

**IMPLEMENTATION OF THE WHOOPING CRANE
MONITORING PROTOCOL
FALL/WINTER 2016 REPORT**



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Implementation of the Whooping Crane Monitoring Protocol Fall/Winter 2016

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

Date: 13 February, 2017

Summary

The Ecological Solutions (ES) team conducted the whooping crane monitoring effort for the 2016 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 9th – November 10th, ten more days were added, and classified as part of a winter migration, which ran through November 20th. The data in this report is separated into fall and winter migrations as well as combined migrations to give a better overall picture of the results. The surveys were conducted using systematic aerial transects along the Platte River from Chapman to Lexington. These, along with opportunistic sightings, resulted in 24 individual whooping cranes being observed within the transect boundaries during the 43-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 study area ran from the Highway 283 Platte River bridge near Lexington, Nebraska to the Chapman Platte River bridge near Chapman, Nebraska. The study area 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 or this report.

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 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 early that day or the day prior. 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; Hwy 10). 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 (Hwy 10). 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 24 (3 – fall and 21 – winter) unique whooping cranes were confirmed during the 43-day monitoring effort. In total, four crane groups were observed (1 – fall and 3 – winter) and each was given a unique crane group ID (e.g. 2016FA01). There were three unique groups (1 – fall and 2 – 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 comprehensive map of all the crane groups as well as maps and aerial photos of each unique crane group observed by ES are shown in Figures 4 – 10.

TABLE 1

CRANE GROUPS AND LOCATIONS

	Date	# of Cranes adult : juv	Group ID #	Use Site #	UTMx	UTMy	Flight Type	See Figure
FALL	11/4/16	2:1	2016FA01	1	514732	4503767	Systematic	5 – 6
Crane Use Days		6						
WINTER	11/12/16	14:2	2016WI01	1	459658	4503768	Systematic	7 – 8
	11/13/16	5:0	2016WI02	2	548616	4515206	Systematic	9 – 10
	11/14/16	5:0	2016WI03	2	548616	4515206	Systematic	
Crane Use Days		47						
Total Crane Use Days		53						

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 53 crane use days during fall and winter surveys (6 – fall and 47 – winter; Table 1). Whooping cranes were observed on 4 of the 43 days of the survey effort (9.3% of the days; Table 1).

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 2015-2016 were used. At that time the population was estimated by the USFWS to be 329 cranes ([See the following web link for source](#)). The 24 individuals observed by this monitoring effort constitute approximately 7.3% of the migratory population using the survey area of the Platte River during the fall/winter migration.

https://www.fws.gov/uploadedFiles/Region_2/NWRS/Zone_1/Aransas-Matagorda_Island_Complex/Aransas/Sections/What_We_Do/Science/Whooping_Crane_Updates_2013/WHCR%20Update%20Winter%202015-2016.pdf

Streamflow and Unobstructed Channel Width at Whooping Crane Use Locations

The Platte River streamflow was above the 31-year and the 75-year medians except for October 13-14 at the Kearney gauging station and October 20-24 at all three stations (Figures 1-3). The discharge ranged from a low of 318 cfs at Overton to a high of 2,290 cfs at Grand Island during the survey period. During periods when whooping cranes were observed, streamflow ranged from 1,880 cfs – 2,170 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)
11/4	Kearney	1,880	2016FA01	2:1	860
11/12	Overton	2,100	2016WI01	14:2	598
11/13	Grand Island	2,100	2016WI02	5:0	568
11/14	Grand Island	2,170	2016WI03	5:0	568

FIGURE 1

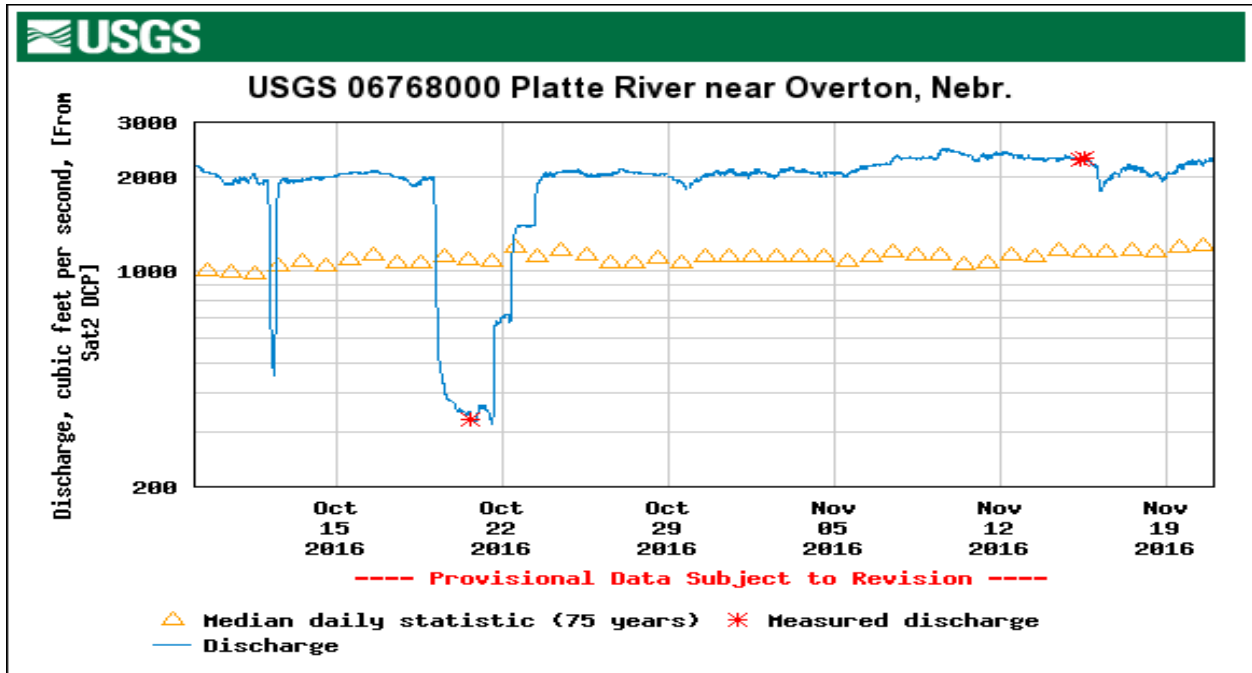


FIGURE 2

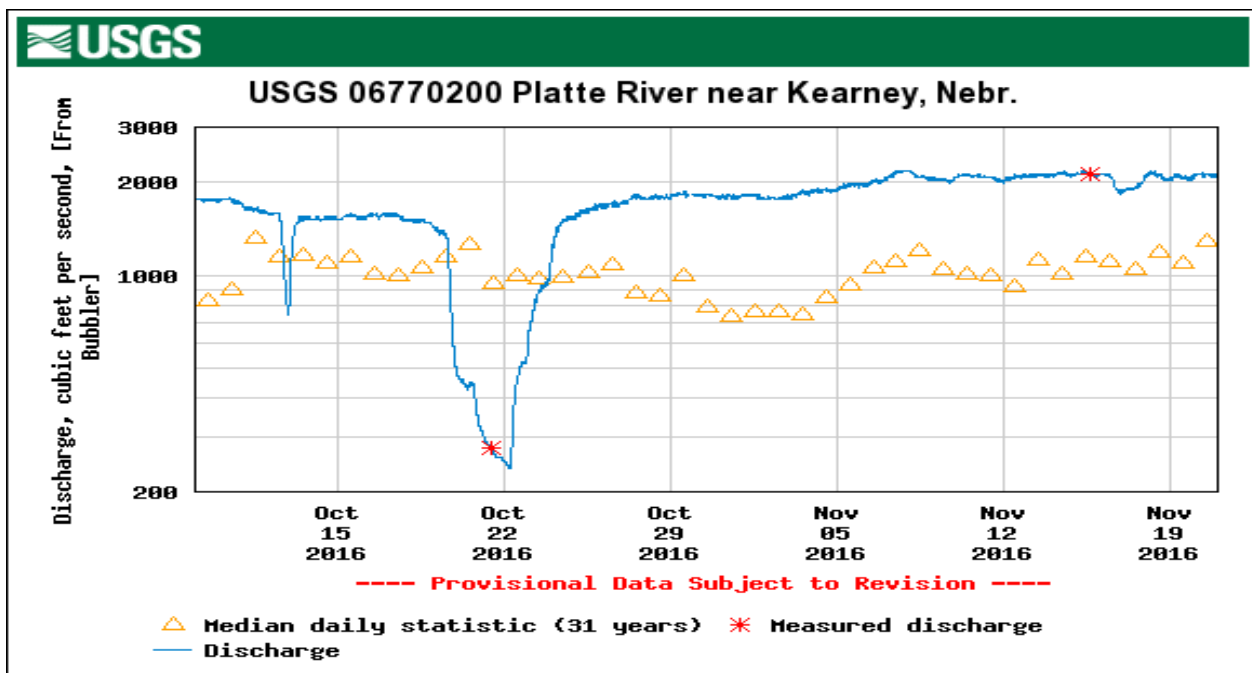
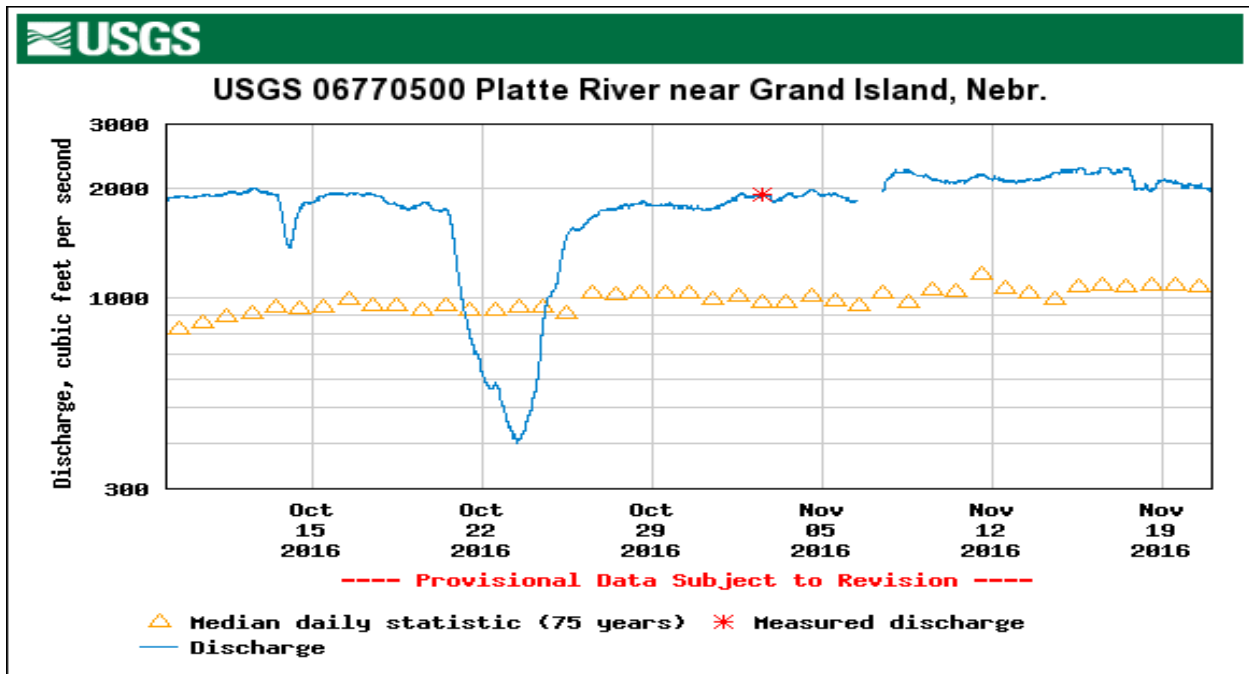


FIGURE 3



USFWS/PRRIP Data Comparison

Table 3 compares the USFWS data (Provided by Matt Rabbe – USFWS whooping crane migration coordinator) to 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.

The USFWS data operates on a “initial sighting” basis of identification, whereas PRRIP assigns a new identification number to a group each day it’s observed, as can be seen with the 5:0 group sighted on 11/13 and 11/14 (Table 3).

TABLE 3

USFWS/PRRIP Data Comparison			
Date	# of WC Ad:Juv	USFWS ID #	PRRIP Group ID #s
11/4	2:1	16B - 14	2016FA01
11/12	14:2	16B - 21	2016WI01
11/13-11/14	5:0	16B - 22	2016WI02 & 03

Search Efforts and Opportunistic Observations

There were no opportunistic sightings of whooping cranes within the survey area during the 43-day monitoring effort.

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.

SURVEY/MONITORING DISTURBANCE

Ecological Solutions staff did not create or observe any incident disturbance of whooping cranes during the survey and monitoring effort.

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 5/10 within the Wetted Channel (50%), 2/5 within Ag - Corn (40%), 1/5 within Grassland - Lowland (20%), and 2/5 within Open pond/pit/lake (40%), for an overall spotting efficiency of 40% (Table 4).

TABLE 4**Decoy Detection Summary**

Decoy #	Date Placed	Easting	Northing	Type	Detected
1	10/11/16	509332.0	4504566.0	Wetted Channel	NO
2	10/19/16	543995.0	4513993.0	Wetted Channel	YES
3	10/19/16	453343.0	4503565.0	Wetted Channel	NO
4	10/24/16	543993.0	4513990.0	Wetted Channel	YES
5	10/24/16	447744.0	4504123.0	Wetted Channel	YES
6	10/26/16	463105.0	4503359.0	Wetted Channel	YES
7	10/26/16	506334.0	4501502.0	Wetted Channel	YES
8	10/27/16	471254.0	4503945.0	Wetted Channel	NO
9	10/31/16	458389.0	4503679.0	Wetted Channel	NO
10	11/1/16	550630.0	4515985.0	Wetted Channel	NO
11	10/11/16	504972.0	4498734.0	Ag - Corn	YES
12	10/18/16	451549.0	4501346.0	Ag - Corn	NO
13	10/18/16	471167.0	4501261.0	Ag - Corn	NO
14	11/2/16	560361.0	4521715.0	Ag - Corn	NO
15	11/3/16	571797.0	4534388.0	Ag - Corn	YES
16	10/14/16	532072.0	4507104.0	Grassland - Lowland	NO
17	10/17/16	460193.0	4500975.0	Grassland - Lowland	NO
18	10/26/16	477137.0	4503688.0	Grassland - Lowland	NO
19	10/31/16	514298.0	4502587.0	Grassland - Lowland	NO
20	11/1/16	459441.0	4500936.0	Grassland - Lowland	YES
21	10/25/16	480135.0	4503096.0	Open pond/pit/lake	YES
22	11/2/16	459087.0	4502056.0	Open pond/pit/lake	NO
23	11/2/16	571036.0	4534842.0	Open pond/pit/lake	NO
24	11/3/16	560332.0	4522599.0	Open pond/pit/lake	YES
25	11/7/16	544277.0	4513731.0	Open pond/pit/lake	NO

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 5). Fifteen flights were cancelled due to inclement weather and 2 due to logistical issues.

TABLE 5

	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 6, all but one of the groups was observed on riverine transects.

TABLE 6
SIGHTING FREQUENCY/TRANSECT

	TRANSECTS			# WC Groups ¹	FREQUENCY	
	COMPLETED	CANCELLED	TOTAL			
FALL	0SE, 0SW ²	50	16	66	1	1.5%
	PWRTE, PWRTW ³	50	16	66	0	0.0%
	WSRT/CSRT, ESRT ⁴	23	9	32	0	0.0%
WINTER	0SE/OSW	17	3	20	3	15%
	PWRTE/PWRTW	17	3	20	0	0.0%
	WSRT/CSRT, ESRT	8	1	9	0	0.0%
OVERALL	0SE, 0SW	67	19	86	4	4.6%
	PWRTE, PWRTW	67	19	86	0	0.0%
	WSRT/CSRT, ESRT	31	10	41	0	0.0%
TOTALS		165	48	213	4	1.9%

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

²Primary Transect (Riverine), (East – 0SE, West – 0SW)

³Primary Return transect, (East – PWRTE, West – PWRTW)

⁴Secondary 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 group locations. See Table 1 for color coding and details.

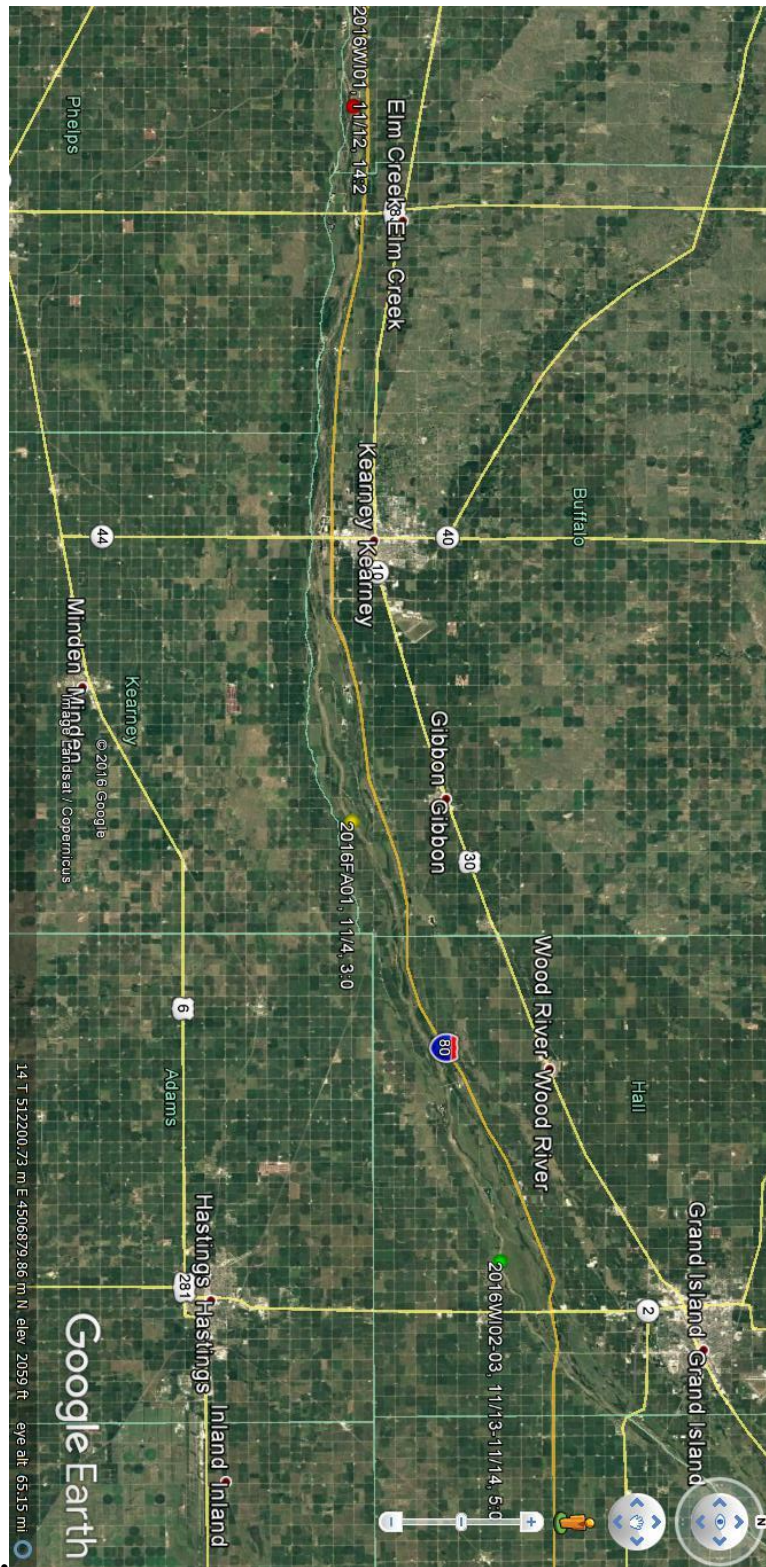


FIGURE 5. Location of 2016FA01 (3:0) fall Use Site 1, observed 11/4/2016.

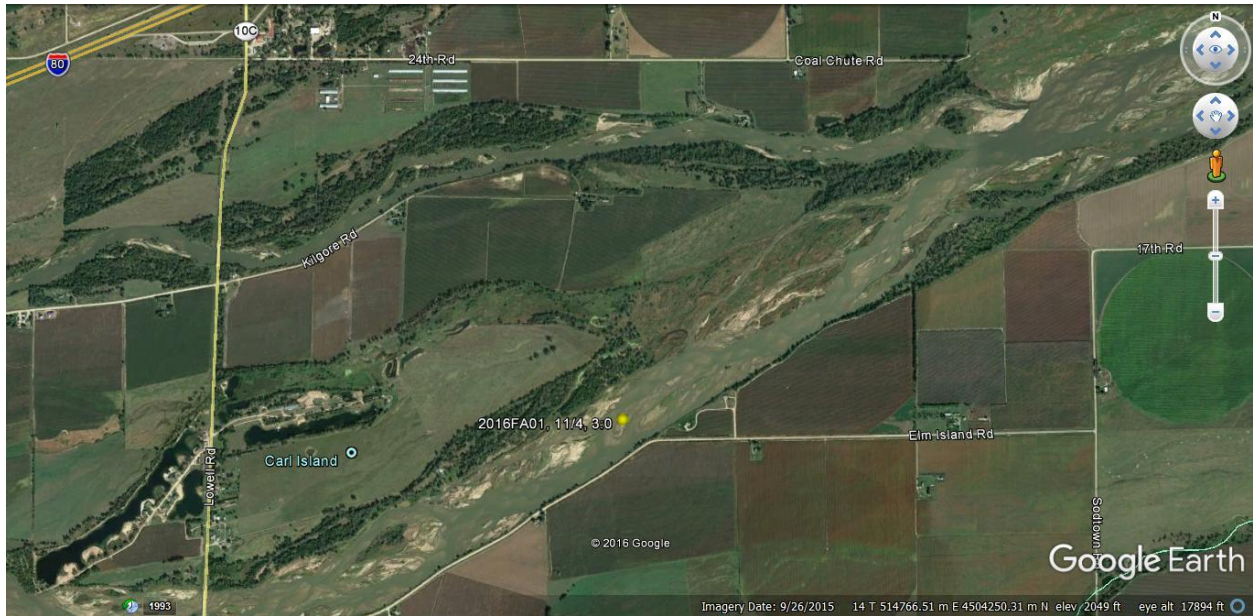


FIGURE 6. Systematic observation of 2016FA01 (3:0) on 11/4/2016. The crane group was in the main channel of the Platte River.



Figure 7. Location of 2016WI01 (14:2) winter Use Site 1, observed 11/12/2016.



FIGURE 8. Systematic observation of 2016WI01 (14:2) on 11/12/2016. The crane group was in the main channel of the Platte River.



FIGURE 9. Location of 2016WI02 – 03 winter Use Site 2 (5:0), observed 11/13/2016 and 11/14/2016.

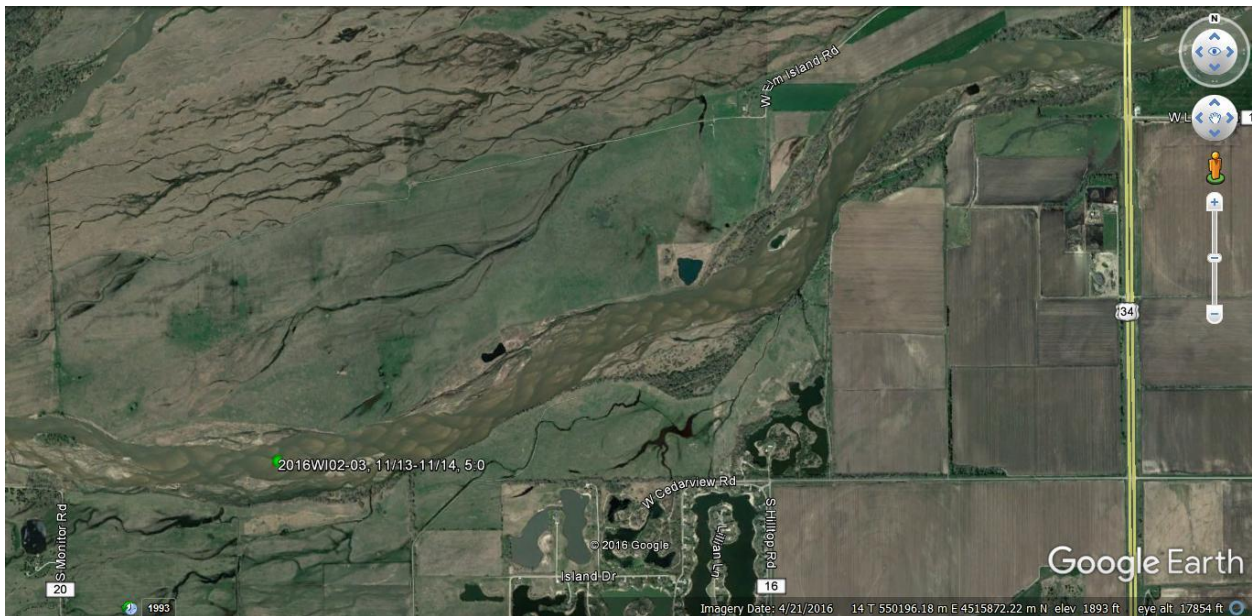


FIGURE 10. Systematic observation of 5:0 group comprised of ID #'s 2016WI02 – 03 on 11/13/2016 – 11/14/2016. The crane group was in the main channel of the Platte River at Use Site 2 both days.

