water in the wetland, but not in area that is usually inundated. This will enable the volunteer to monitor the changes in groundwater depths near the wetland area. 5. During this visit a site sketch should be made so that all of these features and locations may be demarcated for future reference.

10. Monitor monthly

The volunteers are asked to monitor on a monthly basis. Monthly monitoring helps to show changes in the wetland throughout the year. By monitoring every month volunteers are kept active without leaving too much time to get out of the habit. There are many different activities required by the WHAM methodology, however not every method needs to be done every month. With this project the volunteers were provided with yearly monitoring calendars that showed the activities that needed to be conducted each month.

11. Submit data sheets and photos

Data sheets and photos should be submitted monthly (monthly for photopoints) to the QA officer. In this case it is a Blue Thumb staff member. The QA officer checks the data sheets for completeness and contacts the volunteer if there are any issues with the data. After the QA officer deems the data sheets and photos complete and correct, they are submitted to the Data Manager.

12. Enter data

The Data Manager is responsible for entering the data and photos into the database. For each sampling episode the data sheets and associated photos are assigned a Sample Identification Number (SampleID) before they are entered into the database. This SampleID keeps all of the associated data from a site visit organized. Countless queries can then be made in the database, from pulling data on a specific site to examining a particular parameter from all of the sites. The database allows for the data to be utilized quickly and accurately.

Wetland Photos







Marsh-O-Muck







July



October

Midwest City



October

Heather Ridge