

QUIVIRA NATIONAL WILDLIFE REFUGE

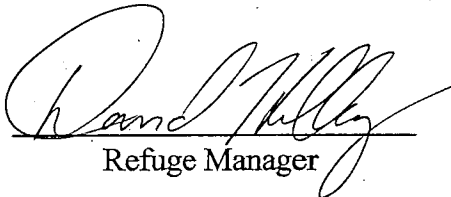
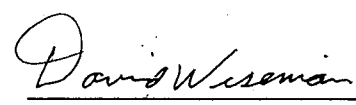
Stafford, Kansas


ANNUAL NARRATIVE REPORT

Calendar Year 2003

U.S. FISH AND WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

REVIEW AND APPROVAL
QUIVIRA NATIONAL WILDLIFE REFUGE
Stafford, Kansas
ANNUAL NARRATIVE REPORT
Calendar Year 2003

	<u>8/12/04</u>		<u>8/31/04</u>
Refuge Manager	Date	Refuge Supervisor	Date

	<u>9/23/04</u>
Regional Office Approval	Date

~~-Notice-~~

The annual narrative report is a important historic document for the Refuge. However, due to the thousands of other responsibilities, the Refuge no longer has time to follow the time honored format. Historically, we would write the Monthly Activity Reports throughout the year, then rewrite, and cut and paste those into an entirely new document to produce the Narrative Report. After discussions with other refuges, most stations admitted they only had time to look at the photos on most narratives. To save staff time and still maintain the historic importance of the document, this new format was developed.

HIGHLIGHTS

2003 HIGHLIGHTS

January

- The Kansas Junior Duck Stamp display is viewed by a huge mass of humanity at the new Cabela's Store in Kansas City, KS, during the last weekend in January. Lorrie Beck, ORP at the GPNC greeted a lot of very interested visitors.
- Duck season ends with cries of "Where are the birds"? Unusual weather kept the ducks further north and most Kansas hunters had a below average year.

February

- Two major law enforcement incidents occur, with a tractor stolen and damaged on January 29-30, to pull out a stuck trespass vehicle, and an arson caused fire burns portions of the Tin Shed on 2/12.
- Friends of Quivira conduct their Annual Meeting on 2/26, with over 30 folks attending, to plan the new year. The Quivira Centennial Quilt was first displayed at this meeting.

March

- March was in like a lion, out like a lamb! Weather was a major event during the month as over 4.50 inches of rain soaked the Refuge.
- Friends of Quivira help the Refuge celebrate the NWRS Centennial on 3/14 with a birthday party.
- Work started on the "Butterfly Trail", a new interpretive trail adjacent to the Visitors Center.

April

- A suspect reported in a reward tip on the arson fire at the Tin Shed, was interviewed with less than encouraging results, and the investigation continues.
- An April 24th coordination meeting between the KS Dept of Wildlife and Parks and the FWS allowed a lot of discussion on mutual programs and problems.

May

- The entire Stafford Elementary School came to Quivira on May 9, for their environmental education day. Other than the mosquitos the event went well.

- The Friends of Quivira sponsored annual "Fathers Day Out" was conducted at the EEC on May 10, with over 65 folks attending.

June

- The Friends of Quivira sponsored their annual "Kid's Fishing Clinic and Derby" on June 7. The event was a big success with over 170 folks in attendance.
- Mowing, road work, and all sorts of other field season activities started into high gear in June as the weather dried and allowed access to areas of the Refuge .

July

- The RPI audit continues to require an inordinate amount of time to make sure the proper documentation is available on 40-50 year-old property. Such is life in the government!
- A major MMS rock hauling contract started on 7/7, to provide crushed rock for all refuge non-public roads.
- An emergency Steering Committee meeting was called in July to deal with a budget threat to one of the public educators positions at the Great Plains Nature Center.

August

- West Nile Virus concerns surface after 38 dead or dying suspected WNV white pelicans are picked up on the Refuge.
- A Congressional Informational Meeting was held with the Kansas delegation on 8/12, at the GPNC. All KS Refuges, ES, and Law Enforcement offices participated.

September

- The Kansas State Fair was in Hutchinson from September 5-14 and thousands of folks viewed and visited the FWS booth, coordinated by Quivira.
- "Monarch Mania", an annual event sponsored by the Friends of Quivira on 9/21, drew over 90 participants trying to catch and tag the elusive Monarch butterfly.
- Carl Marks, long time Maintenance Worker Leader, retires on September 3rd.

October

- The Refuge participates in the Stafford Oktoberfest, and the Friends of Quivira "Prairie Winds Chili" wins the chili cookoff for the third year in a row.
- On 10/18, the Friends and Refuge staff sponsored a "Celebrate the Century" event for NWR Week, with over 350 folks attending.
- RM Hilley traveled to Lake Woodruff NWR, Florida, for a Friends Mentoring visit on 10/21-24.

November

- On 11/5, the Friends of Quivira and the Refuge host the Kansas State ECO-MEET, with teams from schools throughout Kansas bringing over 185 students, sponsors, and coaches.
- Hunting seasons get into full swing as the waterfowl numbers increase and the hunters crowd to the Refuge when they realize there is little water in most other KS wetlands this year.
- Refuge Manager Dave Hilley's one and only granddaughter turns one year old on November 18, 2003. (This might not be noteworthy to everyone, but since I (Granddad) am writing this report, it is included as a major event.)

December

- Two major snow falls, with associated high winds, put a lot of heavy wet drifts in the Refuge wetlands, which should help the moisture problems.
- Quivira's Audubon Society Christmas Bird Count was conducted on 12/18, with a very faithful group of birders. Snow reduced the success but a fun time was still had by all.

MONTHLY ACTIVITY REPORTS

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.JAN

February 17, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, January, 2003

A. HIGHLIGHTS

- A lot of interest was shown for the Administrative assistant position to fill the vacancy left when Cindy Terry moved to an ORP position.
- Duck season ends with the main question being "Where are the birds"? Unusual weather kept the ducks further north and most Kansas hunters had a below average year.
- The Junior Duck Stamp display is viewed by a huge mass of humanity at the new Cabela's Store in Kansas City, KS, during the last weekend in January. Lorrie Beck greeted a lot of very interested folks.

B. CLIMATIC CONDITIONS

High: 77 degrees F Low: 0 degrees F Precip: 0.02 inches

The 0.02 inches of "official precipitation" at the Hudson, KS weather station, eight miles west of HQ, was below the 0.57 inch long term average for January.

E. ADMINISTRATION

1. Personnel

Maintenance Worker Stan King has been off since early June, due to continuing struggles with throat cancer, and he has been sorely missed. Last month we were informed that the disability retirement for Stan had been approved through OPM.

Stan's position was advertised from January 8-30 and we received a lot of calls from folks interested in the position.

The replacement Administrative Support Assistant, vice Cindy Terry, who was selected to fill the Outdoor Recreation Planner, GS 7/9 position, at Quivira NWR, was advertised late in December. In January, the process was started of reviewing and interviewing the applicants that made the certificate.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with bi-weekly waterfowl surveys and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was held on January 21st, with the program concerning the hazards of finding and dealing with drug lab situations on or near the Refuge.

F. HABITAT MANAGEMENT

1. General

Overall, Refuge wetlands are better than last year and much better than places not too far west. Refuge grasslands are in good shape and the high intensity/short duration grazing treatments had the desired effects, compared to last year when regrowth was very slow.

2. Wetlands

Water diversions continued in January, with water being moved from the Little Salt Marsh, our main storage basin, to wetland units 14a, 14b and 14c, 16, 20A&B, 25, 26, 40, 62, 28, 29, 30, 48, 49, 63, Adam's pond, and Deadhorse Slough.

This is in hopes of getting the majority of the refuge wetlands ready for the spring waterfowl migration, which can peak on Quivira in late February.

5. Grasslands

Sandhill Plum mowing to reduce brush growth in the Refuge grasslands was completed over a large portion of Quivira this year. This mowing allows the regrowth of the grasses, and provides more fuel for a hotter fire, when later in the spring the areas are treated with a prescribed burn.

7. Grazing

Refuge grasslands are showing vigor and regrowth this fall, due to some fortunate rains earlier. All grazing on the Refuge ended on October 1st, and warm weather days in January were spent getting equipment and facilities repaired.

New steel pipe "H" braces have been developed over the last couple of years and have proven to be a big improvement over our old treated wood post braces.

9. Fire Management

One prescribed fire unit was implemented this month. The Wildlife Drive prescribed fire unit was burned on January 7. This 680 acre unit is burned to enhance inland salt marsh habitat type.

Bill Waln completed the S-490, Advanced Fire Behavior Calculations, course in Fort Collins, Colorado. The course was held January 13-17.

Bill Waln attended the Rocky Mountain Geographic Area Coordinated Group meeting in Hutchinson, KS, on January 23.

Todd Schmidt and Bill Waln presented S-130/190, Firefighter Training and Introduction to Fire Behavior, to 10 individuals representing 2 local VFD's at Kirwin NWR. This course was held on January 24-26.

Todd Schmidt and Bill Waln presented the S-131, Advanced Firefighter, course to the staff of Kirwin NWR. This course will be used as the annual fireline safety refresher for the staff at Kirwin NWR.

Todd Schmidt and Bill Waln traveled to Dodge City to present a program on Fire Weather Predictive Service needs for Quivira NWR to the National Weather Service. We use this office for our spot weather forecast on local fire management operations.

G. WILDLIFE

2. Threatened and/or Endangered Species

Bald eagles make good use of the waterfowl flocks on Quivira NWR during the winter months. During the Bi-weekly waterfowl surveys, bald eagles are counted as well. On the 1/7/03 survey, 19 immature and 10 adults (29 total) and on the 1/22/03 survey, 12 adults and 14 immature (26 total) bald eagles were recorded on Quivira. On 1/10/03, the Mid-Winter Bald Eagle Survey was conducted on Quivira. With 6 observers, including one newspaper reporter that wrote an excellent article, a total of 64 eagles were recorded, 21 adults and 43 immatures.

3. Waterfowl

Bi-weekly waterfowl surveys, in conjunction with a statewide effort, were conducted during the month. The 1/7 survey found 521,000 geese, (175,000 Canadas, 128,500 white-fronts, and 217,500 snows and Ross') and only 10,300 ducks. The 1/22 survey had 3,140 ducks and 131,300 geese. We are not sure what ever happened to the ducks this year but the geese have gone crazy..

We have had phone calls from Texas and Arkansas wondering where "their" ducks are located. All we can say is call further north.

Five Tundra swans (2 adults, 3 immatures) spent much of the month on the wetlands in the middle of the Wildlife Drive.

4. Marsh and Water Birds

About 150 Sandhill cranes were still hanging around on 1/12, and more were heard flying over, as the warm January weather made it seem like Spring.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird species were gone in January, or frozen. A few Ring-billed gulls continued to hang around throughout the month to clean up the left overs from the numerous eagle killed geese.

H. PUBLIC USE

1. General

Large numbers of visitors traveled to Quivira during January as the hunting seasons progressed and reports of the huge migration of geese got around.

2. Outdoor Classrooms - Students

Lorrie Beck, GPNC, presented pre-Centennial programs to Derby 5th graders that will be participating in the GPNC Centennial Celebration in March.

Lorrie had made contact with the new Cabela's Store in Kansas City to make arrangements for the Junior Duck Stamp display to be shown in their store from Jan. 31-Feb. 2, 2003 and the following weekend in February as well. Thousands of folks saw the display and many talked to Lorrie and Gladys the Goose, a clever hand puppet.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. Hopefully we will be able to pour concrete on this trail soon if the weather holds out.

8. Hunting

The last segment of the Kansas duck season closed on January 12th with very few ducks ever migrating through Quivira this year. Duck hunters had one of the poorest seasons on record as the mild weather up north did not push the ducks south.

The white-fronted goose season ended on 1/26 and pheasant and quail season closed on 1/31.

The State conducted their annual antlerless deer season from 1/1-1/9. While Quivira NWR is closed to deer hunting there was still a lot of activity on our boundaries. Fewer problems were encountered this year.

17. Law Enforcement

Hunting seasons bring lots of law enforcement time and this one was no exception. Calls for information on where the geese are going out, how high, where would you hunt and how many geese do you have, took up much of the month.

Problems with the antlerless deer season were not as bad as previous years as the hunters stayed on their side of the fence, for the most part.

Both Refuge Officers Hilley and Sellers completed their annual physicals during the month. Officer Sellers attended the annual LE Inservice in AZ from January 28 - February 2.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways and received a welcome rest period during January, following a very successful and event filled year, including the Ramsar dedication and the "Step Back In Time" event, plus many more activities.

The FOQ Board held a meeting on 1/7 at the Visitors Center, to prepare for their annual meeting next month.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The major MMS rehab project continued in January with the final delivery of the larger surge rock portion of the contract. The rip rap portion of the project was started in January but due to financial problems with the contractor the process was delayed several times.

3. Maintenance

Between the holidays, use or lose leave, the MMS rock project, and the weather a lot of time was spent working on equipment and vehicles routine maintenance.

J. OTHER ITEMS

1. Cooperative Programs

The Refuge continued to provide information to the USGS, which is working on a continuous monitoring water measurement system. This would allow more accurate gaging of the amount of water diverted to Refuge wetlands.

On 1/30, the Management team from Kirwin NWR was on Quivira to discuss ways we handle various situations and mutual problems.

A representative from the National Wild Turkey Federation was on station on 1/29 to discuss potential projects, but quickly lost interest when informed we did not have turkey hunting on Quivira NWR. About 125 wild turkeys were feeding in the Visitors Center yard when he arrived!

3. Training and Items of Interest

On 12/8 the Refuge staff and families had their Christmas party and everyone had a great time.

From 1/27-1/31, ORP Cindy Terry was in Environmental Education training in Georgia, presented by NCTC.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.FEB

March 14, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, February, 2003

A. HIGHLIGHTS

- Two major law enforcement incidents occur, with a tractor stolen and damaged on January 29-30, to pull out a stuck trespass vehicle (not reported last month), and an arson caused fire burns portions of the Tin Shed on 2/12.
- Friends of Quivira conduct their Annual Meeting on 2/6 with over 30 folks attending, to plan the new year. The Quivira Centennial Quilt was on display.
- Good snows bring much needed moisture to the Refuge and parts of drought stricken western Kansas.

B. CLIMATIC CONDITIONS

High: 75 degrees F Low: -3 degrees F Precip: 1.13 inches

The 1.13 inches of "official precipitation" at the Hudson, KS weather station, eight miles west of HQ, was above the 0.84 inch long term average for February. Snow fell on five days during the month, for a total of 14.00 inches.

E. ADMINISTRATION

1. Personnel

Maintenance Worker Stan King has been off since early June, due to continuing struggles with throat cancer. In December we were informed that the disability retirement for Stan had been approved through OPM. His position was advertised from January 8-30, and in February we received the certificate and started the selection process for a replacement.

3. Waterfowl

Bi-weekly waterfowl surveys, in conjunction with a statewide effort, were conducted during February. The 2/4 survey found 4,850 geese, mostly Canada's, and 5,974 ducks (mostly mallards, a few pintails and some cans and goldeneyes). The 2/18 survey had 15,150 ducks and 130,500 geese. Weather during the month was really varied and the number of waterfowl on the Refuge was dependent on the temperature and availability of open water.

Five Tundra swans (2 adults, 3 immatures) spent much of the month on the Refuge wetlands, moving from unit to unit, as the ice conditions dictated.

4. Marsh and Water Birds

About 75 Sandhill cranes were still hanging around on the 2/18 survey, but by the end of the month larger groups were seen flying overhead, trying to reach the Platte and fighting some very cold weather. At least to them it seemed like Spring.

5. Shorebirds, Gulls, Terns and Allied Species

A few Ring-billed gulls continued to hang around throughout the month to clean up the left overs from the numerous eagle killed geese.

H. PUBLIC USE

1. General

Cold weather finally arrived in February and this, along with the ice conditions, kept most potential visitors home and close to the fire.

2. Outdoor Classrooms - Students

On 2/10, RM Hilley was the featured speaker at a mid day program at the Great Plains Nature Center. Word must have leaked out he was going to speak because the crowd was very sparse.

Lorrie Beck, GPNC, had made contact with the new Cabela's Store in Kansas City to make arrangements for the Junior Duck Stamp display to be shown in their store on the weekends of 2/1-2 and 2/7-9. Lorrie talked to over 2,600 folks plus the display was seen by over 40,000 visitors to Cabela's.

On 2/27, Lorrie attended the Great Wichita Convention and Visitors Bureau meeting to represent the GPNC.

A Hunter Education class was started on 2/22 at the Refuge E/E Classroom, but a snow storm postponed the second day's activities until a week later.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. Hopefully we will be able to pour concrete on this trail soon if the weather holds out.

8. Hunting

The light goose and Canada goose regular seasons ended on 2/2. Except for the snow goose conservation order season, most hunting seasons are now closed until next year. Quivira NWR closed to all hunting on February 28.

17. Law Enforcement

Refuge Officer Hilley attended LE Inservice at Marana, AZ from 2/19 -2/24.

A law enforcement incident occurred on Quivira, in late January but was inadvertently not reported last month. On January 29-30, a new (less than 16 hours use) J. Deere tractor was stolen and severely damaged. Trespassors had been observed driving through wheat fields on private lands around the Refuge. They were chased by RM Hilley but disappeared toward town before Hilley could make contact. A late night search of the Refuge found no evidence of any problems on Quivira.

The next day it was discovered that they had apparently also driven through several Refuge wheat fields, broken down a fence, and in the process their vehicle became stuck on a Refuge sandy hilltop. Evidence indicates a second vehicle was called and the perpetrators used it to pull the door off the Refuge tractor, ripped out the wiring harness and "hot wired" the tractor. They then used the tractor to pull out their stuck vehicle and escape.

Damage to the tractor was over \$5000 due to having to replace the entire wiring harness to maintain the warranty. A \$1000 reward has been offered for information and the case turned over to local authorities. So far no one has been identified.

On February 2/13, a fire was discovered smoldering in the Tin Shed, a storage facility in the middle of the Refuge. The gate lock had been completely removed and the shed door showed signs of entry.

The Stafford Fire Dept. Responded and put out the blaze. The KS State Fire Marshal was called and his investigation resulted in calling the incident an arson fire.

The building was severely burned in several locations and will probably have to be demolished, pending an engineering review. Two tractors, a pickup, an airboat, and lots of other equipment and supplies were fire or smoke damaged.

A \$1000 reward was offered by the FWS and an additional \$5000 was offered through the KS Fire Marshal and his special funding. A name has been received and several LE agencies are working the case, so hopefully a suspect will be soon located and charged.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. The FOQ Annual Meeting was conducted on 2/6 in Stafford at the Methodist Church. About 30 folks attended on a very cold night and it was a very productive meeting. The Quivira NWR Centennial quilt was displayed for the first time and the group voted to put the quilt on permanent display at the Refuge.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The major rehab projects in February were all associated with the tractor theft and the arson fire. The crew had the tractor repaired by the dealer to maintain the warranty.

A lot of effort was spent cleaning out the good from the burned stuff in the Tin Shed. The crew was able to get all of the burned vehicles to crank but it will be a long time before the smoke smell is gone and all the damage is repaired. The snow fall during the month did more to remove the smoke damage to the vehicles than we were able to accomplish with a steam cleaner.

J. OTHER ITEMS

1. Cooperative Programs

The Refuge continued to provide information to the USGS, which is working on a continuous monitoring water measurement system. This would allow more accurate gaging of the amount of water diverted to Refuge wetlands.

The cost of this system has prompted the FWS to once again try to negotiate with the KS Dept of Water Resources to allow us to continue our historic method of water measurements, instead of installing an expensive and untested method.

3. Training and Items of Interest

On 2/3-4, the majority of the Refuge staff attended a power point training at Hutchinson Community College. This should improve our ability to give good presentations to the visiting public and interested groups.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.MAR

April 11, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, March, 2003

A. HIGHLIGHTS

- March was in like a lion, out like a lamb! Weather was a major event during the month as over 4.50 inches of rain soaked the Refuge.
- Friends of Quivira help the Refuge celebrate the NWRS Centennial on 3/14 with a birthday party.
- Work started on the "Butterfly Trail", a new interpretive trail adjacent to the Visitors Center area.

B. CLIMATIC CONDITIONS

High: 80 degrees F Low: 11 degrees F Precip: 2.90 inches*

The 2.90 inches of "official precipitation" at the Hudson, KS weather station, eight miles west of HQ, served to show how variable the weather can be in Kansas. While Hudson got less than 3" of rain, the Refuge recorded 3.02" at the Big Salt Marsh, 4.50" at the EEC and 4.36" at Headquarters. The long term average rainfall for March is only 1.40 inches.

E. ADMINISTRATION

1. Personnel

The Maintenance Worker position, vacant since Stan King's disability retirement, has been advertised and the list of applicants is being worked through to find a suitable replacement.

The replacement Administrative Support Assistant, vice Cindy Terry, who was selected to fill the Outdoor Recreation Planner, GS 7/9 position, at Quivira NWR, was selected. Christine LaRue, Larned KS, entered on duty on March 24th, with previous federal experience with the NPS.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with bi-weekly waterfowl surveys and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was replaced in March by the Fire Safety Refresher, held on 3/7, to fulfill the requirements for participating in wildfire suppression and prescribed burns.

F. HABITAT MANAGEMENT

1. General

Overall, Refuge wetlands are better than last year and much better than places not too far west. Refuge grasslands are in good shape and the high intensity/short duration grazing treatments had the desired effects, compared to last year when regrowth was very slow.

2. Wetlands

By March, efforts had been made to have as many wetland units in suitable shape for the waterfowl migration, and the shorebirds to follow. Water diversions continued in March, with water being moved from the Little Salt Marsh, our main storage basin, to wetland units 61, 63, East Lake, 28, 29, 30, 48, 49, and Deadhorse Slough. All wetland units are now at the level desired for the waterfowl migration and will be allowed to draw down naturally to provide the mud flats and marsh edges needed by the shorebirds to follow. As the previously filled wetland units are allowed to draw down slightly for the shorebirds, they also make the waterfowl food plants more accessible to the migrating ducks and geese.

5. Grasslands

Sandhill Plum mowing to reduce brush growth in the Refuge grasslands was completed over a large portion of Quivira this year. This mowing allows the regrowth of the grasses, and provides more fuel for a hotter fire, when later in the spring the areas are treated with a prescribed burn.

March rainfall gave the grasslands a much needed boost and by months end a lot of green was beginning to show, especially in the areas following a prescribed burn.

7. Grazing

Refuge grasslands exhibited good vigor and regrowth following last season's high intensity /short duration grazing treatments. Grazing season will start again on May 1st and time was spent during the month working on fences and other grazing facilities in order to be ready for the season start.

New welded steel pipe "H" braces have been developed over the last couple of years and have proven to be a big improvement over our old treated wood post braces. Easier to install, stronger, and less expensive in materials and time, these braces and corners have been a major help with fence construction and rehab.

9. Fire Management

Eight prescribed fire units were implemented in March. South HQ, Service Road, East LSM WUI, East LSM, Hornbaker North, 2930, Nature Trail and McMurphy C West were completed this month for 2,160 acres.

The following resources were detailed in to assist with our prescribed fire implementation. Kevin Beck from the National Bison Range, Chad Wimer and Jason Wagner from Long Lake NWR, Zach Suhr from North Platte NWR and Dave Carr from Crescent Lake NWR. Also Ryan Cumbow was hired as AD/EFF and spent two weeks at Quivira NWR assisting with fire management duties. While here these individuals had opportunities to work on and complete several task books. These included STEN, RXB2, RXI2, ENGB and RXB3.

The annual fire line safety refresher was completed for refuge staff and local AD hires on March 7.

Todd Schmidt completed his Prescribed Fire Burn Boss ICS Type 2, RXB2, taskbook and is now fully certified to fulfill those duties associated with this position.

TJ, Rockenbach, seasonal firefighter, started on March 24th. This is TJ's second season at Quivira NWR.

Jeff Dunlap, seasonal firefighter, started on March 3rd. This is also Jeff's second season at Quivira NWR.

G. WILDLIFE

2. Threatened and/or Endangered Species

Bald eagles continued to make good use of the waterfowl flocks on Quivira NWR. During March a lot of the bald eagles that had wintered on Quivira started to move northward, following the migrating waterfowl.

During the Bi-weekly waterfowl surveys, bald eagles are counted as well. On the 3/5/03 survey, 3 immature and 4 adults (7 total) and on the 3/18/03 survey, 5 adults and 5 immature (10 total) bald eagles were recorded on Quivira.

3. Waterfowl

Bi-weekly waterfowl surveys, in conjunction with a statewide effort, were still conducted through March. The 3/5 survey found 17,150 geese, mostly Canada's with a few snow geese, and only 515 ducks. The 3/18 survey had 7,854 ducks and 4,100 geese. Weather during the month was really varied and the number of waterfowl on the Refuge was dependent on the temperature and availability of sheet water in the surrounding private wheat fields.

The five Tundra swans (2 adults, 3 immatures) that spent much of the winter on the Refuge wetlands, were still around on the 3/18 waterfowl survey.

During the month, birders reported a **brant** on the Big Salt Marsh and several sighting throughout the month were made of the brant as he used the Refuge and fed in surrounding fields.

4. Marsh and Water Birds

About 1000 Sandhill cranes were recorded on the 3/5 survey and 275 were still around for the 3/18 survey. Larger groups were seen flying overhead, trying to reach the Platte River in Nebraska.

On 3/25/03 the annual spring sandhill crane survey was completed on the Refuge and only 16 sandhills were still hanging around.

A **common loon** was reported on the Big Salt Marsh on 3/16 by local birders.

5. Shorebirds, Gulls, Terns and Allied Species

On 3/24, the first shorebird survey of the season was completed by Olin and Donna Allen, Refuge Volunteers. Killdeer, Baird's sandpipers, and greater yellowlegs were the main species noted at that time.

Other birders throughout the month reported snowy plovers, dowitchers and stilt sandpipers. The big excitement, shorebird wise, was the sighting on March 31 of a **long-billed curlew** on the Wildlife Drive area of the Big Salt Marsh.

H. PUBLIC USE

1. General

As the waterfowl migration dwindled in March and the shorebirds were just getting started, the visitation to Quivira was very variable and depended mostly on the weather. Cabin fever was the thing that brought more folks to the Refuge than the wildlife viewing.

2. Outdoor Classrooms - Students

On 3/4-5, RM Hilley was scheduled to present a program to 200 folks at the Grassland Birds Workshop in Salina. Unfortunately a major snow storm that day closed most roads and caused him to cancel.

Refuge staff continues to work with the Great Bend Convention and Visitors Bureau on the "Wings and Wetland Weekend" to be conducted in April.

On 3/14, the Friends of Quivira and the Refuge staff hosted an open house and birthday party to celebrate the NWRS Centennial. The FOQ provided the refreshments including a birthday cake. The "Quivira Centennial Quilt" was also displayed for the first time to the public. This quilt was made from all of the entries in the quilt square contest conducted in July at the Stafford Fair to pick a square for the Regional Centennial Quilt. Sharon Allen, the provider of the winning quilt square was here for a photo session with the local press.

On 3/28, DPL Sellers gave six presentations at the McPherson College Children's Water Festival. He presented to over 122 children and adults during the event.

On March 20th, the judging was conducted for the Kansas Junior Duck Stamp Design Contest. Lorrie Beck, GPNC, is the State Coordinator. A total of 584 entries from 45 schools, 14 of which were home schools, were received. Emily Bucher (Louisburg, KS) won Best of Show for the third year in a row.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. Portions of the trail were graded and formed up for pouring concrete as soon as the weather permits.

8. Hunting

Quivira NWR closed to all hunting on February 28.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press and we still remain hopeful for a suspect to be turned into law enforcement. Nothing has resulted from the rewards for the tractor vandalism incident and that case still is being investigated.

During the mop up efforts on a couple of prescribed fires, crew members found three deer skulls which had the antlers sawn off. We don't know if the deer were poached for the antlers or the antlers were removed by shed hunters after finding the carcasses. An investigation is ongoing.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. The FOQ assisted in hosting the Centennial Birthday Party, providing refreshments and coordinating the development and display of the "Quivira Centennial Quilt".

The FOQ were forced to cancel their board meeting in March due to snowstorms.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The major rehab projects in March continued to involve cleanup around the tin shed arson fire and repairs of vehicles, tractors and equipment damaged by the smoke and heat.

As the weather changed, the crew worked inside on equipment and outside on good days on road rehab in prep for a major rock order later in the year.

J. OTHER ITEMS

3. Training and Items of Interest

On 3/17 -21, the local schools celebrated Spring Break and Refuge staff was able to take some time off with families.

Brent Waters, Maintenance Worker, attended the Load Securement "Train the Trainer" workshop at Sand Lake NWR, SD from 3/24-27.

Sellers and Hilley attended the Project Leaders meeting from 3/31-4/2 in Scottsbluff, Nebraska.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.APR

May 15, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, April, 2003

A. HIGHLIGHTS

- Suspect, reported in a reward tip on the arson fire at the Tin Shed, was interviewed with less than encouraging results, and the investigation continues.
- Real Property Inventory audit takes a huge amount of time and effort as the bean counters search for errors in the system.
- A 4/24 coordination meeting between the KS Dept of Wildlife and Parks and the FWS, allowed a lot of discussion on mutual programs and problems.

B. CLIMATIC CONDITIONS

High: 91 degrees F Low: 20 degrees F Precip: 2.75 inches

The 2.75 inches of "official precipitation" at the Hudson, KS weather station, eight miles west of HQ, served to show how variable the weather can be in Kansas. While Hudson got less than 3" of rain, the Refuge recorded 2.31" at the Big Salt Marsh, and 3.47" at Headquarters. The long term average rainfall for April is 2.19 inches, so we continue to be ahead of the game on moisture.

E. ADMINISTRATION

1. Personnel

The Maintenance Worker position, vacant since Stan King's disability retirement, has been advertised and the list of applicants worked through. A selection has been submitted to the RO and hopefully we will have a body by the end of next month.

Tyler McVey, one of our 1040 tractor operators started work for the year on 4/7. We are glad to have him back.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on April 8, the topic was heat danger and heat stress first aid.

On 4/30, Brent Waters, certified ATV safety instructor, conducted a rider training course for Quivira and Flint Hills NWRs personnel in need of certification.

8. Other

A great deal of time and effort went into the Real Property Inventory audit conducted nationwide during April. Trying to find suitable documentation for items obtained over 45 years ago, going through two Regions and two Area Offices, plus untold personnel changes, was a frustrating experience, especially when other more pressing duties had to be postponed. Such is the life of a government employee!

F. HABITAT MANAGEMENT

1. General

Overall, Refuge wetlands are much better than last year, following the heavy rains last month. Refuge grasslands are in good shape and the stage is set for an excellent production year for the ground nesting species.

2. Wetlands

By March, efforts had been made to have as many wetland units in suitable shape for the waterfowl migration, and the shorebirds to follow. In April, all water diversions were discontinued and all Rattlesnake Creek flow directed downstream. This was partially to adjust for the heavy rains in March and also to allow the wetlands to naturally drawdown to provide the shallow edges and mud flats for the shorebird migration. As the previously filled wetland units are allowed to draw down slightly for the shorebirds, they also make the waterfowl food plants more accessible to the migrating ducks and geese.

5. Grasslands

Sandhill Plum mowing to reduce brush growth in the Refuge grasslands was completed over a large portion of Quivira this year. This mowing allows the regrowth of the grasses, and provides more fuel for a hotter fire, when later in the spring the areas are treated with a prescribed burn.

Spring rains have given the grasslands a much needed boost. Areas burned during the Spring prescribed fire season have literally exploded with new growth.

7. Grazing

Refuge grasslands exhibited good vigor and regrowth following last season's high intensity /short duration grazing treatments. Grazing season will start again on May 1st and time was spent during the month working on fences, wind mills and other grazing facilities in order to be ready for the season start.

9. Fire Management

Four prescribed fire units were implemented in April. Miller B/C, Sweitzer-G, Richardson A/B and McMurphy C West were completed this month for 3,806 acres. We have completed 14 units for 7,289 acres. The spring prescribed fire season was completed with no incidents, accidents or near misses reported.

The following resources were detailed in to assist with our prescribed fire implementation; Ryan Cumbow and Kirk Jess from Ft. Niobrara NWR, Balcones Canyonlands NWR Prescribed Fire Ignition Module and Jason Hill from BLM-Miles City District. Also a local contractor was used to assist with implementation of two prescribed fire units.

Refuge firefighters assisted with the Fitch Hill wildland fire at Flint Hills NWR April 2-4. This 203 acre fire was burning on the south shore of the John Redmond Reservoir.

Todd Schmidt, Jeff Dunlap, Blake Stewart (AD/EFF hire) and engine crew from Ft. Niobrara NWR assisted Marais des Cygnes NWR with implementing 2 prescribed fire units on April 5 and 6. Bill Waln, Todd Schmidt, Jeff Dunlap and TJ Rockenbach assisted Marais des Cygnes NWR with implementing 4 prescribed fire units on April 22 and 23.

Bill Waln and Tim Keller responded to the Gatton fire adjacent to the west boundary of Quivira NWR on April 5. This 180 acre wildland fire was caused by an escaped controlled burn on private land conducted by a private landowner.

Todd Schmidt, Jeff Dunlap and Ft Niobrara NWR engine crew responded to the Doctor fire on private property adjacent to the refuge west of Little Salt Marsh lake on April 12.

Bill Waln assisted Flint Hills NWR implementing a prescribed fire unit on April 17.

Fiscal Year 2004 prescribed fire budget request was input into NFPORS for the three stations that make up the Mid Plains Fire Management District.

G. WILDLIFE

2. Threatened and/or Endangered Species

A few bald eagles remained until early April but then headed for points further north. Reports are that there are, however, seventeen active bald eagle nests in Kansas this year. This number continues to increase probably as a result of the return of young, as they mature, which were previously hatched in the state.

Late in April a single endangered interior least tern was observed feeding on small fish, from the ditch along the Marsh Road. In April, the electric fenced predator exclusion area on the salt flats was prepared for the least terns arrival. All nesting pads were rehabed and the site just awaits the tern pairs.

3. Waterfowl

By April, the large waterfowl flocks were far north and the waterfowl remaining on Quivira were mainly late species such as Northern shovelers and blue-winged teal. Mallards that will nest here, and the resident Canada goose flock were getting serious about nesting.

4. Marsh and Water Birds

Birders during the month located a **neotrophic cormorant** on the Big Salt Marsh. Lots of white-faced ibises started to show up in April, as did the American white pelicans. Both of these species are highly sought after by visiting birders.

5. Shorebirds, Gulls, Terns and Allied Species

Periodic shorebird surveys were completed by Olin and Donna Allen, Refuge Volunteers. Numbers and diversity increased in April as the migration got into full swing. Hudsonian godwits, snowy plovers, semipalmated, American Golden and black-bellied plovers, ibis, stilts, and avocets were very evident during the month. Sandpiper species included pectorial, Baird's, least, and semipalmated as well as yellowlegs and dowitchers. **Wimbrels** were also reported by several birders.

H. PUBLIC USE

1. General

Shorebirds became the big draw in April as birders "flocked" (no pun intended) to the Refuge to view the migration.

2. Outdoor Classrooms - Students

During the weekend, April 25-27, Quivira and Cheyenne Bottoms were the featured sites for the third "Wings and Wetlands Weekend" birding festival, sponsored by the Great Bend Convention and Visitors Bureau. Over 150 birders from across the country visited the area to view the waterfowl and especially the shorebird migration. The Friends of Quivira provided coffee and information for the birders each morning at the Visitors Center. The event drew good reviews from all participants.

On April 26, the Kansas Junior Duck Stamp Design Contest awards ceremony was conducted at the Great Plains Nature Center. Lorrie Beck, GPNC, is the State Coordinator. This years contest received a total of 584 entries from 45 schools, and Emily Bucher (Louisburg, KS) won Best of Show for the third year in a row. FWS, DU and the Coleman Company provided prizes and awards for the winners.

Lorrie Beck, GPNC, gave educational presentations to the Sierra Club in Lawrence, two career day presentation to Friends University and Chisholm Trail Elementary students and presented the Earth Day message/sermon at the Pine Valley Christian Church.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. Portions of the trail were graded, formed up, and concrete poured in April.

8. Hunting

Quivira NWR closed to all hunting on February 28.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press. A suspect was turned in on the reward offer to the Barton County Sheriff. This subject was located and interviewed by Refuge Officers, Agents and the Fire Marshal on 4/3 but more questions resulted than were answered. We are still following leads and remain hopeful.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. The planning is underway for their Father's Day Out event in early May.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The Refuge crew continued working on adding rock to the rip-rap around the Big Salt Marsh to prevent erosion from wave action to the Wildlife Drive.

Forming, grading and pouring concrete on the new interpretive trail south of the Visitors Center was a major effort in April.

8. Other

On 4/25, the Refuge participated in a conference call with engineering and safety on the MMS rehab project to improve the soffits and gable ends of the two Refuge residences. Plans are to steel clad all areas to reduce maintenance but the effort was complicated by the presence of lead paint.

J. OTHER ITEMS

3. Training and Items of Interest

Sellers and Hilley attended the Project Leaders meeting from 3/31-4/2 in Scottsbluff, Nebraska.

ON 4/24, a joint Kansas Department of Wildlife and Parks and FWS meeting was conducted in Topeka, KS, to discuss items and issues common to the two agencies. ES and Law Enforcement, as well as all Kansas NWRs were represented.

Pete Meggers, Range Management Specialist, went to NCTC the week of April 28 to attend an Integrated Pest Management course.

Administrative Assistant Christine LaRue was in Denver from 4/28 till 5/9 for Regional Office orientation and small purchasing training.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.MAY

June 4, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, May, 2003

A. HIGHLIGHTS

- The entire Stafford Elementary School came to QVR on May 9, for their environmental education day. Other than the mosquitos the event went well.
- The Friends of Quivira sponsored annual Father's Day Out was conducted at the EEC on May 10, with about 65 folks attending.
- A replacement maintenance worker, a summer biological technician and one 1040 tractor operator entered on duty in May.

B. CLIMATIC CONDITIONS

High: 91 degrees F Low: 20 degrees F Precip: 2.75 inches

The "official precipitation" for May was 4.38 inches at the Hudson, KS weather station, eight miles west of HQ. The unofficial Refuge raingages recorded 3.83" at the Big Salt Marsh, and 4.14" at Headquarters and 5.00" at the Environmental Education Classroom (mid-Refuge). The long term average rainfall for May is 3.77 inches, so we continue to be ahead of the average on moisture.

E. ADMINISTRATION

1. Personnel

On May 19th, Joe Kocher, from Stafford, entered on duty as a Maintenance Worker, replacing Stan King, following his disability retirement. We are very glad to have Joe and his skills available on the Refuge.

Jessica Schmitt, a biological technician, returned to Quivira for her second summer on 5/27, and we are glad to have her once again. She will be controlling the YCC crew.

Robin Drake-Woods returned to duty on 5/27 as one of our 1040 tractor operators. Robin works on invasive species control and spends most of her summer mowing the sandhill plum thickets on QVR.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on May 6th, the topic was vehicle safety and bad weather dangers. The crew had a pot luck dinner following the meeting and it really helped draw interest to the event. Amazing what a lot of great food will do.

On 5/29, Brent Waters, certified ATV safety instructor, and Jessica Schmitt, able assistant and instructee, traveled to Flint Hills NWR to conduct a rider training course for personnel in need of certification.

8. Other

A great deal of time and effort went into the most recent "final" requirements for the Real Property Inventory audit conducted nationwide. Also included in the mix this month was RONS and MMS updates. This was all complicated greatly by computer network problems throughout the month of May.

F. HABITAT MANAGEMENT

1. General

Overall, Refuge wetlands are much better than last year, following the heavy Spring rains. Refuge grasslands are in good shape and the stage is set for an excellent production year for the ground nesting species.

2. Wetlands

By March, efforts had been made to have as many wetland units in suitable shape for the waterfowl migration, and the shorebirds to follow. In April, all water diversions were discontinued and all Rattlesnake Creek flow directed downstream. This was partially to adjust for the heavy rains in March and also to allow the wetlands to naturally drawdown to provide the shallow edges and mud flats for the shorebird migration. As the previously filled wetland units are allowed to draw down slightly for the shorebirds, they also make the waterfowl food plants more accessible to the migrating ducks and geese.

In May, the heavy rains continued and the wetland habitat went from mud flats to standing water and the shorebirds were very evident on the Refuge roads as the lower areas received flooding. Hopefully we are early enough in the nesting cycle for most species to successfully renest.

5. Grasslands

Sandhill Plum mowing to reduce brush growth in the Refuge grasslands has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out and the reduction in plum thickets has improved the grassland conditions.

Frequent Spring rains have given the grasslands a much needed boost. Areas burned during this Spring's prescribed fire season have literally exploded with new growth.

7. Grazing

Refuge grasslands exhibited good vigor and regrowth following last season's high intensity /short duration grazing treatments. Grazing season started again on May 1st and most permittees had their cattle on the new grass as soon after the opening as possible. A lot of crew time was spent during the month working on fences, wind mills and other grazing facilities in order to be ready for the cattle.

9. Fire Management

E-6323 with Todd Schmidt, Jeff Dunlap, Blake Stewart (AD/EFF hire) assisted Arrowwood NWR with implementing 3 prescribed fire units on May 7, 13, 14. They also assisted Chase Lake WMD in implementing 1 prescribed fire on May 15.

TJ Rockenbach and Blake Stewart passed the annual "pack test" to qualify for the upcoming wildfire season.

All fire management personnel have been ordering supplies, rehabilitating equipment, and preparing for wildfire season out west. Two "tailgate" safety sessions were held during May covering basic helicopter safety and pump and water use. These sessions will help prepare personnel for the upcoming fire season.

G. WILDLIFE

2. Threatened and/or Endangered Species

The endangered interior least terns have returned to Quivira in strength and have been attempting to nest on the salt flats. Those that picked the elevated artificial nesting pads have been much more successful as the Spring rains have flooded any nesting attempts in low areas. Maintenance of the electric predator exclusion fence around the tern nesting area on the salt flats has required a lot of effort with the rise and fall of the water following the frequent thunderstorms.

Several peregrine falcons were observed on the Quivira marshes in May, making life hard for the shorebird flocks.

Endangered piping plovers were also recorded on the salt flats of the Big Salt Marsh several times during the month.

3. Waterfowl

Northern shovelers, blue-winged teal, mallards, and ruddy ducks have been very evident as they have been nesting in the fresh green growth following the prescribed burns of the early Spring. Numerous broods of young goslings from the resident giant Canada goose flock are following the adults around on most Refuge wetlands.

Unusual species during the month included numerous cinnamon teal and a pair of **surf scoters**.

4. Marsh and Water Birds

Birders during the month located several **Glossy Ibis** on the Big Salt Marsh. Lots of white-faced ibises started to show up in May and persistent birders could look over the flocks and find the Glossy ibis among the white-faced.

Several birders reported sightings of the **black rails** that are such a desired species and attract birders from great distances to Quivira for this single species.

5. Shorebirds, Gulls, Terns and Allied Species

On May 12, a birder reported an adult **Arctic Tern** on the Big Salt Marsh. Several others confirmed the sighting in the next few days.

Shorebird numbers were good during May and this attracted a lot of birders. Reports came in frequently of long list days and numerous species. Some of the reports from the birders are as follows:

20-25,000 Wilson's Phalaropes, lots of ruddy turnstones,
red-necked phalaropes, dunlins,
short-billed dowitchers, whimbrels,
white-rumped, Baird's, pectoral and stilt sandpipers.

Periodic shorebird surveys were completed by Olin and Donna Allen, Refuge Volunteers. Numbers and diversity continued to increase in May as the migration got into full swing.

H. PUBLIC USE

1. General

Shorebirds are the big Spring draw for birders to Quivira and in May they "flocked" (no pun intended) to the Refuge to view the migration.

2. Outdoor Classrooms - Students

On May 9th, the entire staff and student body of Stafford Elementary School came to Quivira for their end-of-year outdoor education day. They did environmental education activities, used the trails, and fished at the Kid's Pond. Reports were that this was a very successful trip for the school.

The day before Mother's Day has been the traditional Father's Day Out event on Quivira. This Friends of Quivira sponsored activity gives the dads a chance to get out with the kids and gives mother a day off at home. On May 10, over 65 people participated in a Refuge tour, constructed sand painting gifts for Mom, and cooked a hot dog lunch for Dad. This is a very popular event and makes the dads realize just what mon does and how does she make it look so easy.

On 5/22, ORP Terry gave an orientation to 15 folks from the St John Middle School and on 5/29, she also gave a refuge tour to a group of 40 senior citizens on a trip conducted by Leisure Tours.

Lorrie Beck, GPNC, gave educational presentations to GWC&VB, worked on the Walk with Wildlife event, marched as "Honker" in the River Festival parade, participated in a wildflower field trip, and attended a Lewis and Clark symposium in Montana.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The final portions of the trail were graded, formed up, and concrete poured in May. A new bench was installed and wildflowers planted along the area.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press. A suspect was turned in on the reward offer to the Barton County Sheriff and last month he was interviewed but more questions resulted than were answered. We are still following leads and remain hopeful.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. The Father's Day Out event on May 10 and preparations for the Kid's Fishing event in June took a lot of time during the month.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The Refuge crew worked on reshaping and adding rock to the ware yard at Headquarters to better allow the storage of materials and supplies. The area has been very sandy and was hard to travel with a heavily loaded truck.

Forming, grading and pouring concrete on the last portion of the new interpretive trail south of the Visitors Center was a major effort in May.

Trail and parking lot mowing was a much more time consuming effort this Spring, due to the abundant rainfall and rapid growth.

8. Other

The Refuge continues to work on the MMS rehab project to improve the soffits and gable ends of the two Refuge residences. Plans are to steel clad all areas to reduce maintenance but the effort was complicated by the presence of lead paint.

J. OTHER ITEMS

3. Training and Items of Interest

Pete Meggers, Range Management Specialist, went to NCTC from April 28 till May 2 to attend an Integrated Pest Management course.

Administrative Assistant Christine LaRue was in Denver from 4/28 till 5/9 for Regional Office orientation and small purchasing training.

On May 19-20, Mark Rodney, RO Water Resources, was on station to review our water management program to facilitate developing a computer model.

Erik Bartholemew, graduate student, Fort Hays State University, was on site on May 13 to discuss a potential herpetological project on Quivira.

On May 24th, T.J. Rockenbach, firefighter, got married and we can't get the stupid smile off his face!

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.JUN

July 9, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, June, 2003

A. HIGHLIGHTS

- The Friends of Quivira sponsored annual Kid's Fishing Clinic and Derby on June 7 was a big success with over 170 folks in attendance.
- Mowing, road work and all sorts of other field season activities started into high gear in June as the weather dried and allowed access to areas of the Refuge.
- A replacement maintenance worker and a fire management technician, entered on duty in June.

B. CLIMATIC CONDITIONS

High: 98 degrees F Low: 48 degrees F Precip: 1.93 inches

The "official precipitation" for June was 1.93 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for June is 3.67 inches, more than what was received in 2003 but the lack of rain allowed the wheat farmers to get harvest completed and no one was upset with fewer storms. At least not much hail activity occurred either across the state.

E. ADMINISTRATION

1. Personnel

On June 30, Doug Howell from Stafford, entered on duty as a Maintenance Worker, replacing Carl Marks who will be retiring later this fall. We are very glad to have Doug and his skills available on the Refuge.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on June 11. The entire staff requiring First Aid and CPR were recertified on that day.

The Safety Audit scheduled for July was rescheduled but a lot of June was spent getting things in shape for this effort.

8. Other

A great deal of time and effort went into the most recent "final" requirements for the Real Property Inventory audit conducted nationwide. Hopefully this effort is reaching a conclusion.

F. HABITAT MANAGEMENT

1. General

Overall, Refuge wetlands are much better than last year, following the heavy Spring rains. Refuge grasslands are in good shape and the stage is set for an excellent production year for the ground nesting species.

2. Wetlands

In June, the wetlands began to draw down a little as the heavy rains earlier in the Spring began to subside. Higher temperatures and strong winds began the normal Kansas cycle to reduce the surface acres of wetlands on the Refuge. For some species, such as the nesting shorebirds and the waders, this exposed shoreline was just what they needed.

5. Grasslands

Sandhill Plum mowing to reduce brush growth in the Refuge grasslands has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers dropped in early June but picked up slightly by months end as some early returning species started their southward migration.

Black terns and Forester's terns were commonly sighted during the month.

H. PUBLIC USE

1. General

The Wood stork and the Reddish egret were the big draws for the month. Seldom was there not a group of birders on the Big Salt Marsh looking to add these rare species to their life lists.

One pair of birders left Missouri at almost midnight on Saturday, drove all night to Quivira, saw the two rare species, returned to Missouri by 5:00 Sunday and put on over 835 miles just to see the stork and egret.

2. Outdoor Classrooms - Students

The Care Group from the Stafford Church of Christ toured the Refuge on 6/1

On 6/7, the Friends of Quivira's annual "Kid's Fishing Clinic and Derby" was conducted, with over 170 folks attending. Kids pass through a series of educational stations on ethics, fish ID, equipment, boating safety, casting and knot tying. Then everyone goes to the Kid's Pond to try their luck. Prizes are awarded and the event concludes with a hot dog/hamburger cookout.

Prior to the event, KS Dept. Of Wildlife and Parks helps stock the pond with up to 10 lb. catfish and lots of sunfish. A 8-10 lb. catfish can really put some smiles on the kid's faces!

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The concrete trail has been poured, benches installed and new plants seeded. A large limestone rock, to hold a brass dedication plaque, was obtained in June and will be installed soon.

7. Other Interpretive Programs

The Audubon Society *American Birds* Christmas Count edition was released this month and Quivira had five species with high counts for the nation; greater white-fronted geese - 165,500, snow geese - 380,000, Canada geese - 351,290, Long-eared owl - 23 and red-winged blackbirds - 12,500,000 .

On 6/2, Lorrie Beck, GPNC, traveled to Emporia, KS to set up the Junior Duck Stamp display in the Emporia Library.

On June 14, the GPNC hosted their annual "Walk With Wildlife" event with over 1,700 folks participating in the activities.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. The Kid's Fishing Clinic and Derby is a good example of the type programs we could not do without the help of the Friends.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The Refuge crew completed work on reshaping and adding rock to the ware yard at Headquarters to better allow the storage of materials and supplies. The area has been very sandy and was hard to travel with a heavily loaded truck.

With an anticipated start to a major MMS rock hauling contract next month, the Refuge Crew spend considerable time getting the service roads and trails in shape to handle the big trucks. The AB-3 limestone will be a great improvement to the sandy trails and should allow all-weather access to most parts of the Refuge.

Trail and parking lot mowing was a much more time consuming effort this Spring , due to the abundant rainfall and rapid growth.

8. Other

The Refuge continues to work on the MMS rehab project to improve the soffits and gable ends of the two Refuge residences. Plans are to steel clad all areas to reduce maintenance but the effort was complicated by the presence of lead paint.

J. OTHER ITEMS

3. Training and Items of Interest

On 6/12, Kansas Dept of Wildlife and Parks Conservation Officers used the EEC for their Divisional meeting.

From 6/16-20, RM Hilley was in Denver for the final Regional Centennial Team meeting.

Erik Bartholemew, graduate student, Fort Hays State University, was on site in June to work on his herpetological project on Quivira NWR.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.JUL

August 13, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, July, 2003

A. HIGHLIGHTS

- The RPI audit continues to require an inordinate amount of time to make sure the proper documentation is available on 40 -50 year old property. Such is life in the government!
- A major MMS rock hauling contract started on 7/7, to provide crushed road rock for all the Refuge non-public roads.
- An emergency steering committee meeting was called in July to deal with a budget threat to one of the public educators positions at the GPNC.

B. CLIMATIC CONDITIONS

High: 109 degrees F Low: 59 degrees F Precip: 0.15 inches

The "official precipitation" for July was 0.15 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for July is 2.93 inches. Hot, dry, and windy was the best ways to describe the weather in Kansas during the month. Quivira suffered through 17 days over 100 degrees and 23 days over 99 degrees in July.

E. ADMINISTRATION

1. Personnel

David McCauley, a new SCEP student firefighter entered on duty in mid-July, after working most recently in North Dakota. We are glad to have the extra help.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on July 15. The topic was preparations for the upcoming station safety inspection in August. A potluck dinner bolstered the staff's interest and attendance.

With the addition of two new maintenance workers to the crew, time was spent in July getting these folks certified on the various equipment that they will be using during their careers.

8. Other

A great deal of time and effort went into the most recent "final" requirements for the Real Property Inventory audit conducted nationwide. Hopefully this effort is reaching a conclusion.

F. HABITAT MANAGEMENT

1. General

Until early June, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall has stopped or slowed most vegetative growth.

2. Wetlands

In June, the wetlands began to draw down a little as the heavy rains earlier in the Spring began to subside. Only 0.15 inches of rain fell in July and very hot, dry winds took their toll on the Refuge wetlands. The west edge of the Big Salt Marsh, which normally has shallow water, quickly became a large salt flat. The North salt flats are totally dry and most wetland units are low or dry at present. For some species, such as the nesting shorebirds and the waders, this exposed shoreline was just what they needed.

The dry conditions allowed the tractors and mowers into the basins to work on the cattail stands. During July, cattails were mowed or disked in Units 40, 62, 30, North of 40, west of the old township road, and the Rice County wetlands.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

In July, plum mowing resumed as soon as we were sure most wild turkeys are off the nest and the deer fawns are large enough to avoid the mowing equipment. Standing burned plum residue in the prescribed fire areas was the first targets. To reduce soot and wear on equipment and tractor operators, most burn areas are mowed following a rain to settle the dust.

7. Grazing

The abundant Spring moisture put the Refuge grasslands in excellent shape but the drought and high temperatures in late June and July has slowed the growth significantly. The high intensity /short duration grazing treatments are really effective in duplicating the historic grazing patterns, previously used by bison, on the prairie. The system also allows the grazing treatments to be adjusted due to the weather conditions as the moves and grazing timing are flexible.

With the lowering wetlands, the cattle have been able to reach some of the new cattail growth and have reduced the cattail fringes around several marshes.

9. Fire Management

Bill Waln and TJ Rockenbach assisted with suppression of the Yankee Lane fire at Kirwin NWR. The fire which started on July 2 grew to 73 acres involving refuge grasslands and flood debris.

TJ Rockenbach and Jeff Dunlap responded to the Aiken fire on July 7. This human caused fire was reported two miles west of the refuge. Stafford VFD requested assistance through an established MOU.

Bill Waln and Todd Schmidt traveled to Kirwin NWR on July 9 and 10. Purpose of this trip was to meet with Kirwin NWR staff with Fire Management District Prescribed Fire Specialist Bruce Winter to determine how to better serve the refuge. Kirwin NWR does not have any fire funded staffing so it is necessary for firefighters to support fire management operations at Kirwin NWR. Also one day was spent discussing district issues, and outlining FY-04 budget request, prescribed fire staffing needs and defining objectives for the district.

Two prescribed fire units were implemented in June. The North HQ and North Lake burn units were completed on July 11 and 15 respectively. For the calendar year the refuge has completed 15 burns for 8,108 acres. These two burn units were considered test burns to see what effect fire in the summer would have on woody vegetation. Initial results appear to be very good.

Bill Waln was mobilized to the Farmington Canyon Fire in Utah on July 10.

David McCauley, Fire Program Technician, reported for duty on July 14. This is a new position for the refuge. David McCauley is a recent graduate of the SCEP program and has worked the last two fire seasons at J Clark Salyer NWR in North Dakota.

Todd Schmidt was detailed to Brown's Park NWR as an Incident Commander Type 4 to assist with severe fire conditions that exist in northwest Colorado.

TJ Rockenbach traveled to the National Bison Range NWR as an Engine Boss trainee on July 27 to assist with severe fire conditions in western Montana.

Two engines from Quivira NWR were requested and assisted with a series of wildland fires west of the refuge on July 31. These fires were started by lightning associated with a cold front passage.

Fuel moisture samples were taken on the years grass growth. The average live fuel moisture was found to be 77% which is indicative of very dry conditions. Normally live fuel moisture this time of year for warm season grasses is thought to be around 125%.

G. WILDLIFE

2. Threatened and/or Endangered Species

The endangered interior least terns have almost completed all of their nesting attempts on the salt flats. Those that picked the elevated artificial nesting pads were much more successful as the earlier Spring rains flooded any nesting attempts in low areas. Maintenance of the electric predator exclusion fence around the tern nesting area on the salt flats has required a lot of effort but the only predation noted has mainly been from avian predators, suspected to be gulls.

Young terns were seen in early July as they learned to fish from the adults in the rapidly declining road ditches.

Several peregrine falcons were seen on Quivira during the month, working hard to catch the migrant shorebirds.

3. Waterfowl

Northern shovelers, blue-winged teal, and mallards, most with older age broods, have been very evident as the drought conditions reduced the wetland areas and concentrated the birds.

Goslings from the resident giant Canada goose flock are following the adults around on most Refuge wetlands. The young are almost adult size and the production appears good this year.

A blue-phase snow goose was observed several times during the month on the Big Salt Marsh.

4. Marsh and Water Birds

Following the first ever Quivira sightings of a **wood stork** and a **reddish egret** in June, both species well outside their normal ranges, another unusual species was spotted on QVR in July. A single **roseate spoonbill** was spotted by a birder on the Wildlife Drive on 7/10, and two were sighted on 7/11 by the Refuge fire crew. These spoonbills went north to Cheyenne Bottoms for a while, then returned to Quivira and were on the Wildlife Drive at month's end.

Roseate spoonbills had been reported in Oklahoma and two other spots in Kansas this year but no one can come up with a good reason why.

Several birders reported sightings of the **black rails** that are such a desired species and attract birders from great distances to Quivira for this single species. Low water levels made other rail species visible and birders reported numerous sightings of Virginia, sora, and king rails, many with young.

An adult **tri-colored heron** spent the month on the Big Salt Marsh and provided a life bird for a lot of visitors.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers increased dramatically in July and the declining water levels made outstanding mudflat habitat for the migrants. Species sighted in July included dowitchers, stilt, least, Baird's, solitary, and pectorial sandpipers, godwits, willets, and assorted others.

Production from the snowy plovers was exceptional this year and the road edges were covered with young plovers, making driving the Wildlife Drive very slow going to avoid the young ones.

Black terns and Forester's terns were commonly sighted during the month.

17. Disease Prevention and Control

During late July, the American white pelicans, numbering about 1000 on the Refuge, started to get sick and die. The birds would start to lose strength to hold up their wings, which would droop into the mud. They would not attempt to fly, eventually lose neck control, and die. Almost three dozen have been picked up and specimens shipped to the Disease Lab had not resulted in a good diagnosis. We are awaiting other test results and keeping watch on the situation. So far only the pelicans have been stricken with the problem.

H. PUBLIC USE

1. General

The roseate spoonbills, hundreds of shorebirds and tri-colored heron were the big draws for the month. Seldom was there not a group of birders on the Big Salt Marsh looking to add one of these rare species to their life lists.

2. Outdoor Classrooms - Students

Lorrie Beck, GPNC, placed the Junior Duck Stamp display in the Wheat Ridge Mall, Topeka, for two weeks in July.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The concrete trail has been poured, benches installed and new plants seeded. A large limestone rock, to hold a brass dedication plaque, was obtained and will be installed soon.

Signage and the dedication plaque are being designed and fabricated for installation later this fall at a dedication ceremony.

7. Other Interpretive Programs

A college credit course, "Continuing a Century of Conservation" was taught by Lorrie Beck and Suzanne Fellows, RO Migratory Bird Office, on July 23-25. Credit was through the Friends University, Wichita and the course included a field trip to Quivira NWR. Eighteen teachers attended the 2-hour credit course.

On July 10th, an "emergency" Great Plains Nature Center Steering Committee meeting was called to handle a crisis. The City of Wichita, as a result of a poor budget year, had proposed to cut one of the naturalist/educator positions from the GPNC. This followed the cutting by the local school district of two positions at the Center last year.

The group rallied the troops, called in the Friends of the GPNC, and started letters to the City Council, and at months end the word was that the position was safe, at least for the time being.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. Plans are underway for the Bald Eagle Contest, Eco-Meet, Monarch Mania and the October NWR Week event. It will be a very busy Fall season for the Friends.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Most of the Refuge Crew time was taken up in July with a major MMS rock hauling contract. After a "rocky" start on 7/7, with some major miscommunications between the parties, things smoothed out and the contract went like a breeze. Refuge Crew spend considerable time getting the service roads and trails in shape to handle the big trucks. The AB-3 limestone is a great improvement to the sandy trails and should allow all-weather access to most parts of the Refuge. Roads on Quivira look better than we ever thought they would. Sometimes it works!

A new well house was constructed at the old Tin Shed site to house the well and water treatment equipment for the EEC and Bunkhouse. This equipment had been in the shed when it was burned by an arsonist. The new well house was constructed force account by the Refuge Crew.

In order to give folks "seat time" on the heavy equipment for certification, the inlet canal to Henry's Pond was cleaned of accumulated silt and the old spoil piles leveled to make better access. Now all we need is water!

8. Other

The Refuge continues to work on the MMS rehab project to improve the soffits and gable ends of the two Refuge residences. Plans are to steel clad all areas to reduce maintenance but the effort was complicated by the presence of lead paint.

The contractor moved the equipment on site by months end and work is about to start.

J. OTHER ITEMS

3. Training and Items of Interest

Erik Bartholemew, graduate student, Fort Hays State University, was on site in late July to continue work on his herpetological project on Quivira NWR.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.AUG

September 19, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, August, 2003

A. HIGHLIGHTS

- West Nile virus concerns to surface after 38 dead or dying suspected WNV white pelicans are picked up on the Refuge.
- A major MMS rock hauling contract was completed during the month, to provide crushed road rock for all the Refuge non-public roads.
- A Congressional Informational meeting was held with the Kansas delegations on 8/12, at the GPNC. All Kansas Refuges, ES and Law Enforcement offices participating.

B. CLIMATIC CONDITIONS

High: 105 degrees F Low: 59 degrees F Precip: 5.34 inches

The "official precipitation" for August was 5.34 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for August is 2.59 inches. Unofficial weather recorded 5.59 inches at Headquarters (4.85" that fell in the last three days of the month) and 2.54 inches at the Big Salt Marsh (2.11" in the last three days).

Hot, dry, and windy was the best ways to describe the weather in Kansas during the month. Quivira suffered through 12 days over 100 degrees, with the longest run 10 days, August 17 - 26, that were all over 100 degrees.

E. ADMINISTRATION

1. Personnel

Jeff Dunlap, firefighter for the last two summers on Quivira, was notified during the month that he had been selected for a permanent fire position in Texas. We are going to miss him and appreciate his efforts while at Quivira.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

No Monthly Staff and Safety Meeting was conducted in August due to the impending Safety Audit during the month.

A safety concern arose over the sudden increase throughout Kansas of human West Nile Virus cases. One death was attributed to the disease during the month and almost every nearby county had reported cases. The Red Cross reported over a quarter of 1000 unit of blood drawn in Kansas had tested positive for WNV. This baffled most folks because the drought conditions had reduced the mosquito population to almost non-existent. (See Wildlife Section for pickup of WNV positive pelicans on Quivira).

On 8/6, a Safety Audit was conducted by RO Safety Personnel on the Great Plains Nature Center. Other than some offices being declared fire hazards due to accumulated "valuable stuff", the Center passed.

On 8/7, a safety audit was conducted on Quivira NWR. As expected we had a few things to clear up but, all in all, the audit went very well, and all recommended corrections are being implemented. A big thank you goes out to the staff for making this happen.

8. Other

Work on databases for a variety of systems, MMS, RONS, RCAR, etc., took up time this month. Hopefully all of this info will be useful to someone.

F. HABITAT MANAGEMENT

1. General

Until early summer, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall has stopped or slowed most vegetative growth.

2. Wetlands

The drought conditions started in early June continued throughout most of August, with above 100 degree temperatures and high winds. Moisture quickly disappeared from the Refuge wetlands.

The west edge of the Big Salt Marsh, which normally has shallow water, continues to dry and provide a large salt flat. The North salt flats are totally dry and most wetland units are low or dry at present. For some species, such as the shorebirds and the waders, this exposed shoreline was just what they needed.

During the last three days of August, 4.85" of rain fell on the south end of the Refuge, with 2.11" reported on the Big Salt Marsh. This much needed moisture put smiles on the local farmers but was short lived in helping the wetlands, as the 3 feet deep cracks in the basins soaked up the rain. Almost no runoff occurred and within a few days the wetlands were again receding.

The dry conditions allowed the tractors and mowers into the basins to work on the cattail stands. During August, cattails were mowed or disked in Units 48, 62, 10B, 14A, 14B, 30, and Dead Horse Slough.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

Plum mowing continued in August as the mechanical treatments during drought conditions in the past have helped reduce the vigor of the plum thickets. The effort has been plagued by our inability to get high ply tires for the newer tractor and the resulting flats that come from mowing woody vegetation.

7. Grazing

The abundant Spring moisture put the Refuge grasslands in excellent shape but the drought conditions since early June have slowed the re-growth considerably. The high intensity /short duration grazing treatments are really effective in duplicating the historic grazing patterns, previously used by bison, on the prairie. The system also allows the grazing treatments to be adjusted due to the weather conditions as the moves and grazing timing are flexible. Local ranchers, without this flexibility, have been forced by the drought to start feeding hay in some native grass pastures to get the cows through the summer.

With the lowering wetlands, the cattle have been able to reach some of the new cattail growth and have reduced the cattail fringes around several marshes.

9. Fire Management

On August 3, a 13 acre wildfire occurred adjacent to the east side of the refuge. This natural caused fire started around 1:30 pm and rapidly spread west toward the refuge. Two refuge engine crews plus resources from Reno and Stafford County VFD's responded. The fire spread was halted when it reached refuge managed lands. This area of the refuge was burned this spring removing all residual growth.

Todd Schmidt returned off a fire detail at Brown's Park NWR in Colorado, August 4.

Bill Waln assisted with a regional office safety inspection of Quivira NWR on 8/7.

Todd Schmidt was detailed to Montana as a member of the Great Plains Interagency Type 2 Initial Attack Handcrew on August 7. This crew worked initial attack on two fires in southwest Montana as well as several shifts on a project fire west of Montana. Todd was a Crew Boss Trainee for the crew and successfully completed his position taskbook. Todd returned from this fire detail on August 24.

The newest member of the Quivira NWR Fire Management Staff arrived in August. Daxton Dunlap, son of refuge firefighter Jeff Dunlap arrived on August 15.

TJ Rockenbach returned to Quivira NWR from National Bison Range NWR in Montana. TJ was detailed to this refuge during their severity as an engine crew member.

Bill Waln Traveled to Rainwater Basin WMD on August 19 to assist Bruce Winter in completing the FY-04 fire budget.

On August 19 Quivira NWR requested and approved activation of the Emergency Preparedness Funding Authorization as fire danger reached the Very High level.

TJ Rockenbach was sent to Charles M. Russell NWR in Montana on an engine crew. TJ is an engine boss trainee and will be working on his taskbook. TJ left on August 20.

On August 27 refuge firefighters responded to a fire directly adjacent to the south side of Quivira NWR. This fire was started from lightening striking a utility pole. Although fire was small and quickly contained, down power lines caused great concern. The Power Pole fire was controlled at a 0.1 of an acre with one engine crew responding.

G. WILDLIFE

2. Threatened and/or Endangered Species

The endangered interior least terns have completed all of their nesting attempts on the salt flats. Those that picked the elevated artificial nesting pads were much more successful as the earlier Spring rains flooded any nesting attempts in low areas. Maintenance of the electric predator exclusion fence around the tern nesting area on the salt flats has required a lot of effort but the only predation noted has mainly been from avian predators, suspected to be gulls.

Several peregrine falcons were seen by birders on Quivira during the month. The falcons were working hard to catch the migrant shorebirds.

3. Waterfowl

Reducing water levels in the Refuge wetlands gave the appearance that there were more waterfowl as the drought concentrated the birds. Northern shovelers, blue-winged teal, and mallards, most with older age broods, have been very evident.

Goslings, almost adult size, from the resident giant Canada goose flock are following the adults around on most Refuge wetlands.

A blue-phase snow goose continued to be observed several times during the month on the Big Salt Marsh.

4. Marsh and Water Birds

Rare visitors such as the **wood stork** and a **reddish egret** in June, plus the two **roseate spoonbill** in July and August have drawn a lot of birders to Quivira for the chance on a "lifer". These spoonbills went north to Cheyenne Bottoms in August but returned to Quivira often enough to keep the birders happy.

Several birders reported sightings of the **black rails** that are such a desired species and attract birders from great distances to Quivira for this single species. Low water levels made other rail species visible and birders reported numerous sightings of Virginia, sora, and king rails, many with young.

Tri-colored herons became almost commonplace during August and a larger than usual number of yellow crowned night herons were sighted during the month.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers continued to increase in August as the continuing drought and the declining water levels made outstanding mudflat habitat for the migrants.

Species sighted in August included dowitchers, stilt, least, Baird's, solitary, and pectorial sandpipers, godwits, willets, and assorted others. Buff-breasted sandpipers were a favorite of the birders according to the listserve. Sanderlings, and ruddy turnstones were also sighted in August.

A **Sabine's gull** was sighted on Quivira on August 4th, loosely associating with a group of Franklin's gulls.

10. Other Resident Wildlife

After years of having a prairie dog town across the road on the north side of the Rice county section, on private land, the conditions this year finally allowed the dogs to spread southward. Now we have a second small prairie dog town established on Quivira.

An armadillo spent a lot of time in August digging for grubs in the watered lawn of the Visitor's Center. This species is becoming much more common in Kansas.

17. Disease Prevention and Control

During August, the American white pelicans, numbering about 1000 on the Refuge, continued to get sick and die. The birds would start to lose strength to hold up their wings, which would droop into the mud. They would not attempt to fly, eventually lose neck control, and die. Results from the Disease Lab confirmed West Nile Virus in one specimen and a very probable WNV in the second pelican shipped for testing. By late August, 39 dead pelicans had been picked up on Quivira.

H. PUBLIC USE

1. General

The roseate spoonbills, hundreds of shorebirds, and several tri-colored herons continued to be the big draws for the month. Seldom was there not a group of birders on the Big Salt Marsh looking to add one of these rare species to their life lists.

2. Outdoor Classrooms - Students

The state Eco-Meet Committee met on 8/15 at the Quivira Visitors Center to discuss the plans for the meets throughout the Fall. The State Meet will once again be held at Quivira NWR in November.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a local family in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The concrete trail has been poured, benches installed and new plants seeded. A large limestone rock, to hold a brass dedication plaque, was obtained and will be installed soon.

Signage and the dedication plaque are being designed and fabricated for installation later this fall at a dedication ceremony.

7. Other Interpretive Programs

On August 12, all KS station Project Leaders, staff from the ES and LE offices and delegates from the Kansas Congressional Offices met at the Great Plains Nature Center. The purpose for the meeting was to update the Congressional folks on FWS programs, issues and problems. The meeting was very successful and plans were made to make the event an annual activity.

17. Law Enforcement

The Kansas State Fire Marshal, Stafford County Sheriff, FWS Special Agent and Refuge LE Officers continue to work leads in the Tin Shed arson fire. The rewards have been widely reported in the press.

On 8/19, the Fall LE firearms requalification was held for all KS stations on Quivira NWR. Jerre Gamble, firearms instructor from Flint Hills, provided the oversight. A State Fair planning meeting was also conducted while all stations were represented.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. Plans are underway for the Bald Eagle Contest, Eco-Meet, Monarch Mania and the October NWR Week event. It will be a very busy Fall season for the Friends.

On 8/6, the Friends of Quivira held an executive board meeting at the Quivira NWR Visitors Center. On 8/20 the FOQ had a NWR Week Event Committee meeting on Quivira.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The major MMS rock hauling contract was completed in early August. The contractor belly dumped AB-3 crushed limestone on non-public roads on Quivira. Refuge Crew spend considerable time getting the service roads and trails in shape to handle the big trucks, spreading the material, and hauling material into areas not accessible by the larger semi-trucks. The new crushed limestone is a great improvement to the sandy trails and should allow all-weather access to most parts of the Refuge.

The new well house, force account constructed at the old Tin Shed site to house the well and water treatment equipment for the EEC and Bunkhouse had final touches completed. Water treatment equipment was installed by the contractor, insulation was installed and outside finish work accomplished.

Another major rehab project during August was the re-construction of the Road to Mandelay, a very important trail crossing the north salt flats. The road was recontoured, side reshaped, and surface gravel topped, for all weather access.

Several historic "fish ponds" west of the Kid's Fishing Pond were rehabed during the month by use of the Positrack to remove old cedars, and Russian olive trees. The dozer will be used later to remove the larger trees and stack the downed timber for future burning.

8. Other

The contractor, Southard, Inc., Great Bend, KS, completed the MMS rehab project to improve the soffits and gable ends of the two Refuge residences and out buildings. New steel siding was used to steel clad all areas to reduce maintenance and new seamless guttering was installed. The contractor did an excellent job, putting one very skilled craftsman on the project and he completed the work with very little oversight needed.

J. OTHER ITEMS

3. Training and Items of Interest

Erik Bartholemew, graduate student, Fort Hays State University, was on site in August to continue work on his herpetological project on Quivira NWR.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.SEP

October 14, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, September, 2003

A. HIGHLIGHTS

- The annual Bald Eagle Contest gets underway with visits to all of the county elementary schools by Friends, Refuge, and GPNC staff, plus live raptors.
- Carl Marks, long time Maintenance Worker Leader, retires on September 3rd.
- "Monarch Mania", our annual Friends of Quivira sponsored butterfly tagging event is a big success, with over 90 folks attending on 9/20.

B. CLIMATIC CONDITIONS

High: 91 degrees F Low: 41 degrees F Precip: 1.89 inches

The "official precipitation" for September was 1.89 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for September is 2.42 inches. Unofficial weather recorded 2.75 inches at Headquarters and 2.95 inches at the Big Salt Marsh.

E. ADMINISTRATION

1. Personnel

Carl Marks, Maintenance Worker Leader at QVR since 1974, retired on September 3rd. Carl will be missed as his knowledge of the Refuge and all the things that have been built, torn down or up, and rehabed, on Quivira was a valuable asset to the other folks on staff.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with shorebird surveys, bluebird house maintenance, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on September 16th, with the main safety issue being the West Nile Virus. This was a concern due to the discovery of WNV infected white pelicans on Quivira. Human WNV cases continue to pop up all over Kansas, some resulting in deaths, and the recent rains have stimulated the local mosquito population.

8. Other

Work on databases for a variety of systems, MMS, RONS, RCAR, etc., took up time this month. Hopefully all of this info will be useful to someone.

F. HABITAT MANAGEMENT

1. General

Until early summer, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall has stopped or slowed most vegetative growth.

2. Wetlands

The drought conditions which started in early June continued into September. While the winds and over 100 degree temperatures subsided a bit the heavy rains did not come and the wetlands suffered.

The west edge of the Big Salt Marsh, which normally has shallow water, continues to dry and provide a large salt flat. The North salt flats are totally dry and most wetland units are low or dry at present. For some species, such as the shorebirds and the waders, this exposed shoreline was just what they needed.

With the irrigation season coming to an end and the trees going dormant, the underflow should come up soon and assist in putting water in some wetlands. By the end of September, the level of the Little Salt Marsh, our main storage basin, while not actually going up, had stopped falling. For this year, that is good news. This means the reduced flow in Rattlesnake Creek is keeping up with evaporation for the first time this summer.

The dry conditions allowed the tractors and mowers into the basins to work on the cattail stands. During September, cattails were mowed or disked in Units 26, north of Units 20 A and B, and several smaller unnamed wetlands.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

Plum mowing continued in September as the mechanical treatments during drought conditions in the past have helped reduce the vigor of the plum thickets. The effort has been plagued by our inability to get high ply tires for the newer tractor and the resulting flats that come from mowing woody vegetation.

7. Grazing

The abundant Spring moisture put the Refuge grasslands in excellent shape but the drought conditions since early June have slowed the re-growth considerably. The high intensity /short duration grazing treatments are really effective in duplicating the historic grazing patterns, previously used by bison, on the prairie. The system also allows the grazing treatments to be adjusted due to the weather conditions as the moves and grazing timing are flexible. Local ranchers, without this flexibility, have been forced by the drought to start feeding hay in some native grass pastures to get the cows through the summer.

With the lowering wetlands, the cattle have been able to reach some of the new cattail growth and have reduced the cattail fringes around several marshes.

The annual grazing season ended on September 30 and all but a few very "wild" old cows were successfully removed from the Refuge.

9. Fire Management

Temporary firefighter, Jeff Dunlap, completed his 1040 hour appointment on September 5. This was Jeff's second year working at Quivira NWR. Jeff has accepted a PPT fire funded position with the FWS in Texas.

Quivira NWR firefighters staffed the Kansas National Wildlife Refuge's booth at the state fair September 8, 9 and 13.

Bill Waln completed the on-line Conflict Training on September 10.

TJ Rockenbach returned from a fire detail to Montana on September 10. TJ was out as an Engine Boss trainee on a type 6x fire engine.

Todd Schmidt traveled to Rainwater Basin WMD to assist in the writing of several prescribed fire plans September 15-19.

Bill Waln traveled to Necedah NWR was at Necedah NWR in Wisconsin on September 15-19. This was a site visit as part of the FWS Fire Management Mentoring Program. Bill was visiting a mentee assigned to him two years ago.

September 19 was the last working day for TJ Rockenbach. TJ is a temporary firefighter who completed his 1040 hour appointment on this date.

Bill Waln traveled to Kirwin NWR on September 25 to take part in a review of the Kansas Forest Service fire management program.

Todd Schmidt, Tim Keller, David McCauley, Jeff Dunlap and TJ Rockenbach all received awards and recognition for their outstanding service during FY-03.

G. WILDLIFE

2. Threatened and/or Endangered Species

The electric predator exclusion fence around the least tern nesting area, and the raised nesting structures, proved successful again this year. During September, following the last of the tern use on the area, the electric fence around the nesting area was lowered in preparation for the use of the same area by the endangered whooping cranes on migration. We don't want an endangered whooper to get injured in a fence designed to protect another endangered species.

Several peregrine falcons were seen by birders on Quivira during the month. The falcons were working hard to catch the migrant shorebirds.

3. Waterfowl

Bi-Monthly waterfowl counts were started in September in cooperation with the KS Dept of Wildlife and Parks, to get a statewide survey. The 9/9 count found 1390 ducks and no geese (resident geese were out feeding in surrounding cropfields at time of survey). On the 9/23 count, a total of 9097 ducks and 105 Canada geese were recorded.

A single **black bellied whistling duck** was sighted on the Big Salt Marsh on September 5th. This is a rare sighting to add to the others rare birds recorded on Quivira this year, much to the delight of local birders.

4. Marsh and Water Birds

Rare visitors such as the **wood stork** and a **reddish egret** in June, plus the two **roseate spoonbill**, first sighted in July, have drawn a lot of birders to Quivira for the chance on a "lifer". These spoonbills went north to Cheyenne Bottoms but returned to Quivira often enough to keep the birders happy. The roseate spoonbills were still on Quivira in September, reported by birders on September 5th.

The first sandhill cranes of the season were recorded on the Big Salt Marsh on September 29th.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers remained good throughout September as the continuing drought and the declining water levels made outstanding mudflat habitat for the migrants.

Species sighted in September included dowitchers, stilt, least, Baird's, solitary, and pectoral sandpipers, godwits, willets, and assorted others. Buff-breasted sandpipers were a favorite of the birders according to the listserve. Sanderlings, and ruddy turnstones were also sighted in September as well as red-necked phalaropes. A red knot was also reported during the month on the Big Salt Marsh.

Several **Sabine's gull** was sighted on Quivira during September, loosely associating with groups of Franklin's gulls.

10. Other Resident Wildlife

After years of having a prairie dog town across the road on the north side of the Rice county section, on private land, the conditions this year finally allowed the dogs to spread southward. Now we have a second small prairie dog town established on Quivira. A total of 13 dogs were counted on this site in September, with more expected below ground.

An armadillo continued to dig for grubs in the watered lawn of the Visitor's Center, much to the displeasure of the staff which worked so hard to make this lawn survive the drought. Armadillos are becoming much more common in Kansas.

17. Disease Prevention and Control

During September, the American white pelicans, numbering about 1000 on the Refuge, continued to get sick and die. The birds would start to lose strength to hold up their wings, which would droop into the mud. They would not attempt to fly, eventually lose neck control, and die. Results from the Disease Lab confirmed West Nile Virus in one specimen and a very probable WNV in the second pelican shipped for testing. By late September, 51 dead pelicans had been picked up on Quivira.

H. PUBLIC USE

1. General

The roseate spoonbills, hundreds of shorebirds, black bellied whistling duck and assorted other wildlife continued to be the big draws for visitors. Seldom was there not a group of birders on the Big Salt Marsh looking to add some rare species to their life lists.

2. Outdoor Classrooms - Students

The annual "When Will the Eagles Land" contest, sponsored by the Friends of Quivira kicked off with visits to all local schools on September 4. Over 600 students attended the programs which included live animals from the GPNC. Students then picked their best guess for the date and time of the first returning bald eagle to Quivira. Lorrie Beck, Cindy Terry, and members of the FOQ presented the school programs. On September 23, at 7:14AM, the first bald eagle arrived. The winners will receive prizes donated by a local funeral home.

On 9/17, the annual NRCS Field Day was conducted on Quivira. All county wide fifth graders visit the Refuge and tour a series of conservation oriented learning stations. ORP Terry gave the NWR orientation to over 80 kids, plus assorted teachers and sponsors that day.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a couple of local families in memory of their mother/wife. The donation will be used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The concrete trail has been poured, benches installed and new plants seeded. A large limestone rock, to hold a brass dedication plaque, was obtained and installed along the trail. A dedication ceremony and ribbon cutting was conducted on September 20, as part of the Monarch Mania event.

7. Other Interpretive Programs

The annual "Monarch Mania" event a butterfly education and tagging activity, was conducted on September 20th. Over 90 folks attended the event, which was sponsored by the Friends of Quivira. Butterflies were hard to come by but a few lucky hunters did manage to snag a monarch and install the tags.

Quivira coordinated the FWS booth at the Kansas State Fair in Hutchinson from September 5-14. This years theme was the NWRs Centennial, with the Jr. Duck Stamp Contest winners also displayed. Several 100,000 folks visited the fair and the majority passed through the booth. Thanks to all the NWR folks, volunteers and family that helped staff the booth and answer questions.

Lorrie Beck, GPNC, carried the Jr. Duck Stamp display to Cabela's in Kansas City on Sept. 19th.

On September 21, Lorrie Beck staffed a wet and soggy "Make It-Take It" booth at the Wichita Aviation Festival, but the organizers canceled the event due to bad weather before things got started.

Lorrie also helped staff the GPNC booth at the Senior Expo at Wichita's Exploration Place. Over 620 seniors visited the GPNC booth.

17. Law Enforcement

On 9/1, dove season, the first hunting season of the year, opened on Quivira. Success was good but the requirement for non-toxic shot keeps the numbers down as hunters hate to use that expensive shot on something as hard to hit as a speeding dove.

September 13 - 28 was the KS teal season, with mixed results as the hunters spent more time hunting suitable water than hunting teal. Those that found a puddle were very successful.

The muzzle loader and special youth deer hunts were conducted during September, and LE effort was expended to keep the hunters in the right spots and off the Refuge, which is closed to all deer hunting.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. Plans were completed for the Bald Eagle Contest, Eco-Meet, Monarch Mania and the October NWR Week event. It will be a very busy Fall season for the Friends.

A FOQ only night tour had to be canceled on 9/29 due to bad weather.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The new well house, force account constructed at the old Tin Shed site to house the well and water treatment equipment for the EEC and Bunkhouse had final touches completed. Water treatment equipment was installed by the contractor, insulation was installed and outside finish work accomplished.

Work continued on the several historic "fish ponds" west of the Kid's Fishing Pond. This area was rehabed during the month by use of the Positrack to remove old cedars, and Russian olive trees. The dozer and loaders were used to remove the larger trees and stack the downed timber for future burning.

8. Other

All sorts of activities associated with the end of year close out were time consuming this month. But we did get through with it for another year.

J. OTHER ITEMS

3. Training and Items of Interest

Erik Bartholemew and other graduate students from Fort Hays State University, were again on site in September to continue work on the herpetological project on Quivira NWR.

On 9/30, a proper send off party was held for Carl Mark's retirement. Everyone got to roast Carl and wish him well. He will be missed!

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.OCT

November 18, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, October, 2003

A. HIGHLIGHTS

- Friends of Quivira's "Prairie Wind Chili" wins Stafford Oktoberfest Chili Cookoff for third year in a row.
- On 10/18, the FOQ and Refuge Staff sponsored a "Celebrate the Century" event for NWR Week, with over 350 folks attending.
- RM Hilley traveled to Lake Woodruff NWR in Florida for a Friends Mentoring visit on 10/21-24.

B. CLIMATIC CONDITIONS

High: 92 degrees F Low: 26 degrees F Precip: 2.67 inches

The "official precipitation" for October was 2.67 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for October is 1.80 inches. Unofficial weather recorded 2.53 inches at Headquarters and 2.88 inches at the Big Salt Marsh and 3.30 inches at the EEC. Most of this rainfall came in one storm on 10/8, which put much needed moisture in the Refuge wetlands.

E. ADMINISTRATION

1. Personnel

Tim Keller signed papers in October to be converted to part time and notified the Refuge that he would be quitting in late December. We were saddened and will miss Tim very much.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with waterfowl surveys, prairie restorations, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on October 15th, with the main safety issue being a session on back safety and how to avoid injury.

F. HABITAT MANAGEMENT

1. General

Until early summer, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall has stopped or slowed most vegetative growth.

2. Wetlands

The drought conditions, which started in early summer, are still having a severe impact of the Refuge wetlands. While the winds and over 100 degree temperatures have ended, the normally wetter months have passed without significant moisture and we can only hope Spring will be better.

The west edge of the Big Salt Marsh, which normally has shallow water, continues to dry and now provides a large salt flat. The North salt flats are picking up a little moisture from underflow but most smaller wetland units are reduced to puddles or dry at present.

With the end of the irrigation season and the trees going dormant, the underflow has come up some and is assisting in putting water in some wetlands. Flows in Rattlesnake Creek are only active within about 10-15 miles of the Refuge and the Creek is completely dry from there to the headwaters at Greensburg.

The dry conditions continue to allow the tractors and mowers into the basins to work on the cattail stands. During October, cattails were mowed or disked in Units 10C and 11, Darrynane, including the islands, south of the RC canal, and in several smaller unnamed wetlands.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

Plum mowing continued in October as the mechanical treatments during drought conditions in the past have helped reduce the vigor of the plum thickets. The effort has been plagued by our inability to get high ply tires for the newer tractor and the resulting flats that come from mowing woody vegetation.

7. Grazing

The annual grazing season ended on September 30 and all but a few very "wild" old cows were successfully removed from the Refuge.

9. Fire Management

Quivira NWR firefighters were busy with National Fire Prevention Week activities the first two weeks of October. Over 700 elementary students were visited by refuge staff at several different events. A Smokey Bear suit was borrowed from Kansas Forest Service which was used in several of the fire prevention presentations.

Bill Waln attended module 1 of the Technical Fire Management program in Seattle, WA, from October 13-17.

David McCauley traveled to Kirwin NWR on October 16 and 17 to assist in the planning process of several prescribed fires they hope to implement this fall.

Performance appraisals were completed for all fire fighters.

Two prescribed fire units were implemented for a total of 4 acres. The Old Prairie Dog Town Road and Little Salt Marsh Lake Islands units were completed.

Bill Waln attended the US Fish and Wildlife Service Fire Management Mentoring program orientation meeting at NCTC October 27-31. Bill serves as a steering committee member and participate in this program.

One Quivira NWR AD firefighter was detailed to the Grand Canyon NP on October 23 to assist with several fires on going at that park.

Bill Waln and Todd Schmidt participated in a conference call regarding establishment of an Interagency Type II initial attack capable hand crew from Kansas, Nebraska and Colorado. This crew will serve as an experience platform for FWS firefighters from these states.

G. WILDLIFE

2. Threatened and/or Endangered Species

During October, no whooping cranes were recorded on Quivira NWR but three, two adults and one juvenile, were using the Cheyenne Bottoms area on 10/29.

3. Waterfowl

Bi-Monthly waterfowl counts, as part of a state wide effort, were conducted in October in cooperation with the KS Dept of Wildlife and Parks. The 10/7 count found 8109 ducks and 1059 geese. On the 10/21 count, a total of 10,111 ducks and 12,315 Canada geese and white-fronted geese were recorded.

4. Marsh and Water Birds

The first sandhill cranes of the season were recorded on the Big Salt Marsh on September 29th and by the 10/7 count the number was 555 sandhills, growing to 19,000 sandhills by the 10/21 survey.

White pelicans were still on the Refuge during October, with 152 and 77 recorded on the two bi-weekly waterfowl surveys.

Over 5000 coots were using the Big Salt Marsh on the last survey of the month.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers declined as the weather cooled and the birds moved southward. A few dunlins, some late phalaropes and a lot of American avocets were the only holdouts as the fall progressed.

Over 5000 Franklin and ring-billed gulls were using the drying flats on the Big Salt Marsh during the month. Several **Sabine's gull** was sighted on Quivira during October, loosely associating with groups of Franklin's gulls.

10. Other Resident Wildlife

An armadillo continued to dig for grubs in the watered lawn of the Visitor's Center, much to the displeasure of the staff which worked so hard to make this lawn survive the drought. Armadillos are becoming much more common in Kansas.

17. Disease Prevention and Control

The American white pelicans on Quivira, continued to show signs of the presence of the West Nile Virus. The birds would start to lose strength to hold up their wings, which would droop into the mud. They would not attempt to fly, eventually lose neck control, and die. Results from the Disease Lab earlier confirmed West Nile Virus in one specimen and a very probable WNV in the second pelican shipped for testing. By late October, most pelicans had moved off Quivira and no dead pelicans had been picked up on Quivira in several weeks but a few birds remained that showed signs of the illness.

H. PUBLIC USE

1. General

The roseate spoonbills, hundreds of shorebirds, black bellied whistling duck and assorted other wildlife have been the big draws for visitors this year. Seldom was there not a group of birders on the Big Salt Marsh looking to add some rare species to their life lists.

2. Outdoor Classrooms - Students

On October 30, ORP Terry gave four environmental education programs to over 150 kids from the Macksville Elementary and Middle Schools as part of their Refuge field day.

4. Interpretive Foot Trails

The Friends of Quivira received a donation from a couple of local families in memory of their mother/wife. The donation was used to help finance the development of a Butterfly/ Wildflower interpretive trail near the Visitor Center. The concrete trail was poured, benches installed and new plants seeded. A large limestone rock to hold a brass dedication plaque, was obtained and installed along the trail. A dedication ceremony and ribbon cutting was conducted last month, as part of the Monarch Mania event. During October, a brass dedication plaque was installed on the stone at the trailhead.

7. Other Interpretive Programs

During October, ORP Terry gave orientation programs to Home schoolers-25, a SMART retiree bus tour-25, Smokey Hill Audubon Society-30, two seniors groups-25 and 20.

On 10/4, the Stafford Oktoberfest was held and the Refuge had two floats, one on the Refuge and one on fire prevention, in the parade. In addition, the Friends sponsored Joe Snyder in the annual chili cookoff and the Friends of Quivira "Prairie Wind" chili took first place for the third year in a row.

The Project Leaders of the four Kansas Refuges, plus Ron Shupe, representing the Regional Office, presented Governor Kathleen Sebelius with a NWRS Centennial Pendleton blanket, in a ceremony in the KS Capitol.

On 10/18, the Friends of Quivira and the Refuge Staff sponsored a "Celebrate the Century" event at the Kid's Pond for NWRS Week. Visitors from a large surrounding area and out of state were carried, by open tram, to stations featuring Live Animals of the Plains (Falcons) from the Great Plains Nature Center and KS Falconers Assoc.; Prehistoric Animals of the Plains from the Sternberg Museum; Mountain Man living history from the KS Muzzle loaders Assoc.; Farming for Wildlife presented by the KS Extension Service; and a climatic evening program featuring a re-enactment of "Will Rogers" from the KS Humanities Council. Kids' historic crafts, Quivira history displays, and water dog retrieval demonstrations were also presented. Over 350 people attended the event, viewed the exhibits, and feasted on a chuckwagon supper of smoked BBQ beef, while learning about the history of the Refuge.

The Quivira Website continues to get a lot of attention and helps provide information to our public. In October, the website received over 42,000 hits.

17. Law Enforcement

On 10/11-12, the Youth Waterfowl Hunt was conducted on Quivira. Success was good but attendance was low due to the fact that the person accompanying the youth hunter could not hunt and most folks were just waiting until the regular season. Those that went just to help the young hunters really appreciated the opportunity.

The first segment of the goose season opened on 10/18-19 but the goose numbers on Quivira were so low then that very few hunter took the opportunity.

On 10/25, the first segment of the KS duck season opened. Hunters that had scouted the Refuge to find that little puddle of water were treated to a very good opener. Others were surprised to find their favorite spot very low or dry.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. Plans were completed for the October NWR Week event, and the State Eco-Meet for November.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Work continued on the several historic "fish ponds" west of the Kid's Fishing Pond. This area was rehabed during the month by use of the Positrack to remove old cedars, and Russian olive trees. The dozer and loaders were used to remove the larger trees and stack the downed timber for future burning.

Our local fence contractor spent the month working on new 18' gates and needed fences to better manage the grazing program.

On 10/30, the Refuge crew picked up the Regional Tree spade in prep for working to put wind breaks and shade trees around the two new volunteer trailer pads north of the EEC.

The Refuge crew spent time during October hauling the AB-3 rock, delivered by MMS project this summer, to areas of the Refuge that were not accessible to the larger trucks used by the contractor.

J. OTHER ITEMS

3. Training and Items of Interest

On 10/21-24, RM Hilley traveled to Lake Woodruff NWR in DeLand, Florida, with Dr. Tim Armstrong from the Friends of the San Luis Refuges, CO, to participate in a Friends mentoring visit. This trip is part of the national Friends initiative to help develop and support new Friends groups.

On 10/30, Jim Sellers celebrated his 50 birthday!!!!

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.NOV

December 18, 2003

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, November, 2003

A. HIGHLIGHTS

- On 11/5, Friends of Quivira and the Refuge host the Kansas State ECO-MEET, with teams from schools throughout Kansas.
- Hunting seasons get into full swing as the waterfowl numbers increase and folks crowd to the Refuge when they realize there is little water in most other Kansas wetlands this year.
- Refuge Manager Dave Hilley's one and only granddaughter turns one year old on November 18th.

B. CLIMATIC CONDITIONS

High: 74 degrees F Low: 08 degrees F Precip: 0.07 inches

The "official precipitation" for November was 0.07 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average rainfall for November is 0.93 inches. Unofficial rainfall recorded 0.63 inches at Headquarters and 0.03 inches at the Big Salt Marsh and 0.30 inches at the EEC. All of this moisture fell in one shower on November 17th.

E. ADMINISTRATION

1. Personnel

Efforts were started on hiring the summer fire positions and filling the position soon to be vacated by the resignation of Tim Keller.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with waterfowl surveys, prairie restorations, and dozens of other tasks.

6. Safety

The Monthly Staff and Safety Meeting was conducted on November 19th, with the main safety issue being a discussion of this past summer's safety audit and the progress made to correct any problems.

A response was sent to the Regional Safety Office on the progress to remove the deficiencies found during the Safety Audit. This was prepared by the November 17th deadline.

On November 19-20, the NRCS conducted their ATV safety training course on Quivira, using the EEC and our Refuge trails for a class of eighteen.

F. HABITAT MANAGEMENT

1. General

Until early summer, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall has stopped or slowed most vegetative growth. Drought conditions continue to worry the farmers and Refuge Managers.

2. Wetlands

The drought conditions, which started in early summer, are still having a severe impact of the Refuge wetlands. While the winds and over 100 degree temperatures have ended, the normally wetter months have passed without significant moisture and we can only hope Spring will be better.

The west edge of the Big Salt Marsh, which normally has shallow water, continues to dry and now provides a large salt flat. The North salt flats are picking up a little moisture from underflow but most smaller wetland units are reduced to puddles or dry at present.

With the end of the irrigation season and the trees going dormant, the underflow has come up some and is assisting in putting water in some wetlands. Flows in Rattlesnake Creek are only active within about 10-15 miles of the Refuge and the Creek is completely dry from there to the headwaters at Greensburg.

The dry conditions continue to allow the tractors and mowers into the basins to work on the cattail stands. During November, cattails were mowed or disked in Units 61 and 63, and some in 20A&B and along the east edge of the Little Salt Marsh.

In November, water was diverted from the Little Salt Marsh into Unit 7, which would not normally be noteworthy but this represented the first water diversion since July 1, due to the drought conditions.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

Plum mowing continued in November, along the Rattlesnake Creek, as the mechanical treatments during drought conditions in the past have helped reduce the vigor of the plum thickets. The effort has been plagued by our inability to get high ply tires for the newer tractor and the resulting flats that come from mowing woody vegetation.

9. Fire Management

Bill Waln attended the second module of Technical Fire Management in Seattle, WA, November 2-15. This module dealt with statistics use in natural resources.

David McCauley attended the Prescribed Fire Planning and Implementation course held in Savannah, GA, November 3-7. This course is a FWS prerequisite for the Prescribed Fire Burn Boss Type III position.

Todd Schmidt attended the Region 6 Fire Management meeting in Scottsbluff, Nebraska, November 4-6.

Bill Waln, Todd Schmidt and David McCauley attended the S-491, National Fire Danger Rating System, course in Rapid City, South Dakota on November 17-21.

Fire equipment budget inputs for FY-04 was completed for the Mid Plains District by Bill Waln.

G. WILDLIFE

2. Threatened and/or Endangered Species

On November 1st, the first whooping cranes of the fall migration were observed flying over the Kid's Pond area, west of Refuge headquarters. The last whooping crane sighting was on 11/18. A total of 25 whoopers were recorded using the Refuge during the month.

3. Waterfowl

Bi-Monthly waterfowl counts, as part of a state wide effort, were conducted in November in cooperation with the KS Dept of Wildlife and Parks. The 11/4 count found 30,007 ducks and 97,750 geese. On the 11/18 count, a total of 46,510 ducks and 450,000, snow, Canada and white-fronted geese were recorded.

Five tundra swans(2-adults, 3-juveniles) were using the Big Salt Marsh, Unit 58 area during the month after being first sighted on November 9th.

Both **white-winged (5) and black scoters** were observed on Quivira in November.

4. Marsh and Water Birds

Sandhill crane numbers went from about 20,000 at the start of November to over 120,000 by the 11/18 count. Unofficial counts late in the month put the number of sandhills approaching 175,000 on the Big and Little Salt Marshes.

No White pelicans were recorded on the 11/4 count but the 11/18 count had 65 pelicans on the Big Salt Marsh.

5. Shorebirds, Gulls, Terns and Allied Species

Shorebird numbers declined as the weather cooled and the birds moved southward. A few dunlins, avocets, and some late phalaropes were the only holdouts as the fall progressed. A **red phalarope** was recorded by a local birder on the salt flats on 11/11.

8. Game Animals

A spotlight deer survey was conducted on November 25, 2003 as part of an effort to collect baseline information on the herd. A total of 421 deer were observed on both the north and south routes, an all time high for the survey.

H. PUBLIC USE

1. General

The huge flocks of geese, ducks and sandhill cranes, plus the presence of the endangered whooping cranes were the big draws for visitors this month. Seldom was there not a group of birders on the Big Salt Marsh looking to at the large flocks.

2. Outdoor Classrooms - Students

Quivira NWR hosted, with the help of the Friends, the Kansas State ECO-MEET on November 5th. High school students from across the state compete in a variety of wildlife oriented contests and events. The winning team this year was from Wilson High School, Wilson, KS. The Friends of Quivira served breakfast and at least 225 BBQ beef sandwiches for lunch to over 185 students, sponsors, and coaches.

7. Other Interpretive Programs

On November 1st, Lorrie Beck, GPNC, presented a program on the Junior Duck Stamp Contest to 16 art teachers at the KS Art Educators Assoc. Conference in Salina.

Lorrie also mailed 2004 Jr. Duck Stamp Contest brochures to last year's top 100 winners and their teachers.

On November 2, the Stafford Church of Christ was given a bus tour of Quivira, followed by a pot luck supper in the multi-purpose room of the Visitors Center.

The Quivira Website continues to get a lot of attention and helps provide information to our public. In November, the website received over 78,000 hits.

On November 29th, Lorrie Beck, GPNC, assisted with the "Grand Opener" for the Kansas Wildlife Exhibit in Wichita.

17. Law Enforcement

On 11/1 the sandhill crane season opened outside the Refuge. This date also marked the second season opener for Canada and white-fronted geese. On 11/8 the second duck season opened as well as the seasons for pheasants and quail. With very little water in Cheyenne Bottoms, all of their hunters moved to Quivira and we were over loaded for the first few days. Hunter numbers tapered off by months end but we still recorded a lot of hunter visits.

The low water conditions, due to the drought, concentrated the hunters and made a quality hunting experience hard to come by for a few days. Some folks that had found a small puddle in one of the wetland areas were rewarded with a good trip and often a limit of ducks.

Pheasant and quail hunters had better success than the past few years but Quivira has so much cover the birds are never easy.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. Plans were completed for the State Eco-Meet, which was a huge success judging by the comments received from the students and coaches.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Our local fence contractor continued in November, working on new 18' gates and needed fences to better manage the grazing program.

Last month the Refuge crew picked up the Regional Tree spade. During November they worked on putting in wind breaks and shade trees around the two new volunteer trailer pads north of the EEC.

The Refuge crew continued during November hauling the AB-3 rock, delivered by MMS project this summer, to areas of the Refuge that were not accessible to the larger trucks used by the contractor.

Since both of our 1040 tractor operators are off duty for the year, the Refuge crew spent time in November mowing and disking cattails on various units that were dry enough to work.

New roofs were installed by a local contractor on the storage sheds at the two Refuge quarters.

J. OTHER ITEMS

3. Training and Items of Interest

On 11/18, the first birthday of Refuge Manager Dave Hilley's one and only grand daughter was celebrated. This might not be noteworthy to everyone, but since I (Granddad) am writing this report it is included as a major event.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
QUIVIRA NATIONAL WILDLIFE REFUGE

03MAR.DEC

January 20, 2004

Memorandum

To: Refuge Supervisor, (KS, NE, CO), Region 6 (60130)
From: Refuge Manager, Quivira National Wildlife Refuge (64620)
Subject: Monthly Activity Report, December, 2003

A. HIGHLIGHTS

- December 3-14, the Kansas firearms deer season started. No deer hunting on Quivira but the big bucks on the refuge required a lot of law enforcement presence to keep everyone honest.
- Two major snow falls, with associated high winds, put a lot of heavy wet drifts in the Refuge wetlands, which should help the moisture problems.
- The Quivira NWR Christmas Bird count was conducted on December 18, 2003. Snow reduced the success for the local birders but a fun time was still had by all.

B. CLIMATIC CONDITIONS

High: 72 degrees F Low: 10 degrees F Precip: 1.09 inches

The "official precipitation" for December was 1.09 inches at the Hudson, KS weather station, eight miles west of HQ. The long term average precipitation for December is 0.77 inches. Three snowfalls occurred during the month, resulting in a total of 9 inches of snow. One of these storms was accompanied with 45-50 mph winds that resulted in a lot of drifting in grassy areas and in the wetlands where it was very welcome.

E. ADMINISTRATION

1. Personnel

Efforts were started on hiring the summer fire positions and filling the position vacated by the resignation of Tim Keller. Tim's last day was December 11 and the staff and crew threw him a going away luncheon. We will miss Tim very much. He was a tireless worker for the Refuge and we wish him well in his future endeavors.

4. Volunteer Program

Volunteers continued to help the Refuge in many ways, including assisting with waterfowl surveys, prairie restorations, and dozens of other tasks.

6. Safety

No Monthly Staff and Safety Meeting was conducted in December due to so many folks on leave for the holidays or for use or lose reasons.

F. HABITAT MANAGEMENT

1. General

Until early summer, the Refuge had been receiving adequate rainfall. Then the rains stopped, hot and windy weather hit and the wetland conditions deteriorated. Refuge grasslands were in good shape but the lack of rainfall stopped or slowed most vegetative growth. Drought conditions continue to worry the farmers and Refuge Managers.

2. Wetlands

The drought conditions, which started in early summer, are still having a severe impact of the Refuge wetlands. While the winds and over 100 degree temperatures have ended, the normally wetter months have passed without significant moisture and we can only hope Spring will be better.

The west edge of the Big Salt Marsh, which normally has shallow water, picked up a little moisture in December with the return of the "underflow" and the melting of the snowfalls. The North salt flats also picked up a little moisture from underflow but most smaller wetland units are reduced to puddles or dry at present.

With the end of the irrigation season and the trees going dormant, the underflow has come up some and is assisting in putting water in some wetlands. Flows in Rattlesnake Creek are only active within about 10-15 miles of the Refuge and the Creek is completely dry from there to the headwaters at Greensburg.

In December, water was diverted from the Little Salt Marsh into Darrynane Lake and on into Unit 25, which would not normally be noteworthy but this represented the first major water diversion (other than to Unit 7, which is directly adjacent to the LSM) since July 1, due to the drought conditions. Unit 25 is one of the wetlands that we recently recontoured the basin to better utilize the water and the efforts looked good as the diversion progressed.

5. Grasslands

Sandhill Plum mowing, followed by prescribed fires to reduce brush growth in the Refuge grasslands, has been an on-going effort over a large portion of Quivira during the last several years. This mowing allows the regrowth of the suppressed grasses within the plum thickets, and provides more fuel for a hotter fire. Spring prescribed fires further reduce the plums as the fire feeds on the mowing residue and the new grass. Burns are planned just as the plums start to green out each Spring and the reduction in plum thickets has improved the grassland conditions.

Some sandhill plum mowing continued in December, along the Rattlesnake Creek, as the mechanical treatments during drought conditions in the past have helped reduce the vigor of the plum thickets. The plums that border the Unit 10A hunting area were mowed to allow better viewing of the waterfowl hunters by law enforcement personnel.

9. Fire Management

Bill Waln, Todd Schmidt and David McCauley participated in a zone wide conference call on December 2.

A S-130/190 course was presented to the Stafford County VFD on January 5-8 & 10 by the Quivira NWR staff. Fifteen members of this volunteer fire department as well as 3 FWS employees completed this 32 hour minimum training. A Memorandum of Understanding exists between Quivira NWR and Stafford County VFD which allows both parties to assist each other with wildland fire suppression.

Bill Waln completed an on-line introductory training on the NFPORS reporting system on December 10.

Bill Waln attended a meeting with the Kansas Forest Service and Hutchinson Community College on December 17. This meeting was to look at possible ways to hold joint wildland fire training in the state.

The vacant Supervisory Range Technician/Firefighter position at Quivira NWR was advertised and closed on December 18.

G. WILDLIFE

2. Threatened and/or Endangered

Bald eagles counted on the bi-monthly waterfowl counts totaled 51 (10-A, 41-IM) on the 12/9 count, and 30 (8-A, 22-IM) on the 12/22 survey.

3. Waterfowl

Bi-Monthly waterfowl counts, as part of a state wide effort, were conducted in December in cooperation with the KS Dept of Wildlife and Parks. The 12/9 count found 28,103 ducks and 403,300 geese. On the 12/22 count, a total of 7,710 ducks and 172,000, snow, Canada and white-fronted geese were recorded.

Five tundra swans(2-adults, 3-juveniles) continued using the Big Salt Marsh, Unit 58 area, and were observed during December until the snows finally forced them out.

4. Marsh and Water Birds

Sandhill crane numbers went from above 175,000 last month and dropped to only 25 by the 12/09 count, and no cranes were observed on the 12/22 count.

5. Shorebirds, Gulls, Terns and Allied Species

With the arrival of cold weather, the final shorebird migrants headed south to warmer climates.

8. Game Animals

Snow caused the cancellation of the second spotlight deer survey, to be conducted during the Kansas firearms season. The post season survey was conducted on 12/17 and a total of 318 deer were recorded. This continues to be a very popular event with the Refuge volunteers, as everyone wants to "see the big bucks on Quivira".

H. PUBLIC USE

1. General

Cold weather and snow, plus the migration southward of a lot of species cut down the visitation in December.

2. Outdoor Classrooms - Students

Cold weather, snow, and the Christmas holidays were the main reasons that very few students visited Quivira NWR during the month.

7. Other Interpretive Programs

A Scenic Byway meeting was conducted on 12/18 in Great Bend to proceed on the byway planned to border Quivira NWR. The Refuge provided information to the committee and to State officials.

The Quivira NWR website received over 60,000 hits in December and continues to be an excellent way to inform the public on Refuge activities and opportunities.

17. Law Enforcement

The Kansas firearms deer season opened from 12/3-14, but there is no deer hunting within Quivira NWR. A lot of enforcement time was spent keeping hunters and some late night spotlighters away from the big bucks on the Refuge. One headless deer was found shot in a Refuge field adjacent to the County road bisecting the area. No suspects have been identified.

Refuge personnel assisted a couple of local hunters that shot a deer outside the Refuge but the animal made the boundary. In these situations, after investigation, we usually make an attempt to help the hunter recover the deer.

Pheasant and quail hunters had better success than the past few years but Quivira has so much cover the birds are never easy. By December the interest had dropped to try for these species, considering the hard, cold, walking involved on the Refuge.

18. Cooperating Associations

The Friends of Quivira continued to serve the Refuge in numerous ways. On 12/1, the Friends conducted a Board meeting to review last years accomplishments, and plan for the annual membership meeting in February.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

Our local fence contractor continued in December, working on new 18' gates and needed fences to better manage the grazing program. A new parking lot was installed on Unit 40 and new fencing completed along the Hunter Access Road.

The Refuge crew continued during December hauling the AB-3 rock, delivered by MMS project this summer, to areas of the Refuge that were not accessible to the larger trucks used by the contractor.

Cold weather and snow required a lot of time and effort moving the snow around to maintain access where needed.

Beaver damage to the Marsh Road required effort to repair and remove the offending beaver dams to discourage the further reoccurrence.

Cold weather provided the incentive for some much needed shop cleaning. New bins and storage facilities have been installed making the shop more effective and both cleaner and safer.

OTHER ITEMS

3. Training and Items of Interest

On 12/19, the Refuge Staff and families gathered to celebrate the holidays with a Christmas lunch. A seafood boil and pot luck was the highlight of the event.

In conjunction with the Audubon Society, the Quivira Christmas Bird Count was conducted on 12/15/03. A total of 19 observers found 72 species and 19,519 total individuals, well down from previous counts, mainly due to cold and snowy conditions.

TABLES

Table 1. Quivira NWR Personnel, 2003

	Name	Title	Appt.	EOD
1.	J. David Hilley	Project Leader	PFT	5/89
2.	James Sellers	Deputy Project Leader	PFT	9/00
3.	William W. Waln	FMO	PFT	2/99
4.	Lorrie Beck	ORP - GPNC	PFT	11/01
5.	Gary F. Meggers	Rangeland Mgmt Tech	PFT	5/85
6.	Cynthia E. Terry	ORP - Quivira	PFT	7/96
7.	Christine LaRue	Administrative Assistant	PFT	3/03
7.	Carl D. Marks	Maint Worker Leader	PFT	7/74-9/03
8.	Stanley A. King	Maintenance Worker	PFT	9/82-2/03
9.	Brent A. Waters	Maintenance Worker	PFT	10/01
10.	Joe Kocher	Maintenance Worker	PFT	5/03
11.	Doug Howell	Maintenance Worker	PFT	6/03
12.	Timothy V. Keller	Range Tech/Fire Fighter	FTS	2/98-12/03
13 .	R. Todd Schmidt	Range Tech/Fire Fighter	FTS	05/01
14.	David McCauley	Range Tech/Fire Fighter	PFT	7/03
15.	T.J. Rockenbach	Range Tech/Fire Fighter	TFT	3/03
16.	Jeff Dunlap	Range Tech/Fire Fighter	TFT	3/03
17.	Robin Drake-Woods	Tractor Operator	TFT	4/03
18.	Tyler McVay	Tractor Operator	TFT	6/03
19.	Jessica Schmitt	Bio Tech	TFT	5/03

Table 2. Quivira NWR Staffing, 1999-2003

Year	Permanent		Temporary	YCC	Total
	Full Time	Part Time			
2003	10	2	5	4	21
2002	9	2	5	2	18
2001	9	1	2	2	14
2000	9	1	2	2	14
1999	9	1	2	2	14

Table 3. Quivira NWR Funding, FY 1999-2003

Account	2003	2002	2001	2000	1999
1130	\$0.00	\$0.00	\$2000.00	\$0.00	\$0.00
1261	\$614,900.00	\$607,200.00	\$528,000.00	\$398,550.00	\$391,750.00
1262	\$353,012.00	\$335,435.00	\$163,000.00	\$ 45,000.00	\$ 65,000.00
2810	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2821	\$0.00	\$0.00	\$0.00	\$ 20,000.00	\$ 1,987.00
6860	\$29,600.00	\$29,600.00	\$ 28,000.00	\$ 30,000.00	\$ 30,000.00
8610	\$5,065.00	\$10,839.00	\$9,325.00	\$ 2,400.00	\$ 2,700.00
9251	\$319,031.00	\$183,766.00	\$104,000.00	\$ 72,150.00	\$105,300.00
9261	\$0.00	\$63,059.00	\$0.00	\$0.00	\$0.00
9263	\$94,167.00		\$ 40,000.00	\$ 14,300.00	\$0.00

Table 4. Quivira NWR Grazing Program, FY 2003

Permittee	LIVESTOCK #. & CLASS	AUMS	ACRES GRAZED	AUMS/ ACRE
HAMILTON	180 Yearlings/6 Bulls	717.94	1300	.55
HORNBAKER	60 CC/PR - 2 BULLS	450.41	350	1.29
MILLER	180 CC/PR-8 BULLS	1067.41	1200	.89
SCHWEIZER G	200 CC/PR-10 BULLS	829.26	1650	.50
SCHWEIZER B	100 CC/PR-5 BULLS	635.4	1200	.53
HILLEY	2 HORSES	13.19	34.5	.78
TOTAL	180 YRL 483 CC/PR 24 BULLS 2 HORSES	3424.85 Aums	5734.5 Acres	.77 Average Aums/Acre

Table 5. Quivira NWR Fiscal Year 2003 Fire Log

Name	Start Date	Wildland Fire		Prescribed Fire		Fire Number
		FWS Acres	Other Acres	FWS Acres	Other Acres	
Fort Duck	11/09/2002		7.0			64620-9261-6823
Whooper	11/12/2002			3.0		64620-9263-6821
Artesian Well	11/20/2002		2.0			64620-9261-6834
Wildlife Drive	01/07/2003			680		64620-9263-6845
Tin Shed	02/12/2003	0.5				64620-9261-6859
South HQ	03/11/2003			12		64620-9263-6861
Service Road	03/11/2003			67		64620-9263-6862
East LSM B	03/12/2003			415		64620-9263-6865
Hornbacker N.	03/21/2003			56		64620-9263-6872
2930	03/21/2003			320		64620-9263-6873
East LSM	03/22/2003			630		64620-9263-6874
Nature Trail	03/24/2003			80		64620-9263-6980
Natural Area	03/25/2003			710		64620-9263-6997
McMurphy	03/30/2003			1100		64620-9263-6991
Stand-by	04/01/2003		0			64620-9261-6893
Gatton	04/05/2003		180			64620-9261-6900
Miller B/C	04/05/2003					64620-9263-A002
Switzer	04/11/2003			1280		64620-9263-A003
Doctor	04/12/2003		4	1641	320	64620-9261-6916
Richardson	04/19/2003					64620-9263-6971
Aiken	07/07/2003		10	295		64620-9261-F169
North HQ	07/11/2003					64620-9263-F179
Catalpa	07/17/2003		5	7		64620-9261-F256
Hudson Com.	07/31/2003		10			64620-9261-F254

Name	Start Date	Wildland Fire		Prescribed Fire		Fire Number
Jenny	08/03/2003		13			64620-9261-F257
Power Pole	08/27/2003		0.1			64620-9261-F294
Totals		0.5	231.10	8111.0	320.0	

PHOTOS



Our Leader, Refuge Manager Dave Hilley



Deputy Project Leader Jim Sellers



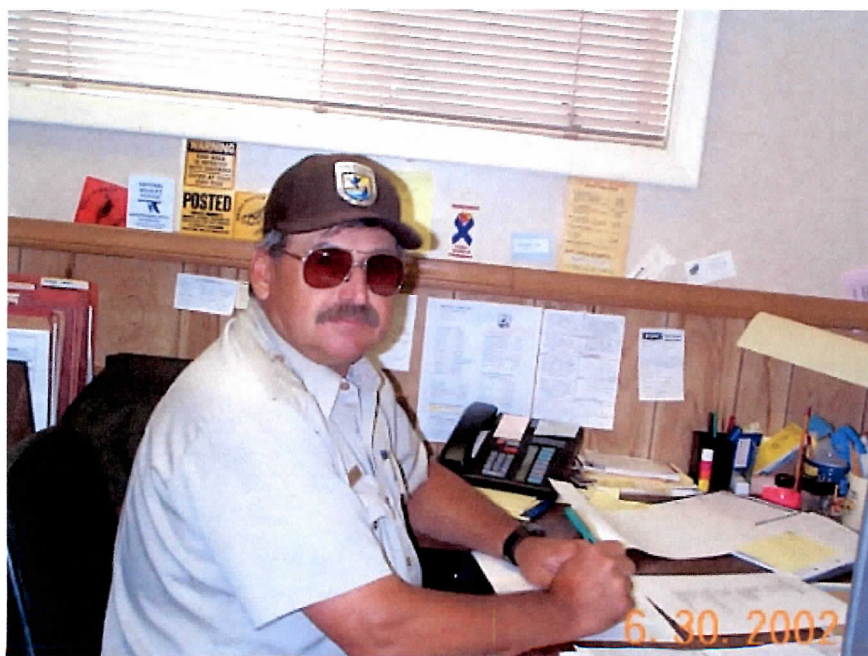
Fire Fighting "Animals" from left to right, Dave McCauley, Blake Stewart, Bill Waln, Todd Schmidt, T.J. Rockenbach



Jeff Dunlap



Outdoor Recreation Planner, Great Plains Nature Center, Lorrie Beck



Rangeland Management Specialist, Gary "Pete" Meggers



Outdoor Recreation Planner, Cindy Terry



Administrative Support Assistant, Christine LaRue



Maintenance Worker Leader, Carl Marks



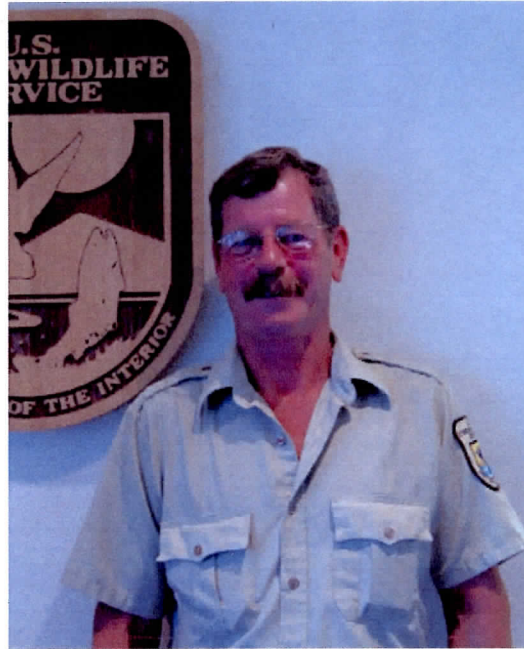
Maintenance Worker, Stan King



Maintenance Worker, Brent Waters



Maintenance Worker, Joe Kocher



Maintenance Worker, Doug Howell



Range Tech/Fire Fighter, Tim Keller



Seasonal Tractor Operator, Robin Drake-Woods



Seasonal Tractor Operator, Tyler McVay



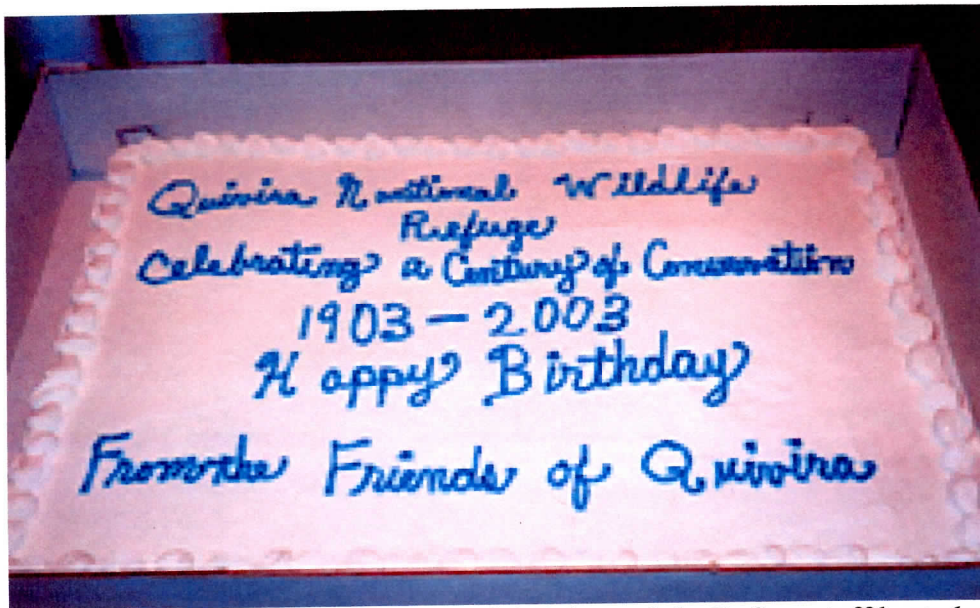
Bio Tech, Jessica Schmitt

1. Interior damage on the John Deere tractor that was stolen in January to pull out a stuck trespass vehicle. The subjects pulled the door off the tractor, seriously damaged the electronics before getting it started and then drove the tractor a half mile to pull out a vehicle that had been driven through several wheat fields and a fence, before getting stuck in a grassland unit. Price of repairs exceeded \$5000.



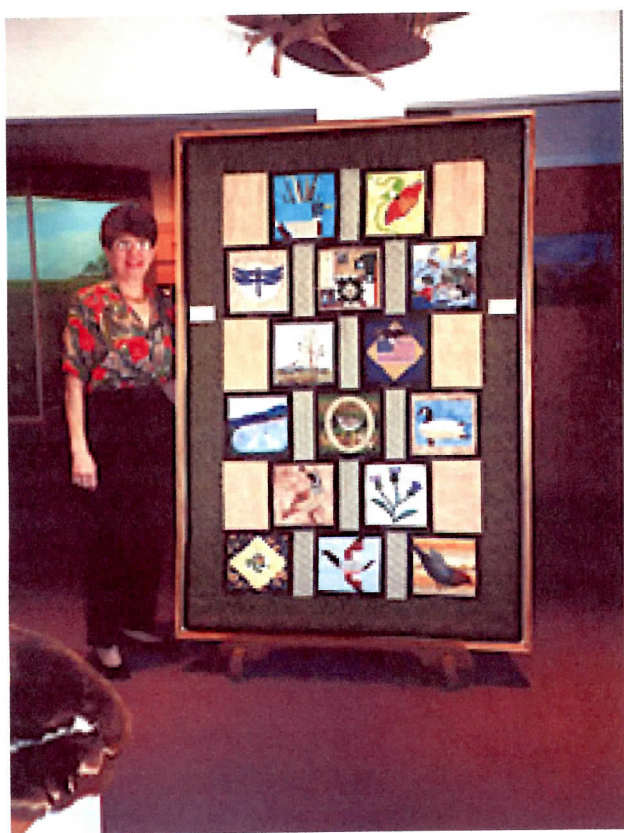
2. On 2/12, smoke was discovered coming out of the old tin shed near the EEC. After local firemen extinguished the blaze, the State Fire Inspector ruled the fire arson. An investigation was started but no suspects have been charged. A substantial reward was offered, but the only tip lead to a dead end.

3. The tin structure had extensive damage and was unsafe to use and will be demolished. A pickup truck, small tractor, and several other items stored in the shed were damaged by smoke and heat and required a lot of crew time to return to service.



4. On March 14, 2004, the Friends of Quivira and the Refuge staff hosted a "Birthday Party" to celebrate the NWR's Centennial. The Friends obtained a birthday cake which tasted great but upon closer examination we discovered an extra "n" in Quivira Nantional Wildlife Refuge, which just made the event more memorable.

5. Items to be included in the Refuge time capsule were displayed.



6. Sharon Allen, Stafford, the winner in the Friend's Centennial Quilt Square Contest was on hand to view the Quivira Centennial quilt made from all of the entries. Sharon's square went to the Regional Office to be included in a regional Centennial Quilt that will be widely displayed and she made a second square to be included in our Refuge quilt as well.

7. The Refuge crew poured an additional concrete loop onto the "Birdhouse Boulevard" interpretive trail that will cross a restored prairie area.



8. This interpretive trail was funded as a memorial to Ernestine Hayes and Betty Martin, through donations to the Friends of Quivira. The ribbon cutting was conducted during the Monarch Mania event in September, which seemed very appropriate since the trail is named the "Butterfly Blossoms Pathway" and will be seeded to attract butterflies of all types.

9. Earl Hayes, Ernestine's husband, and Vic Martin, Betty's son, were on hand to welcome the trails first users in honor of their loved ones.



10. On the Saturday before Mother's Day, the Friends sponsored their annual Father's Day Out event. Dads and kids visit the Refuge, participate in nature walks, make a nature craft gift for Mom, and take part in other activities, giving Mom a much needed rest.



11. Finale of the event is the kids cooking lunch for themselves and their Dad. After seeing the condition of some of the hot dogs consumed...Dads will eat anything!



12. Tyler McVay, 50% of our mowing crew prepares to tackle more cattails to improve the wetlands prior to the arrival of the migrating waterfowl.

13. The newly mowed cattails, when re-flooded, will provide excellent habitat and the mowing mulch will provide good invertebrate breeding conditions, insuring food organisms for future ducks and shorebirds.



14. A major MMS contract in 2003 provided the delivery and dump spreading of crushed limestone for non-public Refuge roads. Crushed stone is only available in this area with a 90 mile one way trip and a hauling contract such as this allows much more efficient delivery than using Refuge equipment. A previous contract had handled the public roads and this effort completed the task on the remaining roads on Quivira.

15. One of the major and maybe most fun events of the year is the Friends sponsored "Kid's Fishing Clinic and Derby" in June. After a clinic where the fisher persons learn about fish ID, equipment, boating safety, knot tying and casting, everyone migrates to the Kid's Pond to try their luck.



16. KS Dept. of Wildlife and Parks help us out by stocking the Kid's Pond just prior to the event and the success rate for the kids is very high

17. Weighing, distributing bait, and handing out equipment takes a lot of help from the Refuge Crew but the smiles tell the story.



18. Fisher persons for the event come in all sizes. Attendance averages 75-100 kids and about the same number of adults each year.

19. During slow periods even fishermen have to take a nap!



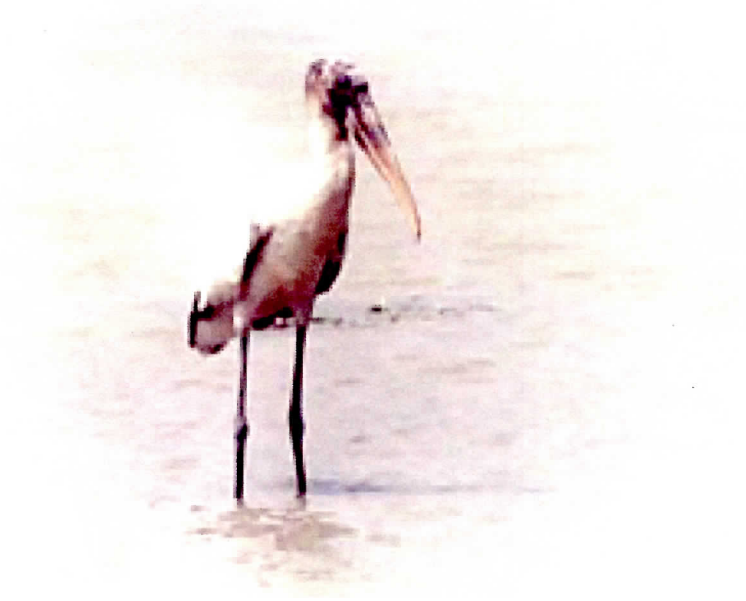
20. The Friends provide door prizes, lots of help and cook everyone lunch. Nothing hits the spot after a hard day of fishing like a grilled hot dog!

21. During 2003, American white pelicans were discovered to be dying on Quivira. Specimens confirmed the cause of death as West Nile Virus and over 60 birds were picked up by the airboat crew.



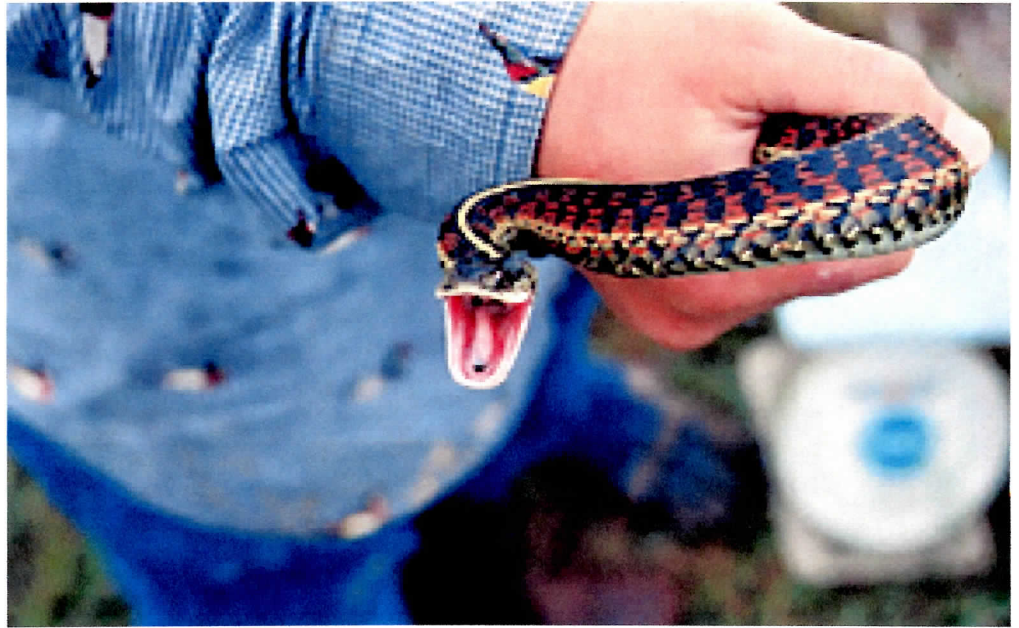
22. The endangered least terns and the state threatened snowy plovers continue to use the artificial nest mounds on the north salt flats. These mounds of egg rock and sand provide a nesting site that is above the surface of the flats and not as susceptible to flooding. The artificial pads are surrounded with an electric predator exclusion providing further protection.

23. A rare WOOD STORK was recorded using the Big Salt Marsh in June. This was only the eighth sighting of this species in Kansas. Also in June, a REDDISH EGRET was discovered on the North Salt Flats, a first time for Quivira and only the second sighting of this bird in Kansas.



24. A reptile research project with Fort Hayes State University resulted in several fence traps on Quivira, to sample the reptiles in various habitat types and under different treatments.

25. Snakes were not always happy to be participating in the research effort.



26. Several species of water snakes have been trapped during the project.

27. The massasauga rattlesnake is a species that added a little interest to the opening of the traps to see what had been captured.



28. Nesting shorebirds, such as this American avocet, found good habitat conditions early in the season, but the late summer/fall drought conditions made feeding areas hard to locate.

29. The Refuge crew worked very hard on getting a float for the Stafford Oktoberfest parade. The parade is just a week prior to NWR Week and provides us with a good opportunity to promote the Refuge, Friends of Quivira, and our upcoming NWR Week events.



30. Joe Kocher drove our "newest" Refuge tractor to pull the parade float. Hope that MMS project comes through soon!

31. The Friends of Quivira sponsor a butterfly tagging event each September called "Monarch Mania". In addition to the tagging the kids make butterfly crafts and SMILES!!!



32. In October, the Refuge Fire Staff visited the local schools with "Smokey the Bear" for National Fire Prevention Week. I don't know who had more fun, Smokey or the kids.

33. During NWR Week in October, the Friends of Quivira sponsored their annual celebration, this one called "Celebrate the Century" in honor of the NWR's Centennial. Over 350 folks attended the event, took part in demonstrations, live animal shows, tram rides, water dog exhibits, and crafts. The Friends fed everyone supper which was followed by a historic re-enactment.



34. "Will Rogers", from the Kansas Humanities Council, presented the evening campfire program and did an excellent job. We have had great luck with the re-enactor programs and they have been well received by the visiting public.

35. A Centennial interpretive sign was installed adjacent to the Visitors Center in 2003.



36. The centennial sign follows the line of history for the development of the Refuge System and is a great addition to the overlook of the Little Salt Marsh.

37. A new pump shed was built for the water system for the Environmental Education Classroom and Bunkhouse. The old tin shed destroyed in the February arson fire had previously housed the water system pumps and equipment.



38. Stan King, Maintenance Worker since September, 1982, retired in 2003 on a disability, after a battle with throat cancer. He was presented a plaque from the Refuge staff by Gary Meggers, Range Management Specialist and we all miss Stan and his cheerful smiles.

39. Tim Keller, left government service in 2003 to follow other callings. Tim had worked on the Refuge fire staff and his dedication to the Refuge and getting the job done will be missed. Jim Sellers, Deputy Project Leader, presented Tim with a going away plaque. We wish him well.



40. Also in 2003, Carl Marks, Maintenance Worker Leader since 1974, retired from Quivira. Friends gathered in Hudson to wish him well in retirement.

41. Everyone got a chance to roast Carl and he was able to tell his own stories in his defense. We will miss his efforts for the resource and wish him a happy retirement.



42. This photo has little to do with the Refuge. It is, however, a shot of the "old" Refuge Manager and a fine whitetail shot just off the Refuge edge and since I'm writing this narrative, I included the photo!!! Even a blind pig finds an acorn sometimes.



U.S. Fish & Wildlife Service

Quivira

*National Wildlife
Refuge*





For untold years, the Big and Little Salt Marshes of Quivira National Wildlife Refuge have attracted thousands of migratory waterfowl, providing them with food, cover, and a place to rest during their long flights between breeding and wintering areas.

About the Refuge



This goose, designed by J.N. "Ding" Darling, has become the symbol of the National Wildlife Refuge System.

A Place Known for Wildlife

Quivira National Wildlife Refuge (NWR) located in south central Kansas, lies in an area where the eastern and western prairies meet and blend. In 1955, the Migratory Bird Commission approved the purchase of land to create the Refuge, thus providing food, water, and nesting areas for migratory waterfowl in this area of Kansas. Quivira NWR is one of a network of over 540 refuges across the United States. Refuges are vitally important, providing habitat for hundreds of species of birds, mammals, reptiles, amphibians, fish, and plants. National Wildlife Refuges are managed to protect endangered plants and animals, to provide for the needs of migratory birds, to preserve natural diversity, and to provide places for people to understand and enjoy wildlife.

The name "Quivira" comes from a Native American tribe living in the area when the Spanish explorer, Coronado, visited in 1541. In quest of gold, treasures, and the fabled "Seven Cities of Cibola," he found instead fertile grasslands, abundant wildlife, and small agricultural villages. The Native Americans, and later, the early settlers, hunted waterfowl in these marshes. Shortly after the turn of the century, commercial hunting provided wagon loads of waterfowl to Kansas City restaurants and other eastern cities.

With the decline of commercial hunting came the establishment of hunting clubs. The lands bought up by these clubs helped preserve valuable waterfowl habitat from further development. Moreover, these hunting clubs worked to improve the habitat to attract migrating birds. Canals and water control structures were later added, providing the entire area with a more dependable water supply. Today, these marshlands remain a major stopover for thousands of migrating birds.

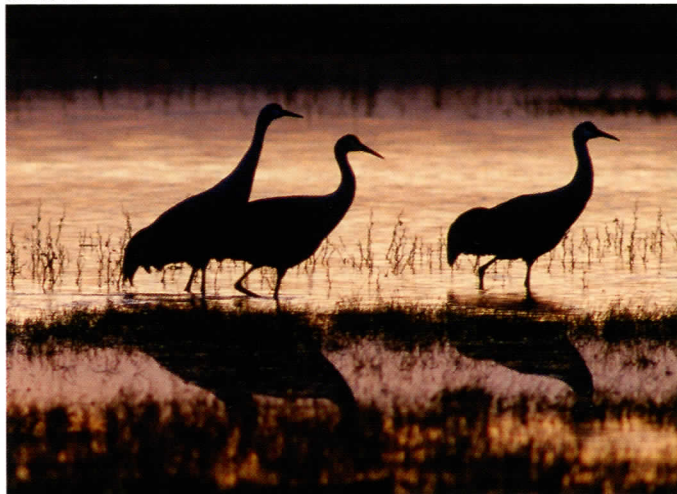
Wildlife Throughout the Seasons

Located where the relatively lush vegetation of the east blends into the more arid grasslands of the west, Quivira NWR supports numerous and varied plant communities. This variety of plant communities attracts birds common to both eastern and western North America. Over 300 bird species have been observed on the Refuge.

Fall Flights

Thousands of Canada geese, ducks, and other migratory birds, such as sandhill cranes and shorebirds, pass through the Refuge from September to December. The shallow west edge of the Big Salt Marsh is a favorite roosting area for the sandhill cranes. Endangered whooping cranes may make a brief visit as they move along their migration routes from mid-October through November. This is the best time to view these rare visitors. The whooping cranes may make a return visit in mid-March through mid-April on their way north to nesting areas.

Sandhill cranes silhouetted at sunset.



© Bob Gress

Winter and Spring Visitors

Bald and golden eagles winter on the Refuge from November until March. Over 800,000 ducks and geese visit the Refuge until severe weather drives them southward to winter along the Gulf Coast and in Mexico. During March and April, the Refuge becomes a staging area once again for ducks, geese, shorebirds, American white pelicans, gulls, and other migrants en route to traditional nesting grounds in the prairie potholes of the north central United States and Canada.

American white pelicans in the marsh.



© Bob Gress

Summer Residents

Summer residents include Swainson's hawks and Mississippi kites, while northern harriers, American kestrels, and red-tailed hawks are common throughout the year. Ring-necked pheasants and bobwhite quail are often seen in the Refuge grasslands and grain fields. Look for wild turkey along the edge of tree groves and shelter belts where they often seek food and cover.



Wild turkey (above left), black-tailed prairie dog (above right), white-tail deer (middle), mallards (far right)

Managing Land for Wildlife - the Work of the Refuge

Common summer nesting species on the Refuge include snowy plovers, American avocets. Black-necked stilts and white-faced ibis. In addition, a colony of endangered least terns use the salt flats at the north end of the Refuge as nesting habitat. Other wildlife frequently seen on the Refuge include white-tailed deer, black-tailed prairie dogs, beaver, raccoons, badgers, and coyotes. Bird watchers can pick up a Refuge bird list containing more detailed information at the Refuge headquarters.

Quivira NWR is managed primarily to provide migratory waterfowl with food, water, and shelter. Other migratory birds, endangered species, and resident wildlife, such as deer and pheasant, also benefit from habitat management programs. Primary habitat management programs conducted on the Refuge include cooperative farming, grazing, prescribed burning, and water control.



© Bob Gress

Dave Hilley / USFWS



Farming for Wildlife

In the cooperative farming program, crops are planted on the Refuge by local farmers who work on a share basis. Over 1,300 acres are planted with crops to provide food for the migrating birds and resident wildlife. The fields are rotated between winter wheat and milo, with cow peas planted periodically to enrich the soil.

The farmers harvest their two-thirds share of the milo, leaving the Refuge share standing in the field as food for wildlife. Wheat fields are completely harvested, with the farmers receiving a three-quarters share. The remaining quarter of the harvest is left on the Refuge as food and cover for wildlife. Migrating geese browse on the tender young shoots of wheat growing in these harvested fields.

Grazing Now and Then

Historically, great herds of bison grazed the grasslands of this area. They would graze an area only for a short time, then move on, thus allowing the native grasses to regrow and continue the cycle. Since bison no longer roam the Great Plains, Quivira NWR imitates this natural cycle of high intensity grazing over a short



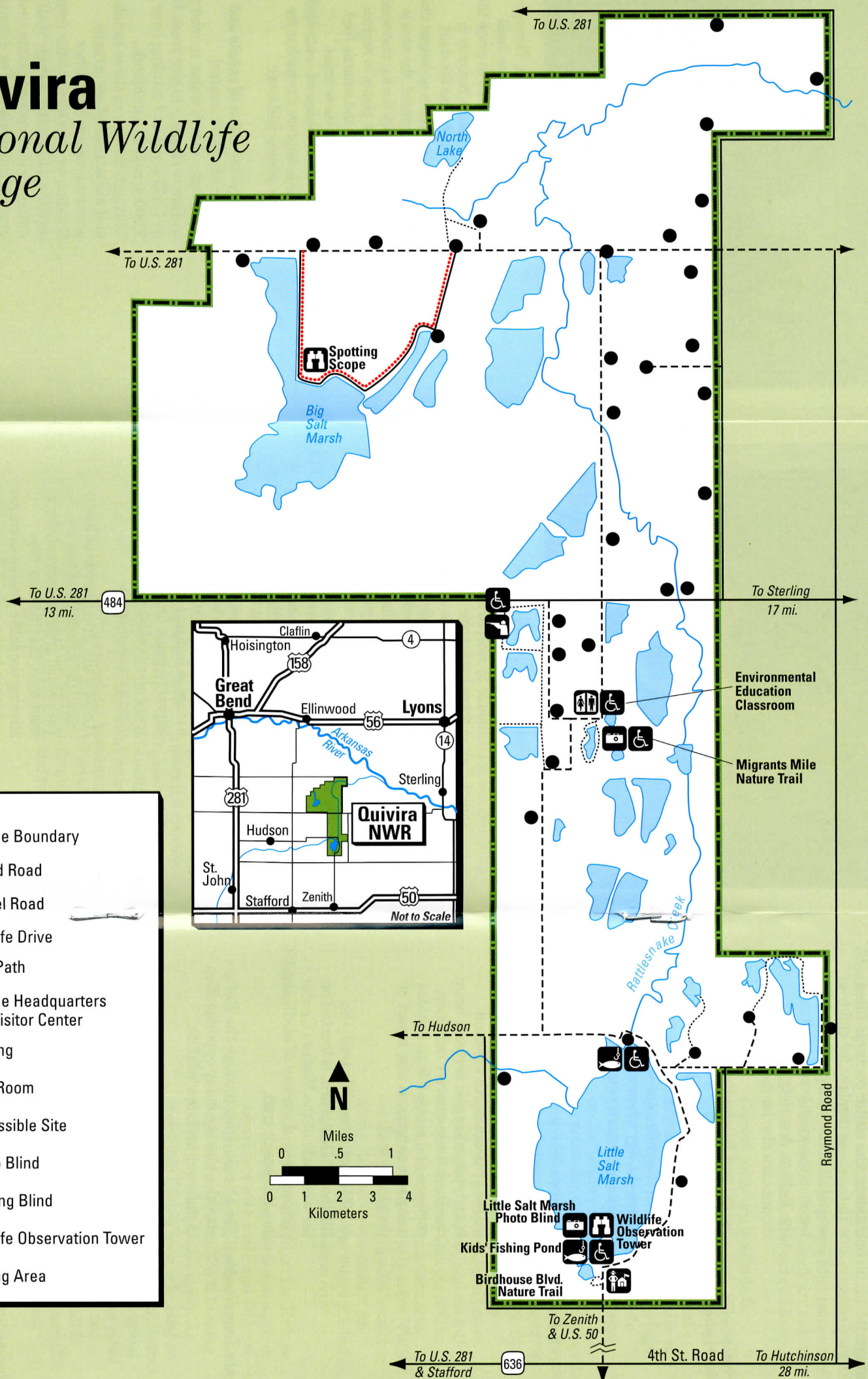
period of time with cattle. Through this management program, local ranchers are permitted to graze their cattle on the Refuge, but only in specially chosen areas for short periods of time, often no longer than a few days. Once grazed, the area is seldom used again during that season, thus allowing the plants to regrow. Grassland birds and animals feed, nest, and rest in these areas. Deliberate, well-planned controlled burns also improve the habitat for wildlife nesting and cover.

Water for Wildlife

Twenty-one miles of canals and numerous water control structures divert water to over 34 wetlands ranging in size from 10 to 1,500 acres and totaling over 7,000 acres of marshlands. Through the use of these canals and water control structures, water management, either flooding or removing water from an area, allows the Refuge staff to influence the types of plants that grow in the wetland. For example, by manipulating the water levels, large stands of cattails that have limited value to wildlife can be replaced by waterfowl food plants.

Quivira

National Wildlife Refuge



**Enjoying the
Refuge
Visitor Center**

Located in the Refuge Headquarters building, the visitor center is filled with hands-on displays for children and adults. The interpretive exhibits focus on the wildlife and habitats of the Refuge. A variety of wildlife mounts are also on display.

**Wildlife
Observation**

Spring and fall are the best seasons to visit Quivira NWR since wildlife, especially waterfowl, is abundant and more easily viewed at these times. Try to schedule your visit early or late in the day when wildlife is most active and more frequently seen.

**Interpretive
Nature Trails**

A 1.2-mile nature trail, the Migrants Mile, is located south of the Environmental Education Classroom. It loops through shaded woodlands, along marshy edges, and through native grasslands. An elevated boardwalk takes you across a large marsh. A three-quarter mile loop, surfaced and accessible to persons using wheelchairs, is also a part of the nature trail.

A 1,000-foot accessible trail, the Birdhouse Boulevard, is located on the west side of the Visitors Center parking area. A variety of birdhouses line this scenic trail.

Auto Tour Routes

The 14-mile drive through the Refuge provides visitors many opportunities to pull over and view wildlife.

The 4-mile Wildlife Drive, at the north end of the Refuge, offers wildlife watching opportunities and views of the Big Salt Marsh and surrounding habitats. An accessible spotting scope is provided to assist visitors in watching wildlife.

**Observation
Tower**

An accessible wildlife observation tower is located on the south edge of the Little Salt Marsh. This tower allows visitors to get a better view of the Refuge wildlife.

**Wildlife
Photography**

Photography blinds are located at the Little Salt Marsh and on the Migrants Mile nature trail. The photography blind on the Migrants Mile nature trail is accessible. Both blinds are available on a first-come, first-served basis.

**Environmental
Education**

Guided tours are available for schools and other groups. Educators are encouraged to investigate one of the many different educational activities for field trips available at the Refuge. Please call the Refuge staff for more information or to schedule guided tours, field trips, and/or teacher workshops.

Hunting

Hunting is permitted on 8,000 acres of the Refuge. The hunting program is managed in accordance with State and Federal regulations. Only waterfowl, pheasants, quail, dove, snipe, rails, squirrels, and rabbits may be hunted on Quivira NWR. Special Refuge regulations also apply, as listed in the Quivira NWR hunting and fishing leaflet available at the Refuge visitor center. An accessible waterfowl hunting blind is available by reservation only.

Fishing

Fishing is permitted on the Refuge. The fishing program is managed in accordance with State and Federal regulations. Special Refuge regulations, listed in the Quivira NWR hunting and fishing leaflet, also apply. An accessible fishing area is located on the north end of the Little Salt Marsh. The "Kids Fishing Pond" is located west of the visitor center. This pond is reserved for kids 14 years and younger. An accompanying adult may fish with the youth. An accessible pier is also located at this pond.

Refuge Regulations

Although the following rules and regulations may seem inconvenient or overly restrictive to some, they are necessary for the protection of wildlife and their habitats, and, in some instances, for the safety of visitors. By observing these rules, visitors will make the Refuge a better place for themselves and the wildlife they come to enjoy.

Visiting Hours

The Refuge is open to visitors from daylight to dark. The visitor center is open from 7:30 am to 4:00 pm, Monday through Friday, except on Federal holidays.

Access and Parking

Motorized vehicles are permitted only on developed roads and parking areas. Driving off-road or on roads closed by signs or barriers is prohibited. Parking in front of gates, on bridges, or on water control structures is prohibited.

Rest Rooms

There are rest rooms at the visitor center, inside the environmental education classroom building, and just outside the classroom building. All rest rooms are fully accessible.

Access for Visitors with Disabilities

Equal opportunity to participate in and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of physical or mental ability. Dial 7-1-1 for a free connection to the State transfer relay service for TTY and voice calls to and from the speech and hearing impaired. For more information or to address accessibility needs, please contact the Refuge staff at 620 / 486-2393 or the U.S. Department of the Interior, Office of Equal Opportunity, 1849 C Street, NW, Washington, D.C. 20240.

Hiking

All of the Refuge is open to hiking.

Camping

Overnight camping is not permitted. All visitors must leave the Refuge at the end of each day.

Bicycling

Bicycling is permitted on the Refuge, but is restricted to established roads and trails. Bicycles are prohibited on both interpretive nature trails.

Horseback Riding

Horseback riding is permitted, but for safety purposes, Refuge staff must be notified before any riding activities take place. Horses are restricted to established roads and trails. Horses are prohibited on both interpretive nature trails.

Boating

The use of boats and canoes is not allowed on the Refuge.

Fires

No fires of any type are permitted within the Refuge.

Firearms

The possession of firearms is prohibited except as authorized during the hunting season.

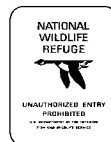
Littering

Littering is prohibited on the Refuge. Please remove all trash from the Refuge.

Nearby Accommodations

Gas, food, and lodging can be found in the nearby communities of Stafford, Sterling, Hutchinson, and Great Bend.

Refuge Signs and Their Meaning



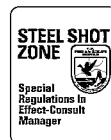
Refuge Boundary - Authorized entry only.



Public Hunting Area - Area behind this sign open to hunting.



No Hunting Zone - Area behind this sign closed to all hunting.



Non-toxic Shot Zone - Non-toxic shot must be used for all hunting.

**Would You
Like To Help?**
*Friends
of Quivira*

The Friends of Quivira is a nonprofit group established in 1998 to assist the Refuge with their environmental education and stewardship goals. This group sponsors and volunteers at educational events held throughout the year. Some annual events include: the "Peeps and Pastries" birding tour; "Fathers' Day Out," a father and child event; the Kids' Fishing Clinic; "Monarch Mania," a butterfly tagging event; and a week-long celebration of National Wildlife Refuge Week. For more information about the Friends of Quivira, contact:

Friends of Quivira
c/o Quivira National Wildlife Refuge
RR #3, Box 48A
Stafford, KS 67530



Gary Meggers
USFWS

Quivira National Wildlife Refuge
RR 3, Box 48A
Stafford, KS 67578-9532
620 / 486 2393
quivira@fws.gov
<http://quivira.fws.gov>

For State transfer relay service
TTY / Voice: 711

U.S. Fish and Wildlife Service
<http://www.fws.gov>

For Refuge Information
1 800 / 344 WILD

December 2005



Long-billed Dowitcher
© Bob Gress

U.S. Fish & Wildlife Service

Quivira

*National Wildlife
Refuge*

Bird List



About the Refuge

Quivira National Wildlife Refuge (NWR) is located in south-central Kansas within the transition zone of the Great Plains. In this zone, the relatively lush vegetation of the eastern prairie blends with the more arid grasslands of the western prairie. The blend of varied plant communities and the presence of the Big and Little Salt Marshes, major water features on the Refuge, attract birds common to both eastern and western North America. Over 300 species of birds have been observed in the marshes, grasslands, farmlands, and low sandhills of Quivira NWR.

Seasonal Highlights

Fall Flights and Winter Visitors

From September to December, up to 500,000 Canada geese and ducks pass through Quivira NWR on their way to wintering grounds along the Gulf Coast and in Mexico. Other migratory birds, such as sandhill cranes and shorebirds, can also be seen. Endangered whooping cranes may make a brief visit as they move along the Central Flyway. Both bald and golden eagles winter on Quivira NWR from November until March.

Spring Staging

During March and April, Quivira NWR becomes a staging area for over 200,000 ducks and geese. Shorebirds, American white pelicans, gulls, and other migrants can also be seen. The majority of these birds stopover on their way to traditional nesting grounds in the prairie potholes of the north-central United States and Canada.

Spring and Summer Residents

Snowy plovers, American avocets, black-necked stilts, and white-faced ibis are some of the more common nesting species found on the Refuge. A colony of endangered interior least terns use the salt flats on the north end of Quivira NWR as nesting habitat. Swainson's hawks and Mississippi kites are common during the summer months, while northern harriers, American kestrels, and red-tailed hawks are commonly seen throughout the year. Look for ring-necked pheasants and bobwhite quail in

Watching Wildlife

the grasslands and grain fields. Wild turkey can be seen along the edge of tree groves and shelter belts where they often look for food and shelter.

Spring and fall are the best seasons to visit Quivira NWR since wildlife, especially waterfowl, is abundant and more easily viewed during these times. Try to schedule your visit early or late in the day when wildlife is most active and more frequently seen. Take a drive through the Refuge and along its boundaries; the best viewing is along the scenic tour route and the Wildlife Drive. See the Refuge general information leaflet for a map and more information.

The U.S. Fish and Wildlife Service seeks to afford persons with disabilities full accessibility or reasonable accommodation. Contact Refuge staff for information or to address accessibility needs. For the hearing impaired, use your State Relay System for the Deaf.

About this Checklist

This list of 311 birds follows the format of the Seventh A. O. U. Checklist (1998). Accidental species appear at the end of the checklist. Since most birds are migratory, their seasonal occurrence and relative abundance are coded as follows:

Seasons:

- Sp Spring (March-May)
- Su Summer (June-August)
- F Fall (September-November)
- W Winter (December-February)

Seasonal Abundance:

- a abundant—a common species which is numerous
- c common—a species certain to be seen in suitable habitat
- u uncommon—a species which is present but not certain to be seen
- o occasional—a species seen only a few times during the season
- r rare—a species seen at intervals of 2 to 5 years

Other Codes

- birds that nest on the Refuge
- italicized name*=endangered species in the United States

	Sp	Su	F	W
Loons				
___ Common Loon	o	r	o	r
Grebes				
___ •Pied-billed Grebe	c	c	c	o
___ Horned Grebe	u		u	o
___ •Eared Grebe	c	u	c	r
___ Western Grebe	r	r	o	o
Pelicans				
___ American White Pelican	a	a	a	o
Cormorants				
___ Neotropic Cormorant	o	o		
___ •Double-crested Cormorant	a	c	a	u
Hérons				
___ •American Bittern	u	u	u	o
___ •Least Bittern	o	u	o	
___ •Great Blue Heron	c	c	c	u
___ •Great Egret	c	c	c	
___ •Snowy Egret	c	c	c	
___ •Little Blue Heron	c	c	u	
___ Tricolored Heron	r	r		
___ •Cattle Egret	a	a	c	
___ •Green Heron	u	u	o	
___ •Black-crowned Night-Heron	c	c	c	
___ •Yellow-crowned Night-Heron	u	u	u	
Ibises				
___ White Ibis	r	r	r	
___ Glossy Ibis	r	r	r	
___ •White-faced Ibis	c	c	c	
Vultures				
___ Turkey Vulture	c	u	u	
Whistling Ducks				
___ Black-bellied Whistling Duck		r		
Geese				
___ Greater White-fronted Goose	c	r	a	a
___ Snow Goose	c		u	c
___ Ross' Goose	o		u	u
___ •Canada Goose	c	c	a	a
___ Brant	r		r	r
Swans				
___ Trumpeter Swan			r	r
___ Tundra Swan	o		o	r

	Sp	Su	F	W
Ducks				
___ •Wood Duck	c	u	u	o
___ •Gadwall	a	u	c	c
___ •American Wigeon	a	u	c	c
___ American Black Duck	r		r	r
___ •Mallard	a	c	a	a
___ Mottled Duck	r	r		
___ •Blue-winged Teal	a	c	a	
___ •Cinnamon Teal	u	o	o	o
___ •Northern Shoveler	a	u	a	c
___ •Northern Pintail	a	u	c	a
___ •Green-winged Teal	a	o	a	c
___ •Canvasback	c	o	c	c
___ •Redhead	a	c	c	a
___ Ring-necked Duck	c	r	c	u
___ Greater Scaup	o			o
___ •Lesser Scaup	c	o	c	c
___ Oldsquaw	r		o	r
___ Bufflehead	c		c	c
___ Common Goldeneye	c	r	c	c
___ •Hooded Merganser	u	o	u	o
___ Common Merganser	u			c
___ Red-breasted Merganser	r	r	o	
___ •Ruddy Duck	a	c	a	u
Hawks, Kites, Eagles				
___ Osprey	o	r	o	
___ •Mississippi Kite	u	u		
___ Bald Eagle	u		u	u
___ •Northern Harrier	c	o	c	c
___ Sharp-shinned Hawk	u		o	u
___ •Cooper's Hawk	u	o	u	u
___ Northern Goshawk			r	r
___ Red-shouldered Hawk			r	
___ Broad-winged Hawk			r	
___ •Swainson's Hawk	c	c	u	
___ •Red-tailed Hawk	c	c	c	c
___ Ferruginous Hawk	o		o	o
___ Rough-legged Hawk	u			u
___ Golden Eagle	o		o	o
Falcons				
___ •American Kestrel	c	u	c	u
___ Merlin	o	r	o	o
___ <i>Peregrine Falcon</i>	o	o	o	o
___ Prairie Falcon	o	r	o	o

	Sp	Su	F	W
Gallinaceous Birds				
— •Ring-necked Pheasant	c	c	c	c
— •Greater Prairie-Chicken	r	r	r	r
— •Wild Turkey	c	c	c	c
— •Northern Bobwhite	c	c	c	c
Rails, Gallinules				
— •Black Rail	u	u		
— •King Rail	u	u	o	
— •Virginia Rail	c	c	o	
— •Sora	u	u	o	
— •Common Moorhen	o	u	o	
— •American Coot	a	c	a	u
Cranes				
— Sandhill Crane	a		a	o
— Whooping Crane	o		o	r
Plovers				
— Black-bellied Plover	u	u	u	r
— American Golden Plover	u	o	o	
— •Snowy Plover	c	c	c	
— Semipalmated Plover	c	c	u	
— Piping Plover	u	o	o	
— •Killdeer	c	c	c	o
— Mountain Plover	r		r	
Stilts, Avocets				
— •Black-necked Stilt	c	c	u	
— •American Avocet	c	c	c	
Sandpipers				
— Greater Yellowlegs	c	c	c	o
— Lesser Yellowlegs	a	c	a	r
— Solitary Sandpiper	u	u	u	
— Willet	u	u	u	
— Spotted Sandpiper	c	c	u	
— •Upland Sandpiper	c	u	u	
— Whimbrel	o	o	o	
— Long-billed Curlew	o	o	o	
— Hudsonian Godwit	u	r		
— Marbled Godwit	u	u	u	
— Ruddy Turnstone	o	o	o	
— Red Knot	o	o	o	
— Sanderling	c	o	c	
— Semipalmated Sandpiper	a	c	a	
— Western Sandpiper	c	c	c	
— Least Sandpiper	a	c	a	
— White-rumped Sandpiper	a	a	o	

	Sp	Su	F	W
— Baird's Sandpiper	a	c	a	
— Pectoral Sandpiper	c	c	c	
— Dunlin	u	o	u	r
— Stilt Sandpiper	a	c	a	
— Buff-breasted Sandpiper	o	r	o	
— Ruff	r	r		
— Short-billed Dowitcher	u	u	o	
— Long-billed Dowitcher	c	c	c	
— Common Snipe	u	o	u	
— American Woodcock	r		r	
Phalaropes				
— •Wilson's Phalarope	a	c	a	
— Red-necked Phalarope	o	r	o	
— Red Phalarope	r		r	
Jaegers				
— Parasitic Jaeger		r	r	
Gulls				
— Laughing Gull	r	o		
— Franklin's Gull	a	u	a	
— Bonaparte's Gull	r	r	o	o
— Ring-billed Gull	c	u	c	u
— Herring Gull	o		o	o
— Sabine's Gull		r	r	
Terns				
— Caspian Tern	r	o	r	
— Common Tern	o	o	o	
— •Forster's Tern	c	c	u	
— •Least Tern	u	u	o	
— •Black Tern	c	c	u	
Pigeons, Doves				
— •Rock Dove	u	u	u	u
— •Mourning Dove	a	a	a	o
Cuckoos				
— Black-billed Cuckoo	r	r		
— •Yellow-billed Cuckoo	o	u	r	
Owls				
— •Eastern Screech-Owl	u	o	o	o
— •Great Horned Owl	u	u	u	u
— Snowy Owl			r	r
— •Burrowing Owl	o	o		
— •Long-eared Owl	r	r	r	o
— Short-eared Owl	r		r	r

	Sp	Su	F	W
Goatsuckers				
— • Common Nighthawk	u	c	u	
— Common Poorwill	o	o		
— • Chuck-will's-widow	o	o		
Swifts				
— • Chimney Swift	u	u	u	
Hummingbirds				
— Ruby-throated Hummingbird		r		
Kingfishers				
— Belted Kingfisher	u	u	u	o
Woodpeckers				
— • Red-headed Woodpecker	c	a	u	
— • Red-bellied Woodpecker	u	u	u	u
— • Downy Woodpecker	u	u	u	u
— • Hairy Woodpecker	u	u	u	u
— • Northern Flicker	c	c	c	c
Flycatchers				
— Olive-sided Flycatcher	o		o	
— • Eastern Wood-Pewee	u	u		
— Willow Flycatcher	o		o	
— Least Flycatcher	u		u	
— • Eastern Phoebe	u	u		
— Say's Phoebe	o		o	
— • Great-Crested Flycatcher	u	u		
— • Western Kingbird	c	c	o	
— • Eastern Kingbird	c	c	o	
— • Scissor-tailed Flycatcher	u	u		
Shrikes				
— • Loggerhead Shrike	u	u	u	o
— Northern Shrike	r		o	o
Vireos				
— • Bell's Vireo	u	u		
— • Warbling Vireo	u	u		
— Red-eyed Vireo	o	o	r	
Jays, Magpies, Crows				
— • Blue Jay	c	u	c	u
— • Black-billed Magpie	o	o	o	o
— • American Crow	c	u	c	u
Larks				
— • Horned Lark	c	u	u	c
Swallows				
— • Purple Martin	o	o		

	Sp	Su	F	W
— • Tree Swallow	u	o	o	
— • Northern Rough-winged Swallow	u	o	u	
— • Bank Swallow	c	a	o	
— • Cliff Swallow	a	a	o	
— • Barn Swallow	a	a	c	
Chickadees, Titmice				
— • Black-capped Chickadee	c	u	u	c
— Tufted Titmouse			o	o
Nuthatches				
— • White-breasted Nuthatch	u	o	o	o
Creepers				
— Brown Creeper			o	o
Wrens				
— Carolina Wren	o			o
— • Bewick's Wren	o	o		
— • House Wren	c	c	u	
— Sedge Wren	o		o	
— Marsh Wren	u		u	u
Kinglets				
— Golden-crowned Kinglet	o			o
— Ruby-crowned Kinglet	u		u	o
Gnatcatchers				
— • Blue-gray Gnatcatcher	u	u	r	
Thrushes, Bluebirds				
— • Eastern Bluebird	u	u	u	o
— Mountain Bluebird				r
— Townsend's Solitaire	r			o
— Swainson's Thrush	o		o	
— Wood Thrush	r			
— • American Robin	c	c	c	u
Thrashers				
— • Gray Catbird	c	u	o	
— • Northern Mockingbird	u	u	u	o
— • Brown Thrasher	c	c	o	r
Starlings				
— • European Starling	c	c	c	c
Pipits				
— American Pipit	u		u	
Waxwings				
— Cedar Waxwing	r	o	o	o

	Sp	Su	F	W
Warblers				
— Tennessee Warbler.....	r			
— Orange-crowned Warbler	u		u	
— Nashville Warbler	o		o	
— Yellow Warbler	u	r		
— Yellow-rumped Warbler.....	u	r	u	
— Palm Warbler	o			
— Blackpoll Warbler	r			
— Black-and-white Warbler	r		r	
— American Redstart	o		o	
— Northern Waterthrush	o			
• Common Yellowthroat.....	c	c	u	o
— Wilson's Warbler	o		o	
— •Yellow-breasted Chat.....	o	r	r	

Towhees, Sparrows

— Spotted Towhee	u		c	u
— American Tree Sparrow	u		c	a
— Chipping Sparrow	c	r	c	
— Clay-colored Sparrow	c		o	
• Field Sparrow	c	u	u	u
— Vesper Sparrow	u	r	o	r
• Lark Sparrow.....	c	o	o	
— Lark Bunting	o	r		
— Savannah Sparrow.....	u	r	u	o
• Grasshopper Sparrow	u	u	o	
— LeConte's Sparrow	o		o	r
— Nelson's Sharp-tailed Sparrow	o		o	
— Fox Sparrow	o		o	
— Song Sparrow	c		c	u
— Lincoln's Sparrow	o		u	
— Swamp Sparrow	u		u	u
— White-throated Sparrow.....	o		u	o
— Harris' Sparrow	c	r	c	c
— White-crowned Sparrow	u		u	o
— Dark-eyed Junco	c		c	c
— Lapland Longspur	r		o	u
— Chestnut-collared Longspur	r			r

Grosbeaks, Buntings

— •Northern Cardinal.....	c	u	u	c
— Rose-breasted Grosbeak.....	o			
• Black-headed Grosbeak	o	r		
• Blue Grosbeak	o	o		
— Lazuli Bunting	r			
• Indigo Bunting	u	o		
— Dickcissel	c	c	r	

Blackbirds, Orioles

— •Bobolink	u	u		
— •Red-winged Blackbird.....	a	a	a	a
— •Eastern Meadowlark.....	c	c	c	c
— •Western Meadowlark	c	c	u	c
— •Yellow-headed Blackbird.....	a	a	c	r
— Brewer's Blackbird	o	o	o	o
— •Common Grackle	c	c	c	o
— •Great-tailed Grackle	c	c	c	r
— •Brown-headed Cowbird	c	c	c	c
— •Orchard Oriole	u	u	o	
— •Baltimore Oriole.....	c	c	r	

Finches

— •House Finch	o	o	o	o
— Pine Siskin.....	o		o	u
— •American Goldfinch	c	o	u	c

Old World Sparrows

— •House Sparrow.....	c	u	u	u
-----------------------	---	---	---	---

Accidentals

— Clark's Grebe	— Red-breasted Nuthatch
— Brown Pelican	— Rock Wren
— Greater Flamingo	— Winter Wren
— Fulvous Whistling Duck	— Veery
— Surf Scoter	— Gray-cheeked Thrush
— White-winged Scoter	— Sprague's Pipit
— Black Scoter	— Bohemian Waxwing
— Barrow's Goldeneye	— Golden-winged Warbler
— Curlew Sandpiper	— Magnolia Warbler
— Black-legged Kittiwake	— Blackburnian Warbler
— Gull-billed Tern	— Prothonotary Warbler
— Greater Roadrunner	— Worm-eating Warbler
— Groove-billed Ani	— Ovenbird
— Barn Owl	— Mourning Warbler
— Barred Owl	— Canada Warbler
— Northern Saw-whet Owl	— Summer Tanager
— Whip-poor-will	— Henslow's Sparrow
— Yellow-bellied Sapsucker	— McCown's Longspur
— Pileated Woodpecker	— Smith's Longspur
— Yellow-bellied Flycatcher	— Snow Bunting
— Yellow-throated Vireo	— Painted Bunting
— Philadelphia Vireo	— Rusty Blackbird
— Western Scrub Jay	— Bullock's Oriole
— Violet-green Swallow	— Purple Finch
— Carolina Chickadee	— Common Redpoll
	— Evening Grosbeak

Quivira National Wildlife Refuge
RR 3, Box 48A
Stafford, KS 67578
620 / 486 2393
quivira@fws.gov
<http://quivira.fws.gov>

For State transfer relay service
TTY / Voice: 711

U.S. Fish & Wildlife Service
<http://www.fws.gov>

For Refuge Information
1 800 / 344 WILD

September 2003





U.S. Fish & Wildlife Service

Quivira

National Wildlife Refuge

Fishing and Hunting Regulations

Welcome

Quivira National Wildlife Refuge (NWR) is one of a system of 530 refuges administered by the U.S. Fish and Wildlife Service. Quivira NWR is primarily managed to provide food, water, and resting areas for migratory waterfowl. A system of canals and water control structures diverts water from Rattlesnake Creek to 34 water units ranging in size from 10 to 1,500 acres.

General Refuge Regulations

Vehicles and Parking

Motorized vehicles are permitted only on developed roads and parking areas. Driving off roads or on roads closed by signs or barriers is prohibited. Parking in front of gates or on bridges or water control structures is prohibited.

Camping

Overnight camping is not permitted. All visitors must leave the area at the end of each day. The Refuge is open daylight to dark.

Boating

The use of boats, canoes, and other watercraft is not permitted.

Fires

No fires of any type are permitted within the Refuge.

Firearms

Possession of firearms is prohibited except within the hunting areas during hunting season.

Littering

Littering is prohibited. Please remove all trash, including spent shell casings, from the Refuge.

Caution – Deep Water

Water levels fluctuate from one season to the next. Use caution when crossing open water areas as deep channels may not be visible.

Fishing Regulations

Fishing Areas

All Refuge waters are open to sportfishing in accordance with State fishing regulations with the exceptions listed below.

Exceptions

Fishing with trotlines and setlines is prohibited. The use of seines for taking bait is not permitted. Fishing from water control structures and bridges is prohibited.

Legal Species

Fish species listed in the State fishing regulations may be taken. All other wildlife species, including turtles, frogs, and snakes, are protected on the Refuge.

Hunting Regulations

Hunting is permitted on 8,000 of the Refuge's 22,135 acres in accordance with applicable State and Federal regulations and the following special regulations.

Seasons

Refuge hunting areas are open September 1 through February 28. Refuge hunting areas may be closed to hunting without notice when whooping cranes are present or if emergencies arise.

Legal Species

Waterfowl, pheasants, quail, doves, snipe, rails, squirrels, and rabbits may be hunted during the regular State seasons, except when the Refuge is closed to all hunting from March 1 through August 31. No hunting is permitted for deer, turkey, sandhill cranes, or other species not listed.

Guns

Only shotguns are permitted for hunting on the Refuge. The possession of rifles or handguns on the Refuge is prohibited.

Non-Toxic Shot

Steel shot, bismuth, or other non-toxic shot is required in all gauges when hunting any game on the Refuge. The possession of lead shot in the field is prohibited.

Hunting Areas

Parts of the Refuge are posted as "Public Hunting Area" and are shown on the map. Hunting is not permitted outside these shaded areas or from or across roads, trails, and parking areas.

Retrieving

Retrieving game from areas closed to hunting is prohibited. Regulate your shooting so that game does not fall into no hunting zones of the Refuge.

Dogs

The use of dogs for hunting and retrieving is encouraged.

Blinds

Portable devices or temporary blinds of natural vegetation are permitted. Permanent blinds or pits may not be constructed.

An accessible hunting blind is available on Unit 30. The blind is available by reservation only by contacting staff at the Refuge Headquarters.

Hours

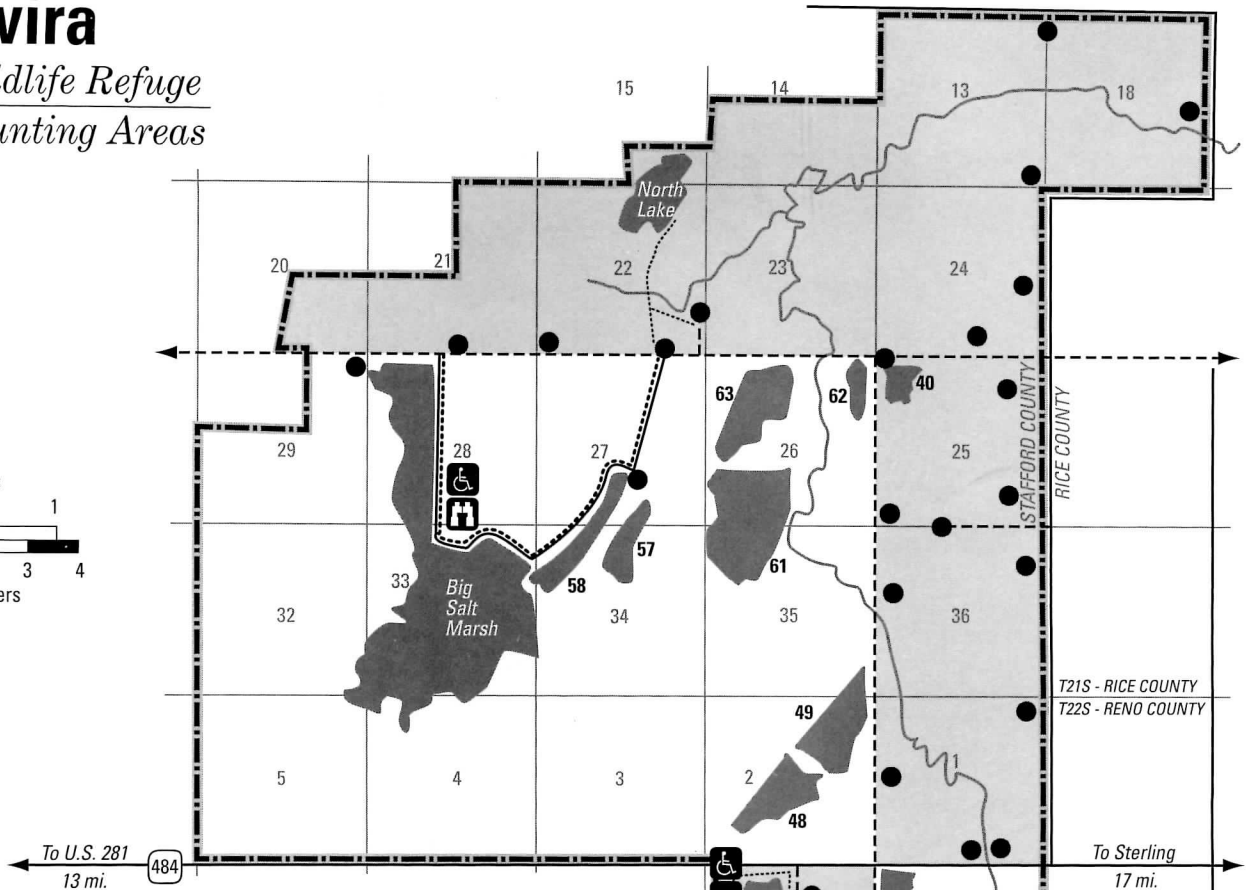
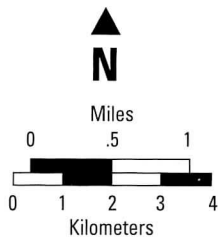
Hunters may not enter Refuge hunting areas to set up decoys, etc., until 1 hour prior to legal shooting time. All decoys must be removed within 1 hour following the end of the legal shooting time.

Accessibility Information

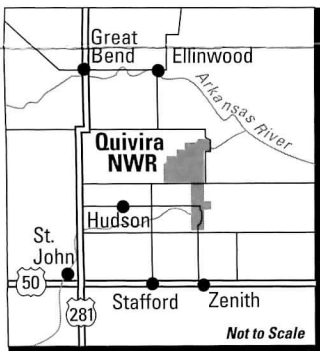
Equal opportunity to participate in and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of physical or mental ability. Dial 7-1-1 for a free connection to the state transfer relay service for TTY and voice calls to and from the speech and hearing impaired. For information or to address accessibility needs, please contact Refuge staff at 620 / 486 2393 or the U.S. Department of the Interior, Office of Equal Opportunity, 1849 C Street, NW, Washington, D.C. 20240."

Quivira

National Wildlife Refuge Fishing & Hunting Areas



Read all regulations on the reverse side of this leaflet before you hunt.



Quivira National Wildlife Refuge

- Refuge Boundary
- Paved Road
- Gravel Road
- Wildlife Drive
- Foot Path
- Section Line
- Public Hunting Area
- Water Unit
- Refuge Headquarters and Visitor Center
- Parking
- Rest Room
- Accessible Site
- Photo Blind
- Hunting Blind
- Spotting Scope
- Fishing Area

Quivira National Wildlife Refuge
RR 3, Box 48A
Stafford, KS 67578
620 / 486 2393
Email: quivira@fws.gov
<http://quivira.fws.gov>

For Relay Service Connection
TTY/Voice: 711

U.S. Fish and Wildlife Service
<http://www.fws.gov>

For Refuge Information
1 800 / 344 WILD

October 2002

