

# **IMPLEMENTATION OF THE WHOOPING CRANE MONITORING PROTOCOL**

## **FALL/WINTER 2015 - FINAL REPORT**



Photo by Jerry Jacobs ©2015

Prepared by

Dave Fehlhafer and  
Brian Peterson

Ecological Solutions  
203 W. Bartelt Ave  
Doniphan, NE 68832

February 16, 2016

# **Implementation of the Whooping Crane Monitoring Protocol**

## **Fall/Winter 2015**

**Prepared by**  
**Ecological Solutions**

**For**  
**The Committees of the**  
**Platte River Recovery Implementation Program**

**February 16, 2016**

## **Summary**

The Ecological Solutions (ES) team conducted the whooping crane monitoring effort for the 2015 fall migration following the protocols detailed in the *Platte River Recovery Implementation Program – Whooping Crane Monitoring Protocol – rev. May 2015*.

In addition to the regular fall migration, which was scheduled from October 9<sup>th</sup> – November 10<sup>th</sup>, nine more days were added, and classified as part of a winter migration, which ran through November 19<sup>th</sup>. The data in this report is separated into fall and winter migration as well as combined to give a better overall picture of the results of the migration. The surveys were conducted using systematic aerial transects along the Platte River from Chapman to Lexington. These, along with opportunistic sightings, resulted in 16 individual whooping cranes being observed within the transect boundaries during the 42-day survey period. Below are the details regarding survey methodology, results, and supporting data.

## **Equipment/Materials, Personnel, and Study Area**

Two Cessna 172 aircraft, crewed by a pilot and two observers, were used to make observations along the predetermined flight transects. The pilot utilized a GPS unit to follow the pre-loaded route, as well as to mark any observed objects with a waypoint. The aerial observers utilized binoculars, a Canon EOS 6D camera equipped with a 24 x 105 mm lens, and mobile phones for communication.

The data sheets, provided by the Platte River Recovery Implementation Program (PRRIP) Executive Director's Office (EDO), included aerial flight logs, aerial observations, ground search efforts, and use site monitoring logs.

The area of study ran from the Highway 283 Platte River bridge near Lexington, NE to the Platte River bridge near Chapman, NE and focused on the Platte River channels and the adjacent wetlands, ponds, and waterways extending 3.5 miles out on each side of the outermost channels. The total length of the coverage area was approximately 90 miles and was divided into two routes, an east route and a west route. Any observations outside the study area were not included in the data.

## Implementation and Methodology

Systematic aerial transects were flown daily, conditions permitting, at an altitude of approximately 750 feet and at an air speed of approximately 100 MPH. Two flights were initiated each morning, one from Grand Island (east route) and one from Kearney (west route). Planes were to be at the transect starting points ½ hour before sunrise and would typically complete flights in less than two hours. In the event of adverse weather, crews were required to wait up to two hours after sunrise for conditions to improve before cancelling the flight that is unless the pilot, using their best judgement, cancelled the flight for the day prior to that. River transects were flown east to west and the plane was oriented south of the southern-most river channel to reduce the effect of sun glare. Each riverine transect had two daily alternating starting points. The alternating starting points were implemented to allow different sections of the study area to be observed as early as possible in the flight times.

The east route day one was started at the Platte River bridge near Chapman (Chapman bridge) and followed the river transect (OSE) to the Highway 10 bridge (Minden bridge). They would then follow the targeted Primary Wetland Return Transect (PWRTE) back to the Chapman bridge, turn and follow the targeted Secondary Wetland Return Transect (CSRT) to the Highway 34 bridge. East route day two would start at the Platte River bridge near Wood River (Wood River bridge) and follow the OSE to the Minden bridge, then follow the PWRTE back to the Chapman bridge. They would then follow the OSE to the Wood River bridge, then return on the Secondary Wetland Return Transect (WSRT) that stretched from HWY 10 near Wood River to the Highway 34 – Platte River bridge.

The west route day one started at the Minden bridge and followed the river transect (OSW) to the Highway 283 bridge (Lexington bridge). They would then follow the targeted Primary Wetland Return Transect (PWRTW) back to the Minden bridge. West route day two started at the Platte River bridge near Odessa (Odessa bridge) and follow the OSW to the Lexington bridge. They would turn and follow the PWRTW back to the Minden bridge and then return on the OSW to the Odessa bridge. They would then follow the Secondary Wetland Return Transect (ESRT) from HWY 183 near Elm Creek to the HWY 40 near the Platte River bridge.

At the beginning of each transect and at turn around points, the aerial crews would relay their position via mobile phone to nearby ground crews so the ground crews could maintain a relatively close proximity. If an aerial crew spotted any potential whooping crane(s), they would take photos of the object(s) and the surrounding area to confirm the identity and location. If additional confirmation was needed, they would contact the nearest ground observer, who would then position themselves to make a positive identification of the object without disturbance. If

the object was determined to be a whooping crane(s), personnel at the EDO as well as the Fish and Wildlife Service would be immediately notified so they could take appropriate measures to minimize disturbance if needed. Otherwise, they were notified of results of surveys following the completion of both flights on a daily basis.

In addition to the systematic flights, the aerial and ground crews also confirmed opportunistic sightings. Immediately after receiving a report, depending on the situation, either a plane would be deployed from the airport and/or ground personnel would systematically survey the area until the birds were located and confirmed or sufficient search time was allocated to confirm birds had left and/or were not present in the immediate area.

Using metrics developed by the EDO in conjunction with a Geographic Information System (GIS) and facilitated by the in-flight photos and/or GPS waypoints, UTM coordinates were determined for each crane or crane group and recorded with the rest of the data.

All data was later translated from the completed data sheets to electronic form on a web based server using Microsoft SharePoint software that was developed for PRRIP by Riverside Technology, Inc. It was then subjected to QA/QC checks by Ecological Solutions to insure accuracy.

## Results

### Confirmed Whooping Crane Sightings

A total of 16 (11 – fall and 5 – winter) unique whooping cranes were confirmed during the 42-day monitoring effort. Eleven crane groups were observed (5 – fall and 6 – winter) and each was given a unique crane group ID (e.g. 2015FA01). There were 6 unique groups (3 – fall and 3 – winter), but for data purposes, a crane group consists of any individual or group of whooping cranes observed once daily and may be re-counted as a new group and given a new crane group ID the next day if they were still in the area. Table 1 includes the date of observations, the number of cranes spotted, crane group ID, use site number and/or location ID, whether it was a systematic or opportunistic observation, and crane use days. A map and aerial photos of each crane group observed by ES are shown in Figures 4-14.

Unique crane groups can be found in Table 1 and Use Site number and location ID can be found on the maps located in Figures 4-9. It should be noted that the 2:0 (2015WI02) group spotted on 11/14 was an opportunistic sighting by ES staff on the ground while observing the 2015WI01 group and that these two groups joined together to form a loose 4:1 (2015WI04-06) group observed 11/17/15 – 11/19/15 (Table 1). This 4:1 group included a telemetry bird and remained in the study area until 11/21/15.

**TABLE 1**

## CRANE GROUPS AND LOCATIONS

	Observation Dates	# of Cranes Adult:Juv	Group ID #	Use Site #	UTMx	UTMy	Flight Type	See Figure
FALL	11/3/15	2:0	2015FA01	1	505667	4501251	Systematic	5,10
	11/4/15	2:0	2015FA02	1	505667	4501251	Systematic	
	11/5/15	2:0	2015FA03	1	505667	4501251	Systematic	
	11/6/15	7:1	2015FA04	2	529392	4508314	Systematic	6,11
	11/7/15	0:1	2015FA05	3	540209	4512063	Systematic	7,12
Crane Use Days		26						
WINTER	11/14/15	2:1	2015WI01	1	567347	4532755	Opp.	8,13
	11/14/15	2:0	2015WI02	2	566488	4532300	Systematic	8
	11/15/15	2:1	2015WI03	1	567347	4532755	Systematic	8,13
	11/17/15	4:1	2015WI04	N/A (ag-corn)	562895	4525453	Opp.	9,14
	11/18/15	4:1	2015WI05	N/A (ag-corn)	562998	4525657	Systematic	
	11/19/15	4:1	2015WI06	3	561103	4525925	Systematic	
	11/20/15	4:1	Telemetry	3	561103	4525925	Opp.	
Crane Use Days		45						
Crane Use Days Fall and Winter		71						

\* Crane groups 2015WI04-06 were a combination of crane groups 2015WI01 & 03 and crane group 2015WI02.

Crane use days were calculated by multiplying the number of individual cranes in each group by the number of days the group was observed plus one day as each group was assumed to have been present the evening prior to the morning of first being observed. This resulted in a total of 71 crane use days during fall and winter surveys (26 – fall and 45 – winter; Table 1). Whooping cranes were observed on 10 of the 42 days of the survey effort (23.8% of the days; Table 1) and a 4:1 group remained in the study area until 11/21/15, but monitoring was discontinued on 11/19/15.

The current whooping crane population survey was not completed at the time of this writing so the whooping crane survey results for the winter of 2014-2015 were used. At that time the population was estimated by the USFWS to be 314 cranes ([See the following web link for source](#)). The 21 individuals observed by this monitoring effort constitute approximately 6.7% of the migratory population using the survey area of the Platte River during the fall/winter migration. It may be of interest to note that a group of 6 cranes (1 telemetry marked bird) was observed just outside the study area on the Platte River channel during the fall monitoring season

(observed on 11/14/2015 located 1/2 mile east of the Chapman bridge). These birds are not included in this report or dataset.

[http://www.fws.gov/uploadedFiles/Region\\_2/NWRS/Zone\\_1/Aransas-Matagorda\\_Island\\_Complex/Aransas/Sections/What\\_We\\_Do/Science/Whooping\\_Crane\\_Updates\\_2013/WHCR\\_Update\\_Winter\\_2014-2015.pdf](http://www.fws.gov/uploadedFiles/Region_2/NWRS/Zone_1/Aransas-Matagorda_Island_Complex/Aransas/Sections/What_We_Do/Science/Whooping_Crane_Updates_2013/WHCR_Update_Winter_2014-2015.pdf)

## **Streamflow and Unobstructed Channel Width at Whooping Crane Use Locations**

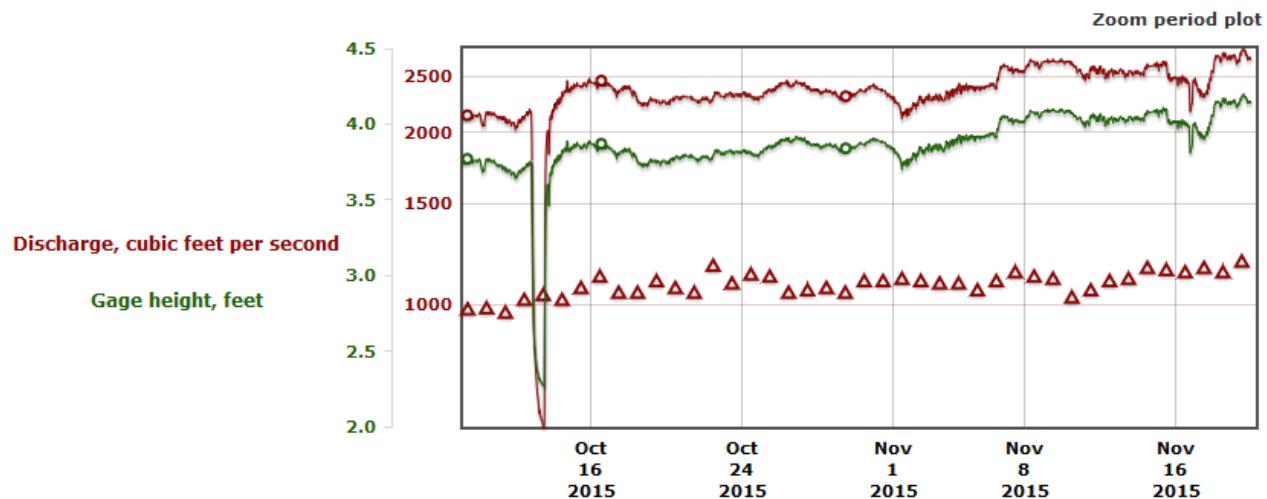
The Platte River streamflow was above the 30-year median except for the approximate one-day drop in October (Figures 1-3). The discharge ranged from a low of 611 cfs at Overton to a high of 3,170 cfs at Grand Island during the survey period. During periods when whooping cranes were observed, streamflow ranged from 2,230 cfs – 3,080 cfs. Table 2 depicts flows in conjunction with the date of observed crane groups (when applicable) and the unobstructed channel width, as measured in GIS, at each riverine use location.

**TABLE 2**

Stream flow conditions and unobstructed channel widths at Crane Use Sites					
Date	Gauging Station	Discharge (cfs)	Crane Group ID	Crane Group Composition	Unobstructed Channel Width (ft)
11/3-11/5	Kearney	2,230-2,240	2015FA01-03	2:0	734
11/6	Kearney	2,310	2015FA04	7:1	1,083
11/7	Kearney	2,520	2015FA05	0:1	846
11/14-11/15	Grand Island	2,470-2,540	2015WI01 & 03	2:1	1,187
11/14	Grand Island	2,470	2015WI02	2:0	751
11/19	Grand Island	3,080	2015WI04-06	4:1	286

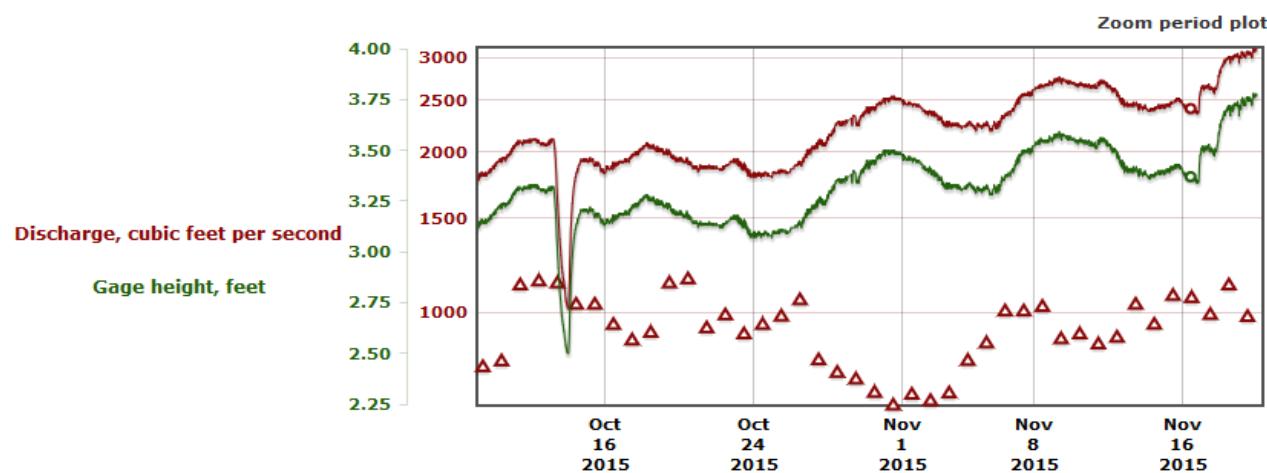
**Figure 1**

**USGS 06768000 Platte River near Overton, Nebr.**



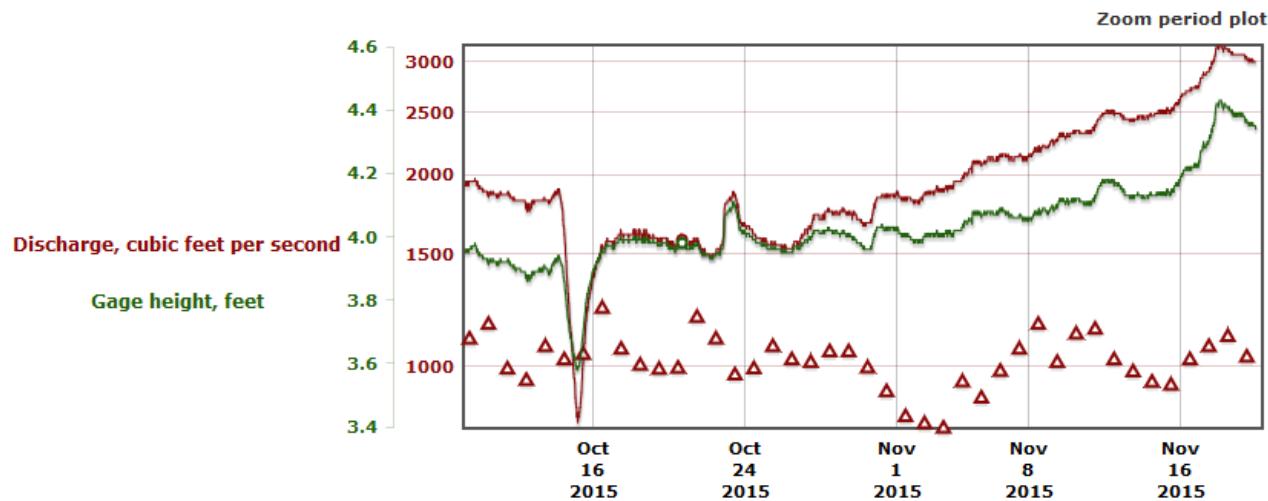
**Figure 2**

**USGS 06770200 Platte River near Kearney, Nebr.**



**Figure 3**

**USGS 06770500 Platte River near Grand Island, Nebr.**



**Legend for Figures 1-3**

- 2200  — Discharge
- 1170  △ Median daily statistic (30 years)
- 4.08  — Gage height

**(ALL DATA IN FIGURES 1-3 ARE PROVISIONAL)**

## USFWS/PRRIP Data Comparison

Table 3 compares the USFWS data (Provided by Matt Rabbe – USFWS whooping crane lead) to the Platte River Recovery Implementation Program (PRRIP). Included is the date(s) the group was observed, the number of individuals in the group and each agency's identification numbers assigned to the respective groups.

As noted in the “Confirmed Whooping Crane Sightings” section under “Results” and on Table 1, the 2015WI01 & 03 and the 2015WI02 groups joined to become groups 2015WI04-06. It was necessary in Table 3 to keep the 4:1 group in its initial 2:1/2:0, separated form as this better aligns with USFWS data which operates on a “initial sighting” basis of identification., whereas PRRIP assigns a new identification number to a group each day it's observed.

**TABLE 3**

USFWS/PRRIP Data Comparison			
Date	# of WC Ad:Juv	USFWS ID #	PRRIP Group ID #s
11/3 – 11/5	2:0	15B - 29	2015FA01-03
11/6	7:1	15B - 34	2015FA04
11/7	0:1	15B - 45	2015FA05
11/14 – 11/21	2:1	15B - 51	2015WI01 & 03
11/14 – 11/21	2:0	15B - 67	2015WI02

## Search Efforts and Opportunistic Observations

There were four potential opportunistic sightings of whooping cranes within the survey area during the 42-day monitoring effort. Three of these were public reports, one of which resulted in the confirmation of the 11/17/15 crane group (4:1, 2015WI04) which was located within a cornfield. The other opportunistic observation occurred on 11/14/2015 (2:0, 2015WI02) and was spotted by ES staff while observing another known group (2:1, 2015WI01) on 11/14/15 in the Platte River channel. Table 4 details the efforts expended, public reports and opportunistic sightings.

**TABLE 4**

OPPORTUNISTIC POTENTIAL SIGHTINGS				
Date	Source	WC Found Ad:Juv	Miles Driven	Aerial, Ground Effort
10/19	Public	None	39	Both
11/1	Public	None	6	Both
11/14	ES Staff	2:0	0	Ground
11/17	Public	4:1	11	Ground

### **Incidental Take**

The USFWS requests information and documentation of any human activity that occurred in the proximity of Whooping Cranes that could constitute “take” as defined by the Endangered Species Act i.e. “*...to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or attempt to engage in any such conduct*”. Because harassment interrupts essential feeding or sheltering behaviors, the definition includes disturbance of Whooping Cranes sufficient to result in cranes taking flight.

### **LETHAL OR CRIPPLING TAKE**

There were no observations of crippling or lethal take of Whooping Cranes this season as a result of the monitoring conducted by ES.

### **HARASSMENT**

Ecological Solutions staff did not observe or engage in any activity that could be construed as harassment as defined by USFWS.

### **PUBLIC DISTURBANCE**

Ecological Solutions staff did not observe any incident of public disturbance of whooping cranes.

### **Observation Efficiency Trials**

Twenty-five whooping crane decoys were randomly placed by PRRIP personnel along the aerial transects. Flight crews spotted 8 in the wetted channel (80%), 0 in the corn/ag (0%), 0 in the lowland/grassland (0%), and 2 in the open water pit/pond/lake (40%), for an overall spotting efficiency of 40% (Table 5).

**TABLE 5**  
**Decoys**

<u>Number Of Decoys</u>	<u>Survey Period</u>	<u>Trial Date</u>	<u>UTMx</u>	<u>UTMy</u>	<u>Habitat Type</u>	<u>Detected</u>
D1	2015FA	10/13/2015	452734	4503496	Wetted Channel	No
D2	2015FA	10/17/2015	458854	4503643	Wetted Channel	Yes
D3	2015FA	10/15/2015	511426	4502971	Wetted Channel	Yes
D4	2015FA	10/17/2015	498252	4501091	Wetted Channel	No
D5	2015FA	10/16/2015	558699	4521968	Wetted Channel	Yes
D6	2015FA	10/21/2015	467124	4503673	Wetted Channel	Yes
D7	2015FA	10/23/2015	539469	4511584	Wetted Channel	Yes
D8	2015FA	10/23/2015	471993	4503680	Wetted Channel	Yes
D9	2015FA	10/29/2015	563680	4528755	Wetted Channel	Yes
D10	2015FA	10/29/2015	520779	4506824	Wetted Channel	Yes
D11	2015FA	10/14/2015	496932	4501664	Ag - Corn	No
D12	2015FA	11/3/2015	504403	4497249	Ag - Corn	No
D13	2015FA	11/12/2015	442257	4502948	Ag - Corn	No
D14	2015FA	11/6/2015	516465	4504061	Ag - Corn	No
D15	2015FA	11/10/2015	517691	4504196	Ag - Corn	No
D16	2015FA	10/14/2015	459160	4501321	Grassland - Lowland	No
D17	2015FA	10/20/2015	514675	4502937	Grassland - Lowland	No
D18	2015FA	10/20/2015	496673	4501362	Grassland - Lowland	No
D19	2015FA	10/24/2015	500381	4502217	Grassland - Lowland	No
D20	2015FA	10/27/2015	518137	4503882	Grassland - Lowland	No
D21	2015FA	10/23/2015	546243	4511476	Open Water Pit/Pond/Lake	No
D22	2015FA	10/30/2015	559028	4521073	Open Water Pit/Pond/Lake	Yes
D23	2015FA	10/30/2015	483903	4506697	Open Water Pit/Pond/Lake	No
D24	2015FA	11/1/2015	572575	4536005	Open Water Pit/Pond/Lake	No
D25	2015FA	11/6/2015	460178	4501311	Open Water Pit/Pond/Lake	Yes

## Flight Statistics and Sighting Frequency

There was a total of 84 systematic flights (66 – fall and 18 – winter) scheduled, of which 67 (55 – fall and 12 – winter) were completed (Table 6). Fifteen flights were cancelled due to inclement weather and 2 to logistical issues.

**TABLE 6**

	EAST			WEST			OVERALL TOTAL
	FALL	WINTER	TOTAL	FALL	WINTER	TOTAL	
COMPLETED	28	6	34	27	6	33	67
CANCELLED	5	3	8	6	3	9	17
SEASON TOTAL	33	9	42	33	9	42	84
% COMPLETED	84.8%	66.7%	81.0%	81.8%	66.7%	78.6%	79.8%

## FLIGHT RESULTS

A total of 210 individual systematic transects (164 – fall and 46 – winter) were flown throughout the survey period. During this time, 8 whooping crane groups were observed for an overall sighting per transect frequency of 4.3%. As indicated in Table 7, all but one of the groups was observed on riverine transects.

**TABLE 7**  
**SIGHTING FREQUENCY/TRANSECT**

		TRANSECTS			# WC Groups <sup>4</sup>	FREQUENCY
		COMPLETED	CANCELLED	TOTAL		
FALL	OSE, OSW <sup>2</sup>	55	11	66	4	7.3%
	PWRTE, PWRTW <sup>3</sup>	55	11	66	0	0.0%
	WSRT/CSRT, ESRT <sup>4</sup>	26	6	32	0	0.0%
WINTER	OSE/OSW	12	6	18	3	25%
	PWRTE/PWRTW	12	6	18	1	8.3%
	WSRT/CSRT, ESRT	6	4	10	0	0.0%
OVERALL	OSE, OSW	77	17	84	7	9.1%
	PWRTE, PWRTW	77	17	84	1	1.3%
	WSRT/CSRT, ESRT	32	10	42	0	0.0%
TOTALS		186	44	210	8	4.30%

<sup>1</sup>These groups may or may not consist of crane(s) observed on previous days

<sup>2</sup>Primary Transect (Riverine), (East – OSE, West – OSW)

<sup>3</sup>Primary Return transect, (East – PWRTE, West – PWRTW)

<sup>4</sup>Secondary Return transect, (East – WSRT and CSRT, West – ESRT)

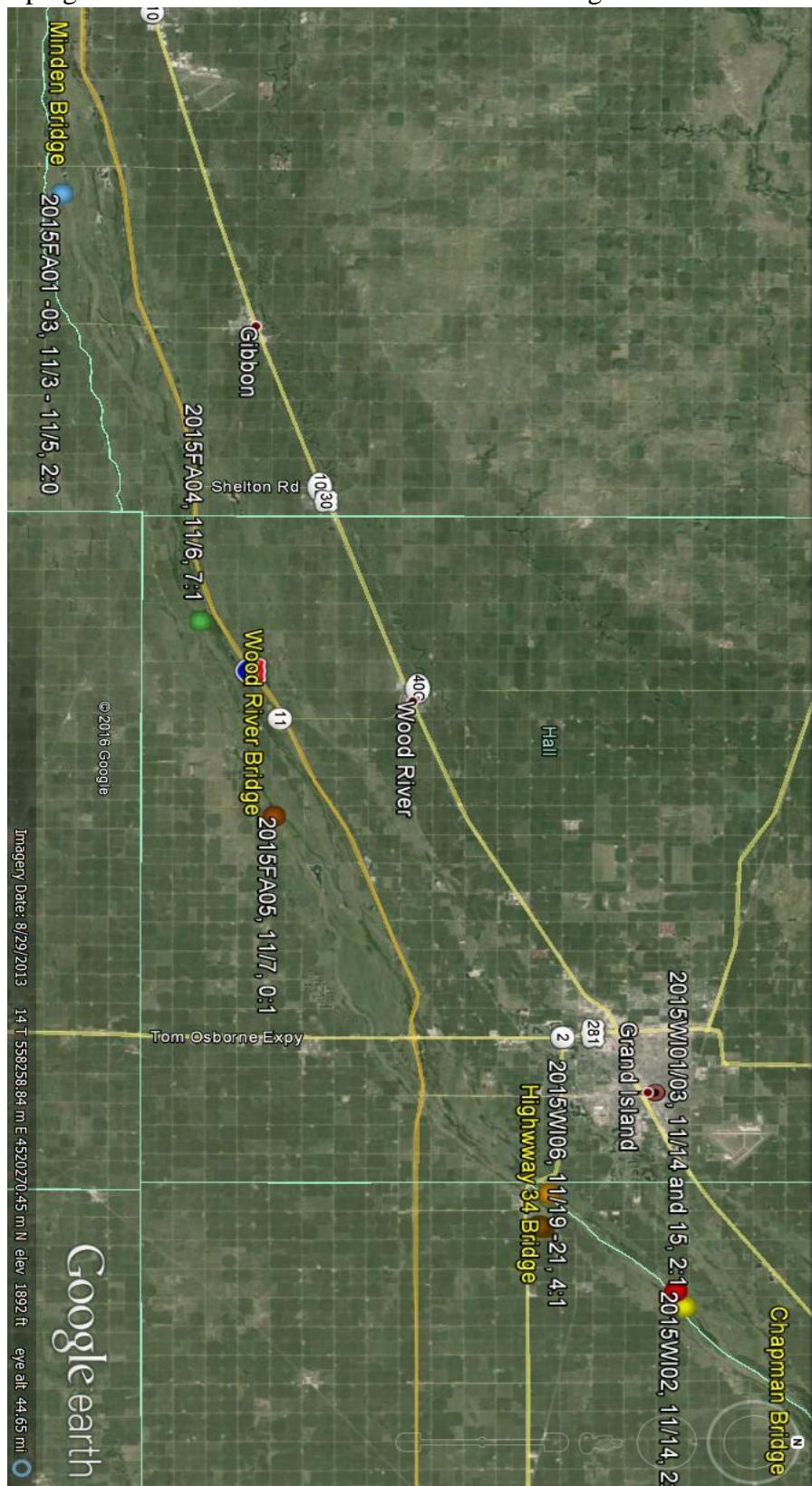
## Supplements

QA/QC of database was performed by ES

Original datasheets – Retained at PRRIP

## FIGURE 4

Observed whooping crane locations. See table 1 for color coding and details.



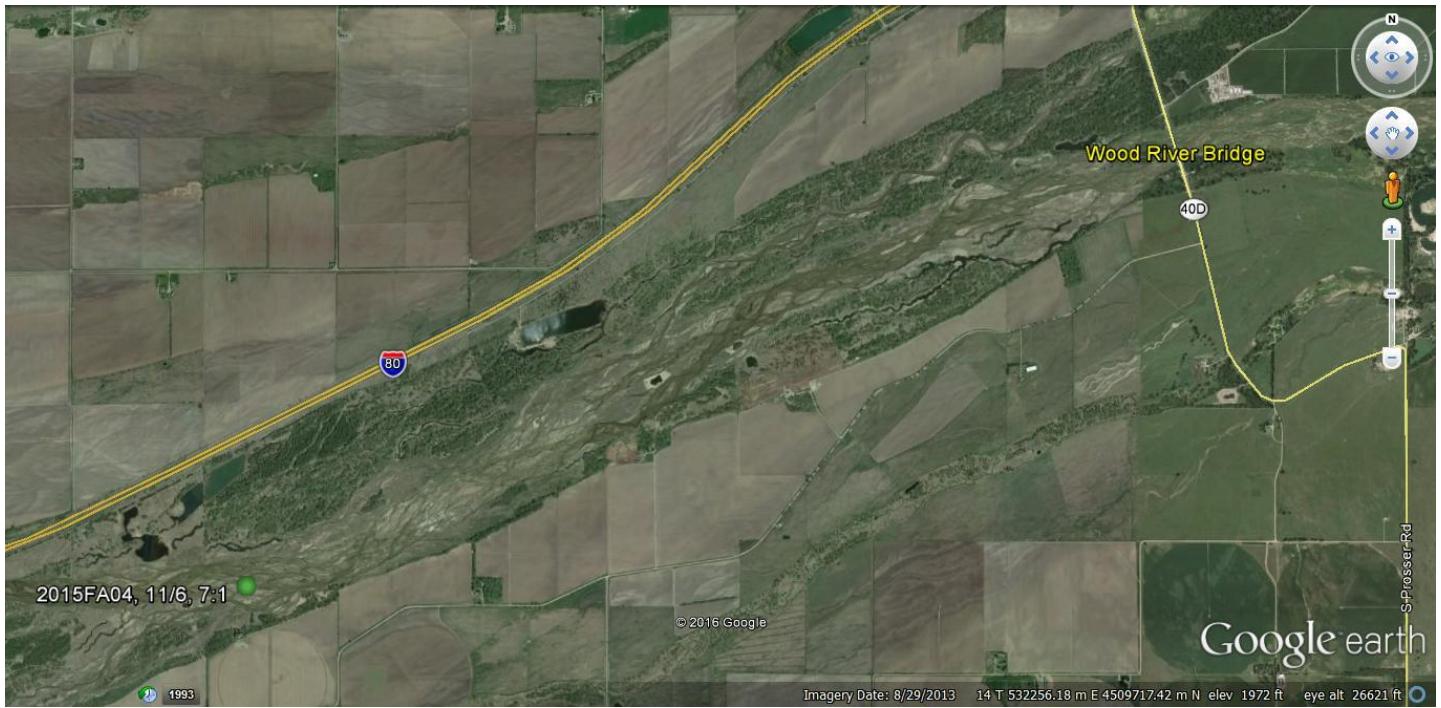
## FIGURE 5

2:0 pair (2015FA01 – 03) observed 11/3 to 11/5.



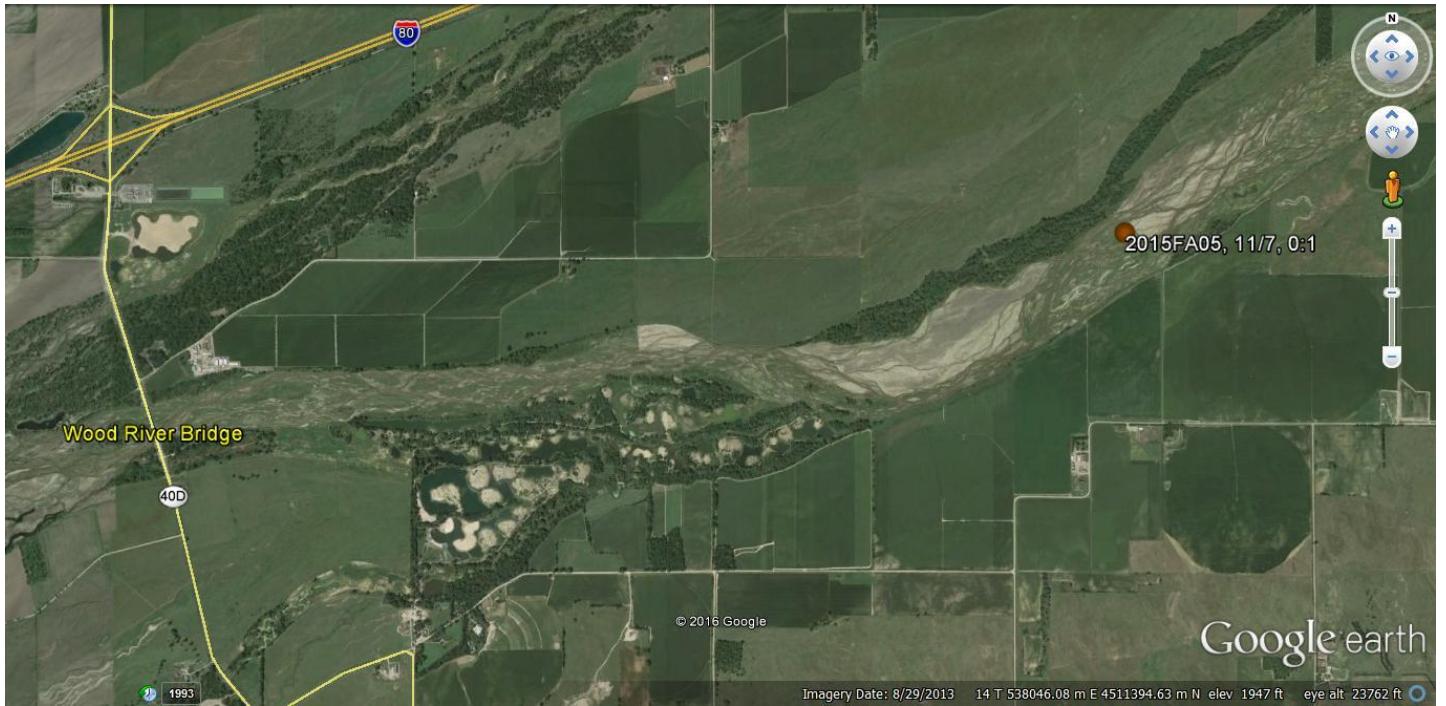
## FIGURE 6

7:1 group (2015FA04) observed on 11/6.



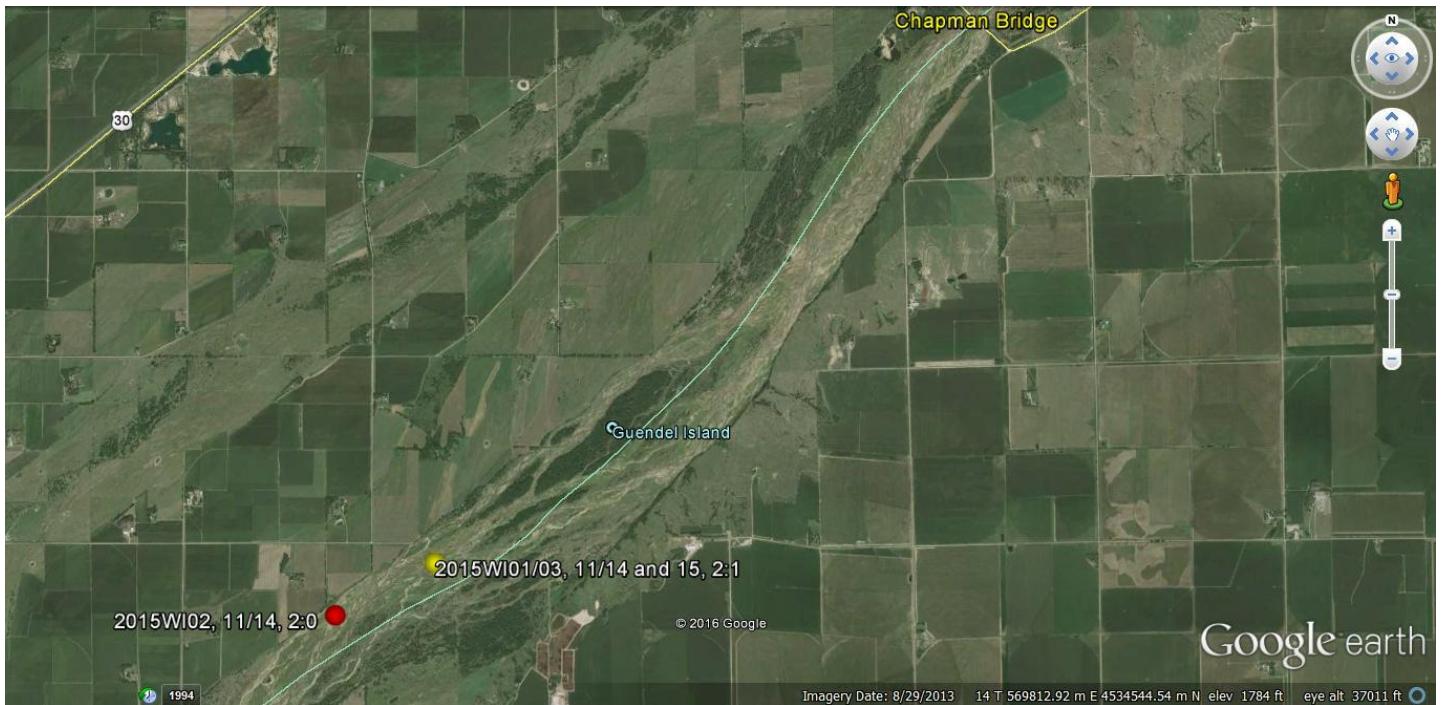
## FIGURE 7

0:1 group (2015FA05) observed on 11/7.



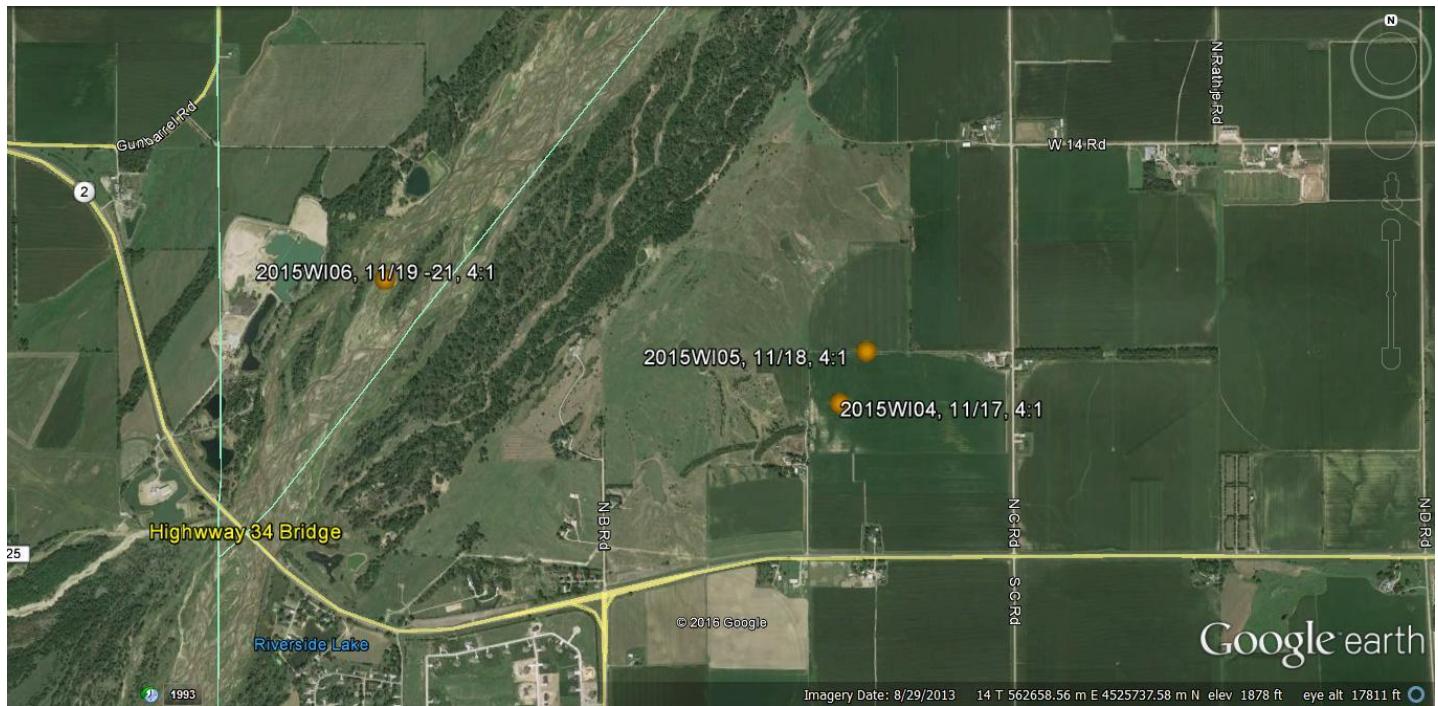
## FIGURE 8

2:1 group (2015WI01 and 2015WI03) and 2:0 group (2015WI02) observed 11/14 and 11/15 and observed as a 4:1 group 11/17 – 11/19 (Figure 9).



## FIGURE 9

4:1 group (2015WI04 – 06) observed 11/17 – 11/19.



## FIGURE 10

2:0 pair (2015FA01 – 03) observed 11/3 – 11/5.



## FIGURE 11

7:1 group (2015FA04) observed on 11/6.



## FIGURE 12

0:1 group (2015FA05) observed on 11/7.



### FIGURE 13

2:1 group (2015WI01 and 2015WI03) observed 11/14 and 11/15.



## FIGURE 14

4:1 group (2015WI04 – 06) observed 11/17 – 11/19.

