# Meeting the Goals of the Clean Water Action Plan through Wetland Restoration

**Compiled by:**

**The Oklahoma Conservation Commission**
**Water Quality Division**

**As required by:**
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**September 2006**
**Draft Final Report**

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# Task 1: Outreach and Education

- Detailed workplan
- Meeting/Workshop attendees and curriculum
- Landowner, site description, letter of interest

## WORKPLAN

**Agency:** Oklahoma Conservation Commission
*in cooperation with*
Kingfisher and Garfield County Conservation Districts
Oklahoma's Wetlands Working Group
Oklahoma Department of Wildlife Conservation
The Nature Conservancy
The University of Oklahoma
Ducks Unlimited
Natural Resources Conservation Service
U.S. Fish and Wildlife Service

**Title:** Meeting the Goals of the Clean Water Action Plan through Wetland Restoration

**Background:**

In February of 1998, the Clean Water Action Plan was delivered to Vice President Al Gore. The intent of the Action Plan was to "provide a blueprint for restoring and protecting the nation's water resources". The Action Plan outlines watershed restoration as the most appropriate means of restoring and maintaining the chemical, physical and biological integrity of the nation's waters. The Action Plan states that a critical goal for pollution control and natural resource protection is to continue to slow the rate of wetland loss nationwide, while also providing funding for the restoration of 100,000 acres of wetland ecosystems each year. Protection and restoration of wetland ecosystems are not only an integral aspect of clean water planning (incidental water quality improvement), but also provide critical habitat to fish and wildlife, can mitigate flooding events, provide recreation and educational opportunities, and in some instances have been shown to recharge groundwater resources.

In areas where intensive agricultural practices are prevalent, nutrient inputs from fertilizer and manure runoff can lead to excessive algal growth (eutrophication) in downstream rivers and lakes. Of key importance in addressing restoration of ecological health to a watershed is a diverse clean water program. An example would be developing watershed management plans which include implementing farm practices designed to minimize nutrient and pesticide runoff, establishment of riparian buffer strips and the restoration of wetlands. The Drummond Flats wetland restoration effort is one aspect of an overall watershed management strategy developed to address nutrient concerns in Turkey Creek. This will be accomplished by providing incidental water quality improvement, while also decreasing peak flows in Turkey Creek, reducing soil erosion and providing habitat to fish and wildlife.

The historic Drummond Flats wetlands (approximately 6,100 acres total) are located near Turkey Creek in Garfield County, which is listed as a Priority 1 watershed. The wetlands are the result of a flat, bowl-shaped area with very poor drainage, resulting in standing water for long periods during the growing season. Historically, efforts have been made by local producers to remove water (primarily through ditching and berming) from the landscape in an attempt to create more suitable conditions for agriculture. Natural Resources Conservation Service (NRCS) officials in Garfield County have suggested that, as a result of flooding and standing water, wheat cropping in the Drummond Flats provides a harvest one year in four and likely contributes to poor water quality in Turkey Creek. A 1988 section 319 assessment report completed by the Oklahoma Conservation Commission, Water Quality Division, identifies the upper Cimarron River water quality management section as threatened by agricultural sources. Degraded water quality in Turkey Creek is primarily the result of elevated levels of suspended solids and nutrients.

A properly managed, concerted effort needs to be developed if large-scale wetland restoration efforts are going to be successful in Drummond Flats. After meeting with local producers and natural resource professionals about the prospects of wetland restoration in Drummond Flats, it has become apparent that substantial effort will be required if the entire flats will ultimately be restored to wetlands.

Over the past two centuries, conservative estimates of wetland loss in Oklahoma suggest that 67 percent of the wetland acreage has been lost. Decreased wetland acreage can alter ecological dynamics and sustainability. This project will restore critical wetland habitat and the associated functions and values in the Turkey Creek watershed. Establishing a more natural, healthy ecosystem in the Drummond Flats wetlands is vital to the overall restoration needs of Turkey Creek.

**Project Goals:**

This project has two goals. First, to coordinate the efforts of state and federal natural resource agencies involved in wetland restoration in Drummond Flats by providing on-the-ground technical support to landowners. Second, to educate landowners about the functions and values of wetlands, economic incentives to wetland restoration and how to incorporate wetlands into their farming practices.

**Project Objectives:**

1. By meeting with producers individually and collectively, as well as overseeing the efforts of state and federal natural resource personnel, OCC will be in position to coordinate the restoration of the entire Drummond Flats region. By bringing together various programs (NRCS' WRP, and Oklahoma Department of Wildlife Conservation's Wildlife Habitat Improvement Program (WHIP) for example), the intent is to ultimately coordinate the restoration of 6,100 acres to wetlands in Drummond Flats.
2. Educate all producers owning land in Drummond Flats about the functions and values of wetlands, economic incentives to wetland restoration and how to incorporate wetlands into their farming practices.

**Measures of Success:**

1. Letter of interest from 80% of all landowners where a legitimate wetland restoration effort could be conducted and identification of at least 50% of the land in the Drummond Flats as property to be restored.
2. Education of all landowners in Drummond Flats about the functions and values of wetlands, economic incentives to wetland restoration and how to incorporate wetlands into their farming practices.

**Workplan:**

***Task 1:*** Identify all landowners interested in wetland restoration in the Drummond Flats area and provide them with educational materials, technical support and help establish a means to accomplish ecologically and economically sustainable wetlands on their property. Several evening meetings will be held to increase understanding of the importance of wetlands and the landscape to adults, and two Wonders of Wetlands (WOW!) workshops will be held to educate the local youth.

*Milestone date: October 2005*
*Deliverable: Letter report detailing the landowner, site description, a letter of interest from the producer and justification of the selection. For workshops, a letter report will provide the name of each attendee, location and the curriculum used..*
*Cost: $49,187 ($36,890 Federal)*

***Task 2:*** Implementation of demonstration wetland restoration project. Restoration activities will utilize principles of self-design and sustainability whenever possible, and will keep in mind the typical wetland type found in the Drummond Flats region of Garfield County. Local producers will be encouraged to tour the site and learn about the benefits of maintaining wetland resources on their property.

*Milestone date: September 2005*
*Deliverable: Letter describing the restoration process and detailed information about the wetland site, as well as any educational activities the site was used for.*
*Cost: $17,304 ($12,978 Federal)*

*Justification:* The Clean Water Action Plan has attempted to reverse the centuries old national trend of large scale wetland loss by initiating a program to fund the net increase of 100,000 wetland acres per year by 2005. The restoration of wetlands to the landscape is futile if ecological functions are not self-sustaining. The demonstration site will emphasize the restoration of wetlands on agricultural lands and incorporation into overall farm plans.

***Task 3:*** Final Report

*Milestone Date: December 2005*
*Deliverable: Final report summarizing all findings related to wetland restoration, soils analyses and water quality. Documentation will include a section on lessons learned in restoring wetlands in Oklahoma.*
*Cost: $2,232 ($1,674 Federal)*

**Public Participation:**

The public participation aspect of this project will be accomplished through cooperation between members of Oklahoma's Wetland Working Group. This group is comprised of people from state, federal, tribal and local governments, as well as from the public sector. Also, this restoration effort will occur on private lands on a voluntary basis, and will require working with surrounding producers to answer their questions regarding the impact these wetlands may have on their property.

**Resource Allocation:**

State $17,181
Federal $51,542
Total $68,723

**Budget Categories:**

| | *Federal* | *State* | *Total* |
|---|---|---|---|
| Personnel | $24,546 | $8,182 | $32,728 |
| Fringe Benefits | $4,787 | $1,596 | $6,383 |
| Equipment | $0 | $0 | $0 |
| Travel | $3,375 | $1,125 | $4,500 |
| Supplies | $4,425 | $1,475 | $5,900 |
| Contracting | $9,500 | $3,167 | $12,667 |
| Total Direct Charges | $46,633 | $15,544 | $62,177 |
| Indirect Charges @ 20% | $4,909 | $1,636 | $6,545 |
| *Total* | *$51,542* | *$17,181* | *$68,723* |

**Personnel:**

| *Personnel* | *Years* | *Cost* |
|---|---|---|
| Executive Director | 0.015 | $930 |
| Assistant Director | 0.02 | $1,200 |
| District Operations Director | 0.025 | $1,450 |
| Assistant District Operation Dir. | 0.045 | $2,160 |
| Administrative officer | 0.03 | $1,440 |
| Administrative Assistant | 0.035 | $1,000 |
| Wetlands Program Coordinator | | $20,000 |
| Education Coordinator | | $4,546 |
| *Total* | | *$32,726* |

**Supplies:**

| *Supplies* | *Cost* |
|---|---|
| WOW! Curriculum | *$3,000* |
| Water Control Structures | $700 |
| Office supplies (paper, pens, etc.) | $725 |
| *Total* | *$4,425* |

**Coordination with Oklahoma's Comprehensive Wetlands Conservation Plan Objectives:**

*Objective 1:* To promote the coordination of wetlands management in Oklahoma through discussion, information exchange, cooperation and sharing of resources.

*Objective 2:* To establish a net gain wetlands policy for state-owned lands and a "no-net-loss" policy on state funded projects to encourage the restoration, enhancement and creation of wetlands.

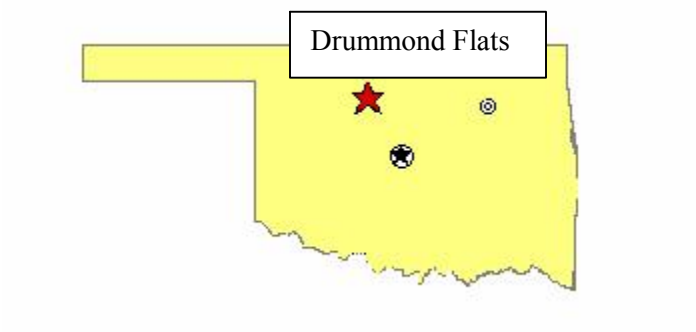
*Objective 3:* To integrate wetlands management with other related resource issues on a watershed or hydrologic unit basis.

*Objective 6:* To provide technical assistance and other incentives to landowners implementing management practices that conserve, enhance and restore wetlands on private property.

*Objective 9:* To identify wetland sites for restoration and enhancement; identify and develop funding sources to accomplish this work.

*Objective 10:* To integrate wetlands conservation with Oklahoma's floodplain management program and create more wetland urban riparian areas.

*Objective 12:* Research and develop techniques for protecting, enhancing and constructing wetlands for pollutant control and/or mitigation. Developed techniques will be implemented to maximize beneficial uses of wetlands pollutant removal and mitigation capabilities.



**MEETING/WORKSHOP ATTENDEES AND CURRICULUM**

# Wetland Wildlife Recreation Options
# Drummond Fire Station
# Tuesday May 6, 2003
# 9:30 A.M.—12:00 P.M.
# Agenda

| | |
|---|---|
| 9:30—10:00 | Introduction<br>• Kevin Norton (NRCS) |
| 10:00—10:30 | Project Designs<br>• Chris Stoner—NRCS, State Engineer |
| 10:30—10:45 | Water Fowl Issues<br>• Al Stacey (ODWC) |
| 10:45—11:15 | Landowner Views<br>• Bob Imel (WRP Participant) |
| 11:15—11:30 | Wetland Benefits<br>• Chris DuBois (OCC) |
| 11:30—11:45 | Additional Programs<br>• Dale Hancock (NRCS) |
| 11:45 | Speaker Panel Discussion (lunch provided) |

Partners: Natural Resources Conservation Service, Oklahoma Conservation Commission, Garfield County Conservation District, U.S. Fish and Wildlife Service, Oklahoma Centennial Chisholm Trail Cattle Drive Association, Drummond Fire Department, Landowners, Project Participants, Wheatland RC & D, Oklahoma Department of Wildlife Conservation

# Drummond Flats Public Meeting

SIGN-IN (please print)

May 6, 2003

| NAME | | ADDRESS | |
|---|---|---|---|
| Carl Smith | | Enid | |
| Dale Hancock | | Enid | |
| Ben Imel | | Welston | |
| Ed Stinchcomb | | Chandler | |
| Don Smith | | Perry | |
| Lanny Miller | | Perry | |
| Chris Stoner | | Stillwater | |
| Steve Tully | | Stillwater | |
| John Glover | | Stillwater | |
| Ken Williams | | Tulsa | |
| Steve Connaly | | Canton | |
| Bob Moore | | Drummond | |
| Al Westfald | | Lahoma | |
| David Rodenbery | | Drummond | |
| Larry Shreve | | Drummond | |
| David Larye | | Garfield Co. | |
| George Jantzen | | Drummond | |
| Dunne Hill | | Drummond | |
| Kevin Mack | | Drummond | |
| Carl Mack | | Drummond | |
| Richard Duerflem | | Kremlin | |
| Marc Boly | | Garfield Co. | |
| Wendell Vencl | | Garfield Co. | |
| Steve Hobson | | Garfield Co. | |
| Joe Kegin | | Garfield Co. | |
| J.D. Sarver | | Enid | |
| Leonard Stevenson | | Edmond | |
| James Wilson | | Drummond | |
| Andy Tracht | | Ponca City | |
| Chris DuBois | | Oklahoma City | |
| Kevin Norton | | Stillwater | |
| Gary Brickman | | Waukomis | |
| Robert Dotson | | Cherokee | |


## for EPA Wetlands Grant:
## Meeting the Goals of the Clean Water Action Plan Through Wetland Restoration - Drummond Flats

The Garfield County Conservation District hosted a Wetlands Field Day for local youth on September 14, 2006. The field experience was held at a restored wetland site west of Drummond, Oklahoma. Educators and participants spent 3 hours at the site investigating wetland plants, observing wetland wildlife, and discovering the many functions of wetlands.

### Participation

A total of 21 participants attended the wetland field day, 15 local youth and 6 adults. A breakdown of participants is listed in Table 1.

| Adult | Youth | Affiliation |
|---|---|---|
| Keith Dillingham | 5 high school students | Drummond FFA |
| Janet Strage | 5 4H students | Garber 4H |
| Shelly Messall<br>John Messall | 5 4H students | Drummond 4H |
| Sheri Nickel<br>Kim Farber | | Garfield County Conservation District |

Table 1. Breakdown of workshop participants.

## Curriculum

The agenda for the Wetland Field Day was 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 the OCC Education Coordinator and the OCC Wetlands Program Coordinator. Some of the activities presented at the field day included:

- An Edible Wetland - 3 components of a wetland
- Wetland Metaphors - wetland values and functions
- Wetland Weirdos - investigating adaptations of wetland animals
- What a Boat - investigating wetland plants

Wetland Field Day participants identify the functions and values of wetlands like the one at this wetland restoration site located in the Drummond Flats area near Drummond, Oklahoma.

An edible wetland was on the menu at this Wetland Field Day held for local 4H and FFA students at a restored wetland near Drummond, Oklahoma.

Participants use cattails to investigate the unique characteristics of wetland plants during a Wetland Field Day sponsored by the Garfield County Conservation District.

A participant at the Wetland Field Day is dressed like a beaver with all the trimmings to illustrate some of the unique adaptations of this wetland animal.

## LANDOWNER, SITE DESCRIPTION, LETTER OF INTEREST

Historically much of the Drummond Flats area has been converted for agricultural uses. However, the geography of the area is not well suited for agricultural success. The area is not consistently productive or sustainable since crops are often flooded out and the soils have become saline. It has been said that on average a successful crop is harvested only once every four years. This low productivity has created a situation where landowners are searching for ways to increase their income from their property. The public meeting at the Drummond Fire Station provided an opportunity for conservation partners to present alternatives to agriculture to the landowners in the Drummond Flats.

Landowner, J.D. Sarver, expressed interest at the public meeting about using his property located in the Drummond Flats as a demonstration site for wetland restoration in the area (documented in the exchange below). The property includes all of Section 9, Township 21 North, Range 8 West in Garfield County. With the help of Garfield County CD and NRCS the plan was to restore wetlands on the property, make it available to the Conservation District and area schools to use for outdoor wetland education, and use it as a demonstration to other area landowners of the potential for restoring wetlands on their property.

-----Original Message-----
From: Chris DuBois [mailto:CDubois@okcc.state.ok.us]
Sent: Thursday, June 05, 2003 10:39 AM
To: Sarver, J. D.
Cc: Chris DuBois
Subject: Wetland Demonstration Project

J.D.

I hope all is well. I talked to Steve Barner, and he said that NRCS had a waiting period before they could get out on your land and start working. If you are still interested, the Oklahoma Conservation Commission would like to work in conjunction with NRCS to develop a wetland demonstration project on your property in Drummond. I will contact you at a later date so we can discuss the project and move forward. I look forward to working with you. If you have any questions, please send me an email at cdubois@okcc.state.ok.us or call 405/810-1022.

Sincerely,

Chris DuBois
Wetlands Program Coordinator
Oklahoma Conservation Commission

-----Original Message-----
From: Sarver, J. D. [mailto:jd.sarver@fcenid.com]
Sent: Thursday, June 05, 2003 11:50 AM
To: Chris DuBois
Subject: RE: Wetland Demonstration Project

Chris,

I am still interested in working with the Oklahoma Conservation Commission and NRCS. Let me know if there is anything you would like for me to do to help.

Thanks for your response.

J. D. Sarver
Vice President Farm Credit of Enid, ACA
(580) 233-3489
email: jd.sarver@fcenid.com

# Task 2: Demonstration of Wetland Restoration

- Restoration process
- Wetland site information
- Educational activities

## RESTORATION PROCESS

The historic Drummond Flats wetlands (approximately 6,100 acres total) are located near Turkey Creek in Garfield County, which is listed as a Priority 1 watershed. The wetlands are the result of a flat, bowl-shaped area with very poor drainage, resulting in standing water for long periods during the growing season. Historically, efforts have been made by local producers to remove water (primarily through ditching and berming) from the landscape in an attempt to create more suitable conditions for agriculture. Natural Resources Conservation Service (NRCS) officials in Garfield County have suggested that, as a result of flooding and standing water, wheat cropping in the Drummond Flats provides a harvest one year in four and likely contributes to poor water quality in Turkey Creek. A 1988 section 319 assessment report completed by the Oklahoma Conservation Commission, Water Quality Division, identifies the upper Cimarron River water quality management section as threatened by agricultural sources. Degraded water quality in Turkey Creek is primarily the result of elevated levels of suspended solids and nutrients.

A properly managed, concerted effort needs to be developed if large-scale wetland restoration efforts are going to be successful in Drummond Flats. After meeting with local producers and natural resource professionals about the prospects of wetland restoration in Drummond Flats, it has become apparent that substantial effort will be required if the entire flats will ultimately be restored to wetlands.

### Partnerships

One entity alone would not be able to undertake a restoration project the size of Drummond Flats and be successful. Therefore, it was essential that partnerships be formed and utilized in order to make an attempt to complete the project. The key players on the planning committee for the restoration of Drummond Flats include:

- USDA - Natural Resources Conservation Service
- Oklahoma Department of Wildlife Conservation
- Oklahoma Conservation Commission
- Garfield County Conservation District
- Ducks Unlimited
- Wheatland RC & D
- U.S. Fish and Wildlife Service
- Oklahoma Biological Survey

This committee met periodically at the GCCD office to develop a plan to restore a portion of Drummond Flats. A couple of landowners had already signed up in the WRP, so the plan was to work in conjunction with those ongoing efforts to develop a demonstration site to educate and spur interest into restoring more wetlands in the Flats.

**Address Concerns**

In addition to the resource agencies, other stakeholders such as landowners, hunters, and outdoor enthusiasts were identified and invited to a public meeting at the Drummond Fire Station as stated in Task 1 above. At this meeting the topics of wetland project designs, waterfowl issues, landowner views, wetland benefits, and other wetland programs were presented and discussed. There were a couple vocal opponents to the idea of restoring wetlands in the Flats, but most of the landowners were interested in hearing how these programs could benefit them economically.

Some of the concerns with the wetland restoration project included bringing in geese that would eat area wheat crops, the area would be just a bunch of mud holes, and it would cause problems with mosquitoes. As a group we addressed these concerns. First, a biologist from ODWC informed us that geese actually prefer deeper water and that most of the wetland areas will be 18 inches and shallower. Also, vegetative areas would be established throughout the area which would provide a food source to any birds passing through the area. In addition, the ODWC would assist any landowner with techniques to disperse geese that attempt to feed on nearby wheat fields.

In order to dispel the myth that the wetland areas would be a bunch of mud holes, a WRP participant showed water samples from his property. One of the samples came from a farm pond and the other came from the WRP project. The water from the farm pond was red and muddy, while the water from the nearby WRP was very clear. This example was simplistic yet made a very strong case to the audience about the quality of water that resides in a well functioning wetland.

A properly functioning wetland system is important because whenever wetlands are mentioned a common assumption is that it will be a huge mosquito breeding ground. The point was made that if you have a healthy system, there will be natural predators such as the mosquito fish, dragonflies, etc. that will keep the mosquito population in check. Often there are many more opportunities for mosquitoes in a common back yard from water collecting in various objects, planters, buckets, etc. with no natural predators.

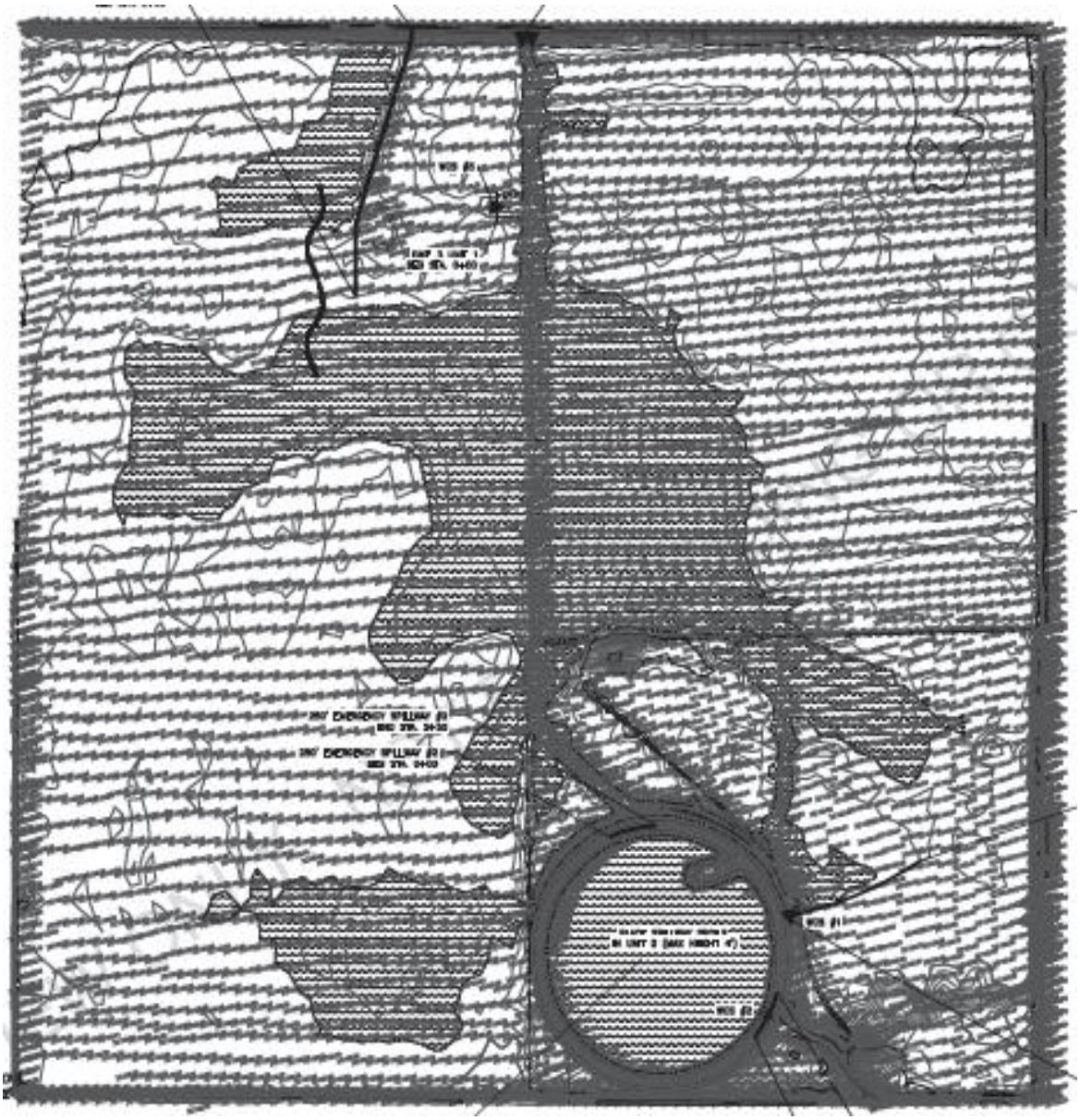
**Landowner Interest**

After the public meeting landowner J.D. Sarver, a WRP participant, expressed interest in combining the grant wetland restoration demonstration project with his WRP project and open up the area for educational purposes. Also, other landowners inquired about enrolling in the WRP program.

Mr. Sarver enrolled a square mile section of land into the WRP program and agreed along with NRCS to designate a portion of the property for demonstration purposes of wetland restoration. The idea would be to demonstrate some minor earth moving and plantings that landowners could incorporate into their applicable properties.

## Site Design

With the aid of Ducks Unlimited a restoration design plan was developed incorporating larger scale initiatives for the WRP project while including smaller scale amenities for the demonstration area. The plans included hydrology restoring techniques such as plugging ditches, constructing low-level berms, and creating microtopography.



**J.D. Sarver property with demonstration site**

In addition to the earth moving activities, the Oklahoma Biological Survey helped to compile a list of typical plant species for the Drummond Flats. This list was based upon years of observations and plant collections in northwest Oklahoma. It was determined by the planning committee that many of these plant species would reestablish themselves from the existing seed bank once the hydrology was restored,

but it was important to establish native vegetation in the transition and buffer areas to the more permanently flooded areas. This is important because it creates diversity while warding off invasive plant species that try to take over recently disturbed areas. The major native prairie grasses are often included in a seed mixture to plant in buffer areas of a WRP project. However, for the demonstration site commercially available forbs and legumes were included which have a difficult time reestablishing themselves.

| Typical Wetland Vegetation in Northwest Oklahoma | |
|---|---|
| Agrostis hyemalis | Emergent |
| Agrostis perennans | Emergent |
| Agrpyron smithii | Emergent |
| Alopecurus carolinianus | Emergent |
| Ammania auriculata | Emergent |
| Ammania coccinea | Emergent |
| Apocynum cannabium | Emergent |
| Asclepias speciosa | Emergent |
| Bacopa rotundifolia | Floating leaf - emergent |
| Carex hystericina | Emergent |
| Cephalanthus occidentalis | Emergent |
| Ceratophyllum demersum | Submerged |
| Cyperus erythrorhizos | Emergent |
| Cyperus pseudovegetus | Emergent |
| Cyperus strigosus | Emergent |
| Distichlis spicata | Emergent |
| Echinodorus berteroi | Floating leaf - emergent |
| Echinodorus cordifolius | Floating leaf - emergent |
| Eleocharis montevedensis | Emergent |
| Eleocharis obtusa | Emergent |
| Eleocharis palustris | Emergent |
| Eustoma exaltatum | Emergent |
| Fuirena simplex | Emergent |
| Fuirnea squarrosa | Emergent |
| Heteranthera limosa | Floating leaf - emergent |
| Juncus torreyi | Emergent |
| Lemna minor | Floating leaf |
| Lemna valdiviana | Floating leaf |
| Lobelia cardinalis | Emergent |
| Lycopus americana | Emergent |
| Lythrum alata | Emergent |
| Marsilea vestita | Floating leaf |
| Najas quadalupensis | Submerged |
| Panicum virgatum | Shoreline emergent |
| Phalaris caroliniana | Emergent |
| Phyla lanceolata | Emergent |
| Phyla nodiflora | Emergent |
| Pluchea odorata | Emergent |
| Polygonum amphibium | Floating leaf - emergent |
| Polygonum hydropiper | Emergent |
| Polygonum hydropiperoides | Emergent |
| Polygonum lapathifolium | Emergent |
| Polygonum pensylvanicum | Emergent |
| Polygonum persicaria | Emergent |
| Polygonum punctatum | Emergent |
| Potamogeton foliosus | Emergent |
| Potomogeton nodosus | Emergent |
| Ranunculus scleratus | Floating leaf - emergent |
| Sagittaria ambigua | Emergent |
| Sagittaria cuneata | Emergent |
| Sagittaria latifolia | Emergent |
| Sagittaria longifolia | Emergent |
| Samolus ebracteatus | Emergent |
| Samolus parviflora | Emergent |
| Schoenoplectus americanus | Emergent |
| Schoenoplectus maritimus | Emergent |
| Schoenoplectus tabernaemontani | Emergent |
| Spartina pectinata | Emergent |
| Sphenopholis obtusata | Emergent |
| Spirodela polyrrhiza | Floating leaf - emergent |
| Typha angustifolia | Emergent |
| Typha domingensis | Emergent |
| Typha latifolia | Emergent |
| Veronica anagallis-aquatica | Floating leaf - emergent |

| Commercially Available Seed | | |
|---|---|---|
| **Common Name** | **Scientific Name** | **Ratio** |
| Partridge Pea | Casala chamacriata | 1 |
| Illinois Bundleflower | Desmanthus illinoisensis | 1 |
| Maxmillian Sunflower | Helianthus maximiliani | 0.5 |
| Roundhead Lespedeza | Lespedeza capitata | 0.5 |
| Lead Plant | Amorpha canescens | 0.5 |
| Purple Prairie Clover | Petalostemun purpurea | 1 |
| Indian Blanket | Gaillardia puichella | 0.5 |
| Black Sampson | Echinacea angustifolia | 0.5 |
| Butterfly Milkweed | Asclepias tuberosa | 0.02 |
| Engelmann Daisy | Engelmannia pinnatifida | 1 |
| Compass Plant | Silphium laciniatum | 0.5 |
| Prairie Cordgrass | Spartina pectinata | 0.25 |

## SITE INFORMATION


From Garfield County, OK, History Books, 1893-1982, 2 vol. published by the Garfield County Historical Society

**Drummond**
**The Drummond Flats Called "Wild Horse Flats" in Early Days**

By Florel Helema and Noble Long, Enid, OK

Drummond is a small community, about 326 people, just to the southwest of Enid. The Drummond Flats is an area in the direct path of the state's geographical drainage system from northwest to the southeast. As all the people who ever lived in the region just west of Drummond could tell you, a heavy rain or a

cloudburst in the Helena area will cause flooding creek beds and swollen rivers as the water starts south to flood the Drummond Flats.

The river of water will cover highways and acres and acres of level land over a strip two to three miles wide and extending north-south for 25 or so miles.

Settlers who built homes in that flood path soon learned that it was necessary at times to don boots and wade out carrying some of their possessions. One such home was just west of Drummond then, but has been removed now. Some families would refuse to abandon their homes…they'd wait for the water to recede, and they'd always return to their homes.

Back in the late 1800s those flats were called Wild Horse Flats. The land at that time was not cultivated. Buffalo grass grew on the dryer areas and other grass, they called it winter grass, grew in the damper areas. The winter grass attracted wild horses from the blackjack oaks wooded region just to the west. Florel's father, Martin Helema, and a friend, Resse McGee, went to the Flats to catch a wild horse one time. They soon learned that the horses spooked easily. When the men approached, the horses would speed away to the blackjacks and safety—so no horses were caught.

The blackjack trees were cut by residents of the area for firewood, and merchants ricked the wood behind their stores for sale.

During those early years there was a school house on the Flats called Silver Lake School. The school was named for the more-or-less permanent body of water making Silver Lake. With so much water a bridge was necessary for passage across the Flats east and west. It was at the bridge that Noble Long and her friends and family spent happy hours catching the small fish there.

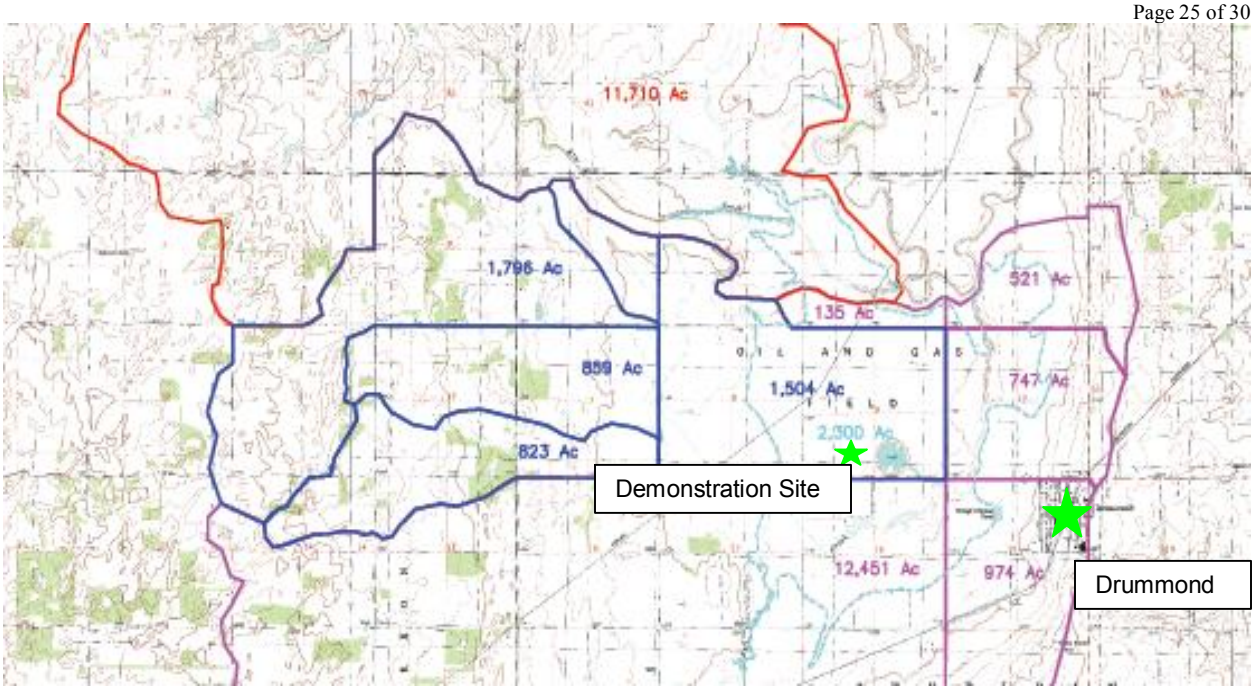
Through the years the Drummond Flats area has seen changes. Efforts to control flooding have been partially successful. Although the salt carried by flood waters did damage the soil, wheat fields now flourish, as do sorghum crops and pasture lands, these where mud flats used to be. And another mark of progress since a century ago is the productive oil wells scattered over the area.

During bird migration seasons the flats were and still are, though to a lesser degree, a bird watcher's paradise. Herons, sandpipers, yellowlegs, ducks, and many other species are seen. Some of the birds linger through the season, nesting in higher grass-protected ground, yet near ponds of water. Great flights of heron with their slowly flapping wings are an unforgettable sight in the evening as they fly to their roosting place.

It is a rewarding thing to have seen, over just a few decades, the waste lands, those muddy flats, turned into a productive agricultural area.

……end……

However, the geography of the area is not well suited for agricultural success. Turkey Creek, Elm Creek and Dry Salt Creek converge in the flats, creating a bowl-shaped area with only about 5 feet of elevation difference in the entire 6,100 acres. When the creeks overflow and flood, it's a very important wetland area, particularly for waterfowl and flood storage. It is difficult to run cattle or farm the area because of the salty soil. Because of the saline content, plants are salt-adapted and not good for cattle forage or farming. Also, crops are often flooded out; it has been said that on average a successful crop is harvested only once every four years. This low productivity has created a situation where landowners are searching for ways to increase their income from their property.




**Topographic map of the core area of Drummond Flats**

Currently there are 944 acres in the Drummond Flats that have been accepted into the WRP program. Of that acreage, 160 acres have been restored. As the WRP projects have progressed in the area additional landowners have become interested in participating in the WRP program. Several more applications have been submitted and are awaiting acceptance into the program.

With increased interest in wetlands restoration in the Drummond Flats, ODWC has recently procured acquisition of 1,440 acres involving 6 landowner contracts in the core area of the Flats. This area will be under the WRP program which will oversee restoration. ODWC plans to use Project Legacy funds from the purchase of permits with fishing and hunting licenses and will begin pursuing North American Wetlands Conservation Act (NAWCA) grants to generate more funds to purchase additional lands in the future. ODWC projects that the project will likely take five to eight years to complete with a target acquisition somewhere around 6,800 acres depending upon landowner willingness to sell and funding availability. The area would become an important public hunting and bird-watching destination in addition to being an outdoor educational opportunity for the surrounding area.

In addition to improving water quality and storing floodwater, the restoration of Drummond Flats would be another important wetland area in the central flyway for migratory birds between the Great Salt Plains to the north and Hackberry Flats to the south.

## EDUCATION ACTIVITIES

The future of Garfield County's wetland resources is closely tied to land use decisions made by stewards of those resources. However, messages sent to Oklahoma's youth are sometimes mixed because of the colorful relationship between property rights issues and state and national attempts at conservation and protection of wetland resources.

Local, state, and federal agencies as well as individuals have been working diligently to educate the public regarding wetlands. One way to encourage sound resource management in the future is to provide

educational opportunities for the youth of the county and the state. Wetland outdoor classrooms and educational training can provide the opportunity for a better understanding of wetland science, functions, and values which will ultimately lead to a more harmonious resolution of wetland issues.

Research and experience have shown that outdoor learning centers are an effective tool to educate both youth and adults. Currently, through conservation districts, school systems, U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service, over 60 of those classrooms in Oklahoma include wetland components.

This project has been one of the first experiences the staff with the GCCD has had to work with wetlands. GCCD staff has recently become certified to teach curriculum from the WOW! The Wonders of Wetlands handbook and plan to use the Drummond Flats area to conduct outdoor education activities. In addition, the Flats will be prime demonstration site for getting landowners interested in wetlands conservation.

# Task 3: Final Report

- Wetland restoration findings
- Lessons learned

## WETLAND RESTORATION FINDINGS

### Project Goals

1. To coordinate the efforts of state and federal natural resource agencies involved in wetland restoration in Drummond Flats by providing on-the-ground technical support to landowners.

By meeting with producers individually and collectively, as well as overseeing the efforts of state and federal natural resource personnel, OCC, GCCD, ODWC, and NRCS were positioned to attempt a coordinated effort to restore the entire Drummond Flats region. By bringing together various programs (NRCS' WRP, and ODWC Wildlife Habitat Improvement Program (WHIP) for example), the intent was to ultimately coordinate the restoration of 6,100 acres to wetlands in Drummond Flats.

Currently there are 944 acres in the Drummond Flats that have been accepted into the WRP program. Of that acreage, 160 acres have already been restored. As the WRP projects have progressed in the area additional landowners have become interested in participating in the WRP program. Several more applications have been submitted and are awaiting acceptance into the program. With increased interest in wetlands restoration in the Drummond Flats, ODWC has recently procured acquisition of 1,440 acres involving 6 landowner contracts in the core area of the Flats.

It was hoped that a letter of interest would be received from 80% of all the landowners who own land where a legitimate wetland restoration effort could be made and that 50% of the land in the Drummond Flats would be identified for restoration. Although an exact percentage is not available, a large majority of the landowners see the wetland restoration efforts favorably, with a couple of exceptions. It is estimated that at least 65% of the land in Drummond Flats will likely be restored with the hope of 100%. ODWC and NRCS will be taking the lead role over the next five to eight years to work with the landowners on wetland restoration, whether it is enrollment in WRP or selling land to ODWC for restoration and incorporation into a State wetland management area. By the time this project effort runs its course these goals and measures of success will most likely be exceeded.

2. To educate landowners about the functions and values of wetlands, economic incentives to wetland restoration and how to incorporate wetlands into their farming practices.

All of the producers owning land in Drummond Flats were educated about the functions and values of wetlands, economic incentives to wetland restoration and how to incorporate wetlands into their farming practices. They were reached through the public meeting in Drummond and through individual meetings at the GCCD office.

The landowners will be intimately affected by the decisions they make regarding how they will use and manage their lands. These landowners have been educated and appreciate the functions and values of wetlands, but cannot commit to restoring wetlands if it going to negatively affect their bottom line. Many of the landowners are financially strapped to the productivity of their property, while some others are more financially stable with other sources of income. The landowners that are more financially stable are more willing to take a risk of doing something different with their land. These are the properties that have already had wetland restoration work completed or are slated to be restored. As other landowners have observed these activities and have seen the benefits that their neighbors are receiving from participating in

these wetlands programs their interest level has increased, and several more have applied for inclusion in the programs.

## LESSONS LEARNED

- Partner with other programs
  The key to implementing a large successful wetland demonstration site is to involve partners with similar interests and goals. This increases the sheer manpower, expands the areas of expertise, and creates other financial avenues that all can be utilized to implement the project. Although it can sometimes be difficult to coordinate various entities (e.g. differing schedules and project time frames) the benefits far outweigh the costs.

- Local leadership
  Another important key to success is to utilize local leaders such as the Conservation District staff to communicate with stakeholders in a project. Often landowners are skeptical of outsiders trying to tell them what they should do with their land. If there is someone that they are familiar with and can relate to landowners will be much more willing to listen and act on available opportunities such as wetland restoration programs.

- Get stakeholders involved
  You must get the stakeholders in a project involved. If the people that will be affected by a project are not properly informed, there will be many rumors and myths about what is proposed to happen. Then the stakeholders will feel threatened and most likely oppose any activities that are proposed. There are different avenues that can be taken to involve the stakeholders such as a public meeting and individual discussions. For this project both methods were used. The public meeting allows for the stakeholders to all get together and receive the same information about what is proposed and often reaches a large portion of the stakeholders. However, not everyone can make it to the public meeting or do not feel comfortable participating in that setting, so opportunities to meet individually and informally at the Conservation District office were made available.

- Dispel myths
  With any wetland restoration project there will be concerns, rumors, and sometimes myths associated with the activities that will be involved. It is important to dispel any myths by clearly presenting the facts involved with the restoration project. Show the beneficial role that wetlands play in the landscape by explaining their functions and values.

- Financial benefits
  Whether it is WRP payments, hunting leases, or property sale, the financial benefits of wetland demonstration must be demonstrated. If a landowner is being asked to do something that is completely different from what they are familiar with on their property and their income depends on that land, they will be very cautious about acting on those ideas. The financial benefits must be attainable and worth the risk of pursuing.

- Demonstrate success
  Some landowners will not be willing to take the risk of restoring wetlands on their property just by being told that it will aid them economically. A successful demonstration project will allow skeptics to see the results of a restoration project and the economic bottom line for the participant. This will often lead to increased participation from surrounding landowners.

Over the past two centuries, conservative estimates of wetland loss in Oklahoma suggest that 67 percent of the wetland acreage has been lost. Decreased wetland acreage can alter ecological dynamics and sustainability. This project has restored and will continue to restore critical wetland habitat and the associated functions and values in the Turkey Creek watershed. Establishing a more natural, healthy ecosystem in the Drummond Flats wetlands is vital to the overall restoration needs of Turkey Creek.