Implementation of the Whooping Crane Monitoring Protocol
Spring 2013

FINAL REPORT

Prepared by

Gary Lingle
ASSESSMENT **I**MPACT **M**ONITORING
ENVIRONMENTAL CONSULTANTS
45320 Kilgore Road
Gibbon NE 68840

and

Shay Howlin
WESTERN **E**CO**S**YSTEMS **T**ECHNOLOGY, INC.
2003 Central Avenue
Cheyenne, WY 82001

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AIM Environmental Consultants and
Western Ecosystems Technology, Inc.

For
Committees of the
Platte River Recovery Implementation Program

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Summary

The team of Western Ecosystems Technology, Inc. (WEST) and AIM Environmental Consultants implemented the *Whooping Crane Monitoring Protocol - Migrational Habitat Use in the Central Platte River Valley* (version dated 31 May 2011) during the spring 2013 migration season. Only observations made during the survey period (March 21- April 29) are contained in this report. Additional information collected between November 11, 2012 and March 20, 2013 can be found in the winter 2013 report (PRRIP Whooping Crane Monitoring Report – Winter 2013 available at: www.platteriverprogram.org/PubsAndData/Pages/ProgramLibrary.aspx). Fourteen crane groups representing 24 individuals were identified during systematic aerial surveys; some of these groups represent the same individual cranes located on different days. In addition, 3 crane groups representing 3 individuals were located opportunistically. A total of 19 unique individual cranes were located on the central Platte River during the spring 2013 survey period. Following are the detailed methods and results of the seasonal study.

Study Area and Methods

The study area was the Platte River reach between U.S. Highway 283 (near Lexington) and Chapman, Nebraska. This reach was about 90 miles long and included an area extending 3.5 miles either side of the outermost banks of the Platte River. Field work and aerial surveys were conducted from 21 March through 29 April 2013. Observations of Whooping Cranes outside the survey period are not included herein. Data sheets were provided by the PRRIP Executive Director's Office and all data were entered into a web-based Microsoft SharePoint database developed and implemented for the PRRIP by Riverside Technology, Inc.

Two air services were contracted and aerial surveys were conducted along specified routes near sunrise from 21 March through 29 April as weather permitted. Flights were initiated no earlier than 30 minutes before sunrise and typically were completed within 2 hours. Start times were delayed when weather/visibility conditions dictated. Flights were cancelled due to unsafe weather or mechanical problems. Cessna 172's were equipped with GPS units and each had two observers to conduct the surveys. Waypoints for each survey route were programmed

into the GPS units onboard the aircraft. Surveys were flown at an altitude of 750' and at a speed of about 100 mph.

The study area was divided into two legs. The east leg surveyed the Platte River reach between Chapman and the Minden (Highway 10) bridges and the west leg surveyed from the Minden to the Lexington (Highway 283) bridges. Each survey began flying upstream (east to west) along the south side of the main river channel with both observers looking out the right side of the aircraft. This provided optimum light conditions such that observers looked away from the rising sun thereby minimizing glare off reflective surfaces. Start points were alternated for each leg to address the concern that one end of the river transect would always be flown earlier than the other end. For example, on the east leg, day one began the survey at Chapman, flew the river west to Minden then flew a predetermined transect back to Chapman. Day two began at Wood River, flew the river to Minden, returned along a predetermined transect back to Chapman, then flew the rest of the river transect from Chapman to Wood River. The start points for the west leg were Minden and Odessa bridges. Day one began at Minden, flew the river west to Lexington then flew a predetermined transect back to Minden. Day two began at Odessa, flew the river to Lexington, returned along a predetermined transect back to Minden, then flew the rest of the river transect from Minden to Odessa. When the initial portion of the river transect was completed, one of 7 possible return transects was flown with observers looking out opposites sides of the aircraft: transects along the centerline of the main channel and 1, 2, and 3 miles north or south of the river respectively were flown with observers looking out opposite sides of the aircraft.

Prior to the flight, the air crew was notified when Whooping Cranes were reported by the public to be within the survey area. Four ground observers were stationed along the survey routes. Communication between the ground observers and the aircraft was accomplished through the use of two-way radios. In the event of a possible Whooping Crane sighting by the aircrew, the ground person nearest the sighting was contacted and immediately dispatched to the location in an effort to confirm the identity of the white object. Efforts were made to photograph Whooping Cranes from the air using Nikon D90 digital cameras. In addition, a GPS reading of the location was taken by the air crew.

If a Whooping Crane was located by ground personnel, habitat use and activity monitoring commenced. Activity monitoring of the Whooping Crane or of a "focus" bird when more than one individual was present, was recorded every 15 minutes as one of the following categories: courtship, preening, defensive, feeding, alert, resting, or other activity as defined by the observer. These observations were continuous until the group was either lost from view or went to roost for the night. If a group was lost, observers spent a minimum of 2 hours attempting to re-locate the group. Each Whooping Crane sighting was assigned a unique number and later compared with the U.S. Fish and Wildlife Service's (USFWS) sighting records in Grand Island.

Whooping Crane movements, behavior, and diurnal habitat use were recorded when possible. All monitoring activities followed USFWS and Nebraska Game & Parks Commission guidelines to avoid disturbing the cranes. Martha Tacha, USFWS Coordinator for the Cooperative Whooping Crane Tracking Project, provided information on the latest incidental

Whooping Crane sighting reports. Landowner permission was obtained prior to entering any private property.

Whooping Crane decoys were placed at 10 riverine, 10 cornfield, and 10 lowland grassland random locations by personnel from the Executive Director's Office for the purposes of determining aerial survey detection rates. The air crew did not know when or where the decoys were placed. Decoys were placed prior to the flights and only ground crew personnel were notified of their location. Observations of Whooping Crane decoys by the aircrew were reported to the ground crew for confirmation.

Topographic profiles were measured at Whooping Crane roost sites using a Trimble GeoXH6000 GPS. Three parallel transects 25m apart were established perpendicular to the general flow of the river at each site such that the middle transect crossed the defined crane use location. In some instances one set of transects was measured to represent multiple use locations after discussions with the Executive Director's office. End points were determined when an obstruction greater than 1.5 m in height was encountered such that it formed a visual barrier to a crane. Photographs were taken from the roost site showing conditions upstream, downstream, left bank, and right bank. A laser level was used to obtain relative riverbed and water surface elevation data. Stream flow data were collected from the U.S. Geological Survey (USGS) gauging stations located at Overton, Kearney, and Grand Island. Leica laser rangefinders were used to measure the length of sandbars and distance to visual obstructions >1.5m above the water surface. When a crane group or groups used a roost site for multiple days, a single profile was collected to represent that site.

Results

Summary of Observations

Table 1 depicts AIM's assigned crane group identification numbers along with the Use Site ID when applicable, date, number of cranes, location at the time of the initial sighting, and the type of sighting. Multiple identification numbers may represent a single crane group (see Table 9).

Table 1. Crane Group ID numbers and location of initial observations of each group.

ID # 2013SP	Use Site ID*	Date	# of birds	UTMx	UTMy	Type of Sighting
1	12	21-Mar	1	542150	4513087	Systematic
2	13	22-Mar	1	543284	4513671	Systematic
3	NA	23-Mar	1	558352	4519474	Opportunistic
4	NA	23-Mar	1	544963	4505018	Opportunistic
5	20, 21, 24	24-Mar	1	558656	4522589	Systematic
6	14	24-Mar	1	543974	4513999	Systematic
7	22	25-Mar	1	559077	4522918	Systematic
8	19	27-Mar	1	548727	4515221	Systematic

9	12	29-Mar	1	542145	4513087	Systematic
10	7	29-Mar	2	532877	4510201	Systematic
11	2	31-Mar	2:1	482705	4499863	Systematic
12	7	1-Apr	2	532478	4508996	Systematic
13	3	2-Apr	4:1	497259	4501030	Systematic
14	7	2-Apr	2	532805	4510187	Systematic
15	4	2-Apr	2	515854	4504498	Systematic
16	6	12-Apr	1	529455	4508438	Systematic
17	1	12-Apr	1	480357	4499922	Opportunistic
18	5	13-Apr	1	529388	4508407	Systematic
19	18	11-Apr	1	541200	4515063	Opportunistic
20	8, 23, 25	5-7 Apr	4:1	516478	4507160	GPS only

* Use sites 9-11 and 15-17 were observed during the winter monitoring efforts and thus are not included in this report.

Aerial Survey.--

CONFIRMED WHOOPING CRANE SIGHTINGS-

A total of 14 Whooping Crane groups totaling 24 individuals was located during aerial surveys. There was a minimum of 14 individuals detected considering that some of the crane groups were seen on more than one occasion. These 14 crane groups were monitored for 12 days.

Of a possible 40 morning flights scheduled per leg, both legs flew 30 (75%). About 5,400 survey miles were flown. Adverse weather resulted in flight cancellations or delayed start times. Facility issues in Grand Island also delayed flights times. Of the 60 total flights (30 for each leg), three flights were delayed over 30 minutes, 1 flight was delayed 25-30 minutes, 4 flights were delayed 20-25 minutes, 6 flights were delayed 15-20 minutes, 4 flights were delayed 10-15 minutes, 13 flights were delayed 5-10 minutes, and the remaining 29 flights were not delayed.

INDEX OF USE-

We completed 120 (75%) aerial survey transects out of 160 transects scheduled (2 transects per flight). Fourteen Whooping Crane sightings were made on these transects. This resulted in an index of use (frequency of occurrence) of 0.12 sightings per transect. Twelve sightings occurred on the East Leg (0SE) and 2 occurred on the West Leg (0SW).

OPPORTUNISTIC FLIGHTS-

We conducted 7 opportunistic flights that totaled about 0.9 hours. Four opportunistic Whooping Crane sightings (ID# 07, 11, 13, 16) occurred when the plane deviated from the systematic survey's return transect at the request of the ground observer to confirm the presence of a previously detected crane group. This was done to assist the ground crew in determining

whether to initiate a ground search during those instances when the cranes were not visible from the ground. These flights did not result in locating additional unique crane groups. No additional flights were deployed at other times of the day.

Opportunistic Locates.—

Reports received from the public were forwarded to AIM for a follow-up. Those reports are summarized below.

On March 25, 2 separate reports were received. One was of 2 white birds northeast of the I-80 Elm Creek exit. A ground search of the area around Elm Creek and I-80 confirmed 1 leucistic Sandhill Crane in the vicinity. The second was of 6 Whooping Cranes flying past Audubon's tower blind in the evening. No action was taken on that report as the birds were flying.

On April 5, David Baasch received a text message with a photo of 2 Whooping Cranes taken at 12:37 in a cornfield near 150th and Denman rds. A ground search was conducted beginning at 3:10 and the cornfield had been disked since the photo was taken. No Whooping Cranes were observed.

On April 6, 5 Whooping Cranes were reported in the vicinity of Gibbon-Wood River. A ground search was not conducted due to the timing of the report and the lack of specific information. The aerial survey flown the next morning did not reveal any Whooping Cranes. A Whooper Watch hotline report of this group was also recorded but the recording was not heard until after the birds had migrated from the area on April 7. After the birds left the study area, it was determined that one of the cranes was radio-marked. This group was undetected by AIM personnel.

On April 7, 1 Whooping Crane was reported in flight near Newark 2 miles east of Ft. Kearny State Historical Park. The report was not received until April 8 therefore no action was taken.

On April 8-16, a radio-marked Whooping Crane group was detected via telemetry using the southwest portion of the study area south of Lexington, NE. No public reports were filed with USFWS so crane group composition is unknown. Dave Baasch failed to inform AIM once the group left the study area so no profile data was collected at a wetland roost location (UTMx – 438821; UTMy - 4503010) that was used during the early morning hours on April 16.

On April 11, 2 separate reports were received. One Whooping Crane was photographed that morning in the north channel of the Platte River 1 mile west of the Alda bridge. It was first detected the evening of April 10. Another was of a single Whooping Crane seen in flight by Jim Jenniges about 3:00 PM on Cottonwood Ranch west of Elm Creek. Ground searches were conducted in both instances and no Whooping Cranes were found.

On April 12, Greg Wright received a Whooper Watch report of a single Whooping Crane southeast of 747 and U roads in Phelps County. A ground search confirmed a Whooping Crane

at that location. It migrated that morning. It was learned later that this bird was radioed and roosted 0.3 mi east of the Odessa bridge.

On April 15, 2 reports were received. Four white birds were reported northeast of Odessa along Highway 30. A ground search confirmed Snow Geese at that location. Greg Wright observed a white crane west of the Alda bridge while conducting his weekly aerial Sandhill Crane survey. Great Egrets were seen in that vicinity on April 12. No action was taken since AIM personnel did not observe a Whooping Crane at that location while conducting their morning survey.

On April 24, 2 Whooping Cranes were reported in flight southwest of Chapman. They were seen by a pilot while he was flying his aircraft. No action was taken.

In summary, a total of 2 crane groups comprising a minimum of 2 individuals were located opportunistically based on public reports. A radio-marked group (Crane Group 10) was detected during a systematic aerial survey and a single radio-marked adult (Crane Group 17) was opportunistically sighted by the public; both Whooping Crane groups were monitored by AIM. A total of 2 radio-marked crane groups comprised of a minimum of 6 individuals (Crane Group 20 and a ?:1 group) were not detected by AIM during the spring monitoring season.

Use-Site Characteristics, Diurnal Movements, and Activity.--

FLOW-

Streamflow measured at the USGS gauging stations located near Grand Island, Kearney, and Overton was similar to the median streamflow for each site during the survey (Figures 1-3). Note all flow data are provisional and subject to revision. Table 2 depicts the minimum and maximum values for unit (instantaneous) flows at each station during the survey period.

Table 2. Discharge values (cfs) at USGS gauging stations (provisional data).

	Overton	**Kearney**	**Grand Island**
Minimum	285	200	390
Date	4/6	4/1	3/24
Maximum	3910	4080	3840
Date	4/12,13	4/14	4/15

The streamflow when Whooping Cranes were observed on the river and when roost channel profiles were measured are shown in Table 3.

Table 3. Flow conditions during Whooping Crane use and channel profile measurements. (Discharge is at the Platte River gauging station near Grand Island).

UseSiteID	Use_Date	Date_Measured	Discharge Use	Discharge Measured
1	12-Apr	26-Apr	1610	2150
2	31-Mar	6-Apr	732	1550
3	2-Apr	4-Apr	577	910
4	2-Apr	4-Apr	577	833
5	13-Apr	29 Apr	1880	1420
6	12-Apr	29-Apr	1480	1420
7	3/29, 4/1,2	4-Apr	974	991
8	6-Apr	29-Apr	1730	1420
12	3/15,21,29	4-Apr	991	974
13	3/19,22	5-Apr	974	1420
14	3/16,24	5-Apr	818	1480
18	11-Apr	19-Apr	2340	1920
19	27-Mar	3-Apr	1200	542
20	24-Mar	30-Apr	400	1950
21	24-Mar	3-Apr	390	553
22	25-Mar	3-Apr	422	553
23	6-Apr	25-Apr	NA*	NA*
24	24-Mar	4/30	400	1950

*This was an open water pit site.

WETLAND USE SITES-

River channel profiles were surveyed (Figures 4-11) at 14 Whooping Crane use sites and use site characteristics at 3 additional riverine locations. One sandpit was also surveyed. Of the 19 sites identified, 4 were based on GPS locations (access was denied at one of these locations) from radioed cranes, 3 were the result of reports from the public, and 12 were the result of aerial surveys completed as part of this monitoring (Figures 12-19). A total of 1192 stations from 45 transects were surveyed.

DISTANCE TO VISUAL OBSTRUCTION, SUBSTRATE, AND WATER DEPTH-

Visual obstructions from Whooping Crane use sites are given in Table 4. Substrate was characterized as fine sand to large gravel. The average water depth at Whooping Crane roost locations was -1.7 $\pm$ 2.2 inches.

Table 4. Location, visual obstruction distance (yds), and substrate at Whooping Crane use sites.

Use Site ID	UTMx	UTMy	Roost Depth (in)	VO Upstream Distance	VO Right Distance	VO Downstream Distance	VO Left Distance	Fine Sand (%)	Small Gravel (%)	Coarse Sand (%)	Large Gravel (%)
1	478831	4501512	3.6	46	54	37	96	10	40	0	50
2	483153	4501407	1.7	47	53	79	63	50	20	30	0
3	497259	4501030	8.5	70	35	43	62	100	0	0	0
4	515854	4504498	3.6	147	104	120	62	100	0	0	0
5	529388	4508407	NA	121	174	139	86	80	0	20	0
6	529455	4508438	4.2	81	222	94	61	80	0	20	0
7	532805	4510187	0.4	167	124	135	80	30	30	40	0
8	533749	4510547	0.6	131	90	100	183	80	0	20	0
12	542182	4513112	0.4	163	112	203	101	100	0	0	0
13	543218	4513676	0.6	77	99	155	107	50	10	40	0
14	543974	4513999	0.3	170	71	202	153	80	0	20	0
18	541200	4515063	.03	47	106	29	24	90	10	0	0
19	548815	4515289	0.3	237	124	87	42	30	10	30	0
20	557775	4520793	NA	62	21	33	93	70	0	30	0
21	558656	4522589	0.2	86	62	93	49	90	10	0	0
22	559127	4522983	0.1	136	106	137	69	90	0	10	0
23	516478	4507160	0.9	85	566	116	136	100	0	0	0
24	557820	4520850	NA	24	18	14	119	75	0	25	0

UNOBSTRUCTED WIDTH-

Table 5 depicts unobstructed width as measured along the middle transect at the measured riverine use locations.

Table 5. Unobstructed width at use sites (units in feet).

Use site	Profile location	Unobstructed width (ft)
1	0.3 east of Odessa (GPS)	446
2	3 mi east of Odessa	344
3	Wyoming tract	183
4	Dippel	465
5	Mangelsen's west use site	780
6	Mangelsen's east use site	848
7	Westering	684
8	Leaman/TNC (GPS)	878
12	Studnicka	766

13	Werner w (Wild Rose West profile)		690
14	Werner e (Wild Rose Middle profile)		785
18	1 mi w Alda north channel (Meier)		386
19	Mormon Island		506
20	Hornaday site upstream		342
21	GI well west profile		340
22	GI well east profile		585
23	Hemp. Pond - I80		694
24	Hornaday site downstream		417
		mean	563
		STDEV	208
		n	18

DIURNAL USE LOCATIONS-

Whooping Crane movements ranged within 4.8 miles of nocturnal roost sites. We documented 40 diurnal use locations during 12 days of observation (Figures 12-19, Table 6). These locations were sites where activity data was collected or where the cranes were visible from the ground during daylight hours.

Table 6. Whooping Crane diurnal use locations.

Use Date	Crane Group ID	Use Site ID	UTMx	UTMy	Habitat
3/21/2013	2013SP01	NA	542297	4512065	Ag - Corn
3/22/2013	2013SP02	12	543284	4513671	Wetted Channel
3/23/2013	2013SP04	NA	558352	4519474	Ag - Corn
3/23/2013	2013SP03	NA	544963	4505018	Ag - Corn
3/24/2013	2013SP05	NA	556800	4519664	Ag - Corn
3/24/2013	2013SP05	NA	557495	4519615	Ag - Corn
3/24/2013	2013SP06	NA	549618	4507440	Ag - Corn
3/24/2013	2013SP06	NA	547911	4514336	Grassland - Lowland
3/24/2013	2013SP06	14	543727	4513947	Wetted Channel
3/24/2013	2013SP06	NA	547190	4508752	Ag - Corn
3/24/2013	2013SP06	NA	548477	4507347	Ag - Corn
3/27/2013	2013SP08	NA	553347	4512542	Ag - Corn
3/27/2013	2013SP08	NA	553298	4512538	Ag - Barren
3/29/2013	2013SP09	NA	540580	4508203	Ag - Corn
3/29/2013	2013SP09	12	542182	4513112	Wetted Channel
3/31/2013	2013SP11	NA	482705	4499863	Ag - Corn
4/1/2013	2013SP12	NA	532478	4508996	Ag - Corn
4/1/2013	2013SP12	7	532805	4510187	Wetted Channel

4/2/2013	2013SP14	7	532829	4510171	Wetted Channel
4/2/2013	2013SP14	NA	532699	4513891	Ag - Corn
4/12/2013	2013SP16	NA	526201	4503380	Ag - Corn
4/12/2013	2013SP16	NA	525910	4502551	Ag - Corn
4/12/2013	2013SP16	NA	525744	4503384	Ag - Corn
4/12/2013	2013SP17	NA	480357	4499922	Ag - Corn
4/13/2013	2013SP18	NA	526133	4502490	Ag - Corn
4/13/2013	2013SP18	NA	525782	4503289	Ag - Soy Bean
3/21/2013	2013SP01	13	542150	4513087	Wetted Channel
3/24/2013	2013SP05	21	558656	4522589	Wetted Channel
3/24/2013	2013SP06	14	543727	4513947	Wetted Channel
3/25/2013	2013SP07	22	559077	4522918	Wetted Channel
3/27/2013	2013SP08	19	548727	4515221	Wetted Channel
3/29/2013	2013SP09	12	542182	4513112	Wetted Channel
3/29/2013	2013SP10	7	532877	4510201	Wetted Channel
3/31/2013	2013SP11	NA	482705	4499863	Ag - Corn
4/1/2013	2013SP12	7	532805	4510187	Wetted Channel
4/2/2013	2013SP13	3	497259	4501030	Wetted Channel
4/2/2013	2013SP14	7	532829	4510171	Wetted Channel
4/2/2013	2013SP15	4	515840	4504506	Wetted Channel
4/12/2013	2013SP16	6	529455	4508438	Wetted Channel
4/13/2013	2013SP18	5	529388	4508407	Wetted Channel

LAND-COVER CLASS-

Ag-Corn, Wetted Channel, Ag-Barren, Ag-Soybeans, and Lowland Grassland were the cover-types used by Whooping Cranes during the day. Eighteen locations were in corn, 19 were in wetted channel (includes aerial sightings), and 1 each was in barren, soybeans, and lowland grassland. Nocturnal roost locations were primarily in Wetted Channel and 1 was in an Open Water Pit.

ACTIVITY-

About 72 hours of continuous and instantaneous use (time budget) data of Whooping Cranes was collected by ground personnel during 12 days of observation. Sixty-five percent (47.2 hrs) of the observations were in corn, 29% (20.5 hrs) were in wetted channel, 3% (1.6 hrs) were in barren, 2% (1.5 hrs) were in soybeans, and 1% (0.3 hrs) was in lowland grassland (Table 7). We recorded 290 data points of activity (time budget). The breakdown of activity within each habitat type is depicted in Table 8. Feeding was the most common activity observed in all of the habitats combined.

Table 7. Count of instant points by habitat.

	N	Hours	Percent
Ag - Barren	8	1.6	3%
Ag - Corn	189	42.2	65%
Ag - Soy Bean	6	1.0	2%
Grassland - Lowland	3	0.3	1%
Wetted Channel	84	20.5	29%

Table 8. Whooping Crane activity by habitat.

Habitat	Activity	# of Instant Points	Total Instant Points	Percent
Ag - Barren	Feeding	3	8	38%
Ag - Barren	ND*	1	8	13%
Ag - Barren	Preening	1	8	13%
Ag - Barren	Resting	3	8	38%
Ag - Corn	Alert	13	189	7%
Ag - Corn	Feeding	141	189	75%
Ag - Corn	ND*	21	189	11%
Ag - Corn	Preening	2	189	1%
Ag - Corn	Resting	12	189	6%
Ag - Soy Bean	Feeding	4	6	67%
Ag - Soy Bean	ND*	2	6	33%
Grassland - Lowland	Defensive	2	3	67%
Grassland - Lowland	ND*	1	3	33%
Wetted Channel	Alert	3	84	4%
Wetted Channel	Feeding	29	84	35%
Wetted Channel	ND*	21	84	25%
Wetted Channel	Preening	6	84	7%
Wetted Channel	Resting	25	84	30%

*ND= no data; bird out of view

Search Effort.--

Ground searches were initiated on 47 occasions. A total of 55.1 hours was expended in this effort and 1,360 miles were driven. Search duration extended from 0.2 to 3.25 hours. Whooping Cranes were found on 15 (32%) occasions.

Crane-Use Days.--

Crane-use days were calculated by multiplying the number of Whooping Cranes within a crane group by the number of days present. For this calculation, we assumed that a Whooping Crane observed during the morning aerial survey was present at some point the previous day (i.e. the cranes arrived in late afternoon/early evening of the previous day to roost within the study area). Whooping Cranes were believed to be present in the study area a minimum of 17 (42%) of the 40 days of the survey. We documented the presence of 20 crane groups that contained a minimum of 19 (17:2) individuals, this included the 14 crane groups detected during aerial surveys and 6 identified incidentally. Totals do not include the radioed group (2013SP20) that was undetected. A minimum of 48 crane-use days was recorded (Table 9). Again these data reflect use only during the survey period of March 21 through April 29.

Table 9. Whooping Crane dates of occurrence and crane-use days.

Crane Group 2013SP	Number of Cranes (ad:juv)	Dates of Occurrence	# of days present	Crane-Use Days
01-03,06,08-09	1:0	March 21-24,27-29	8	8
04,05,07	1:0	March 23-25	4	4
10	2:0	March 28-29	2	2
12,14	2:0	March 31- April 2	3	6
11	2:1	March 30-31	2	6
13	4:1	April 1-2	2	10
15	2:0	April 1-2	2	4
16,18	1:0	April 11-13	3	3
17	1:0	April 11-13	3	3
19	1:0	April 10-11	2	2
20*	4:1	April 5-7	3	15
TOTAL**	17:2	March 21- April 13	17	48

* Undetected radioed group.
** Total does not include undetected radioed group.

Program ID and U.S. Fish & Wildlife Service ID Comparisons.--

Table 10 compares the Program numbering system with the USFWS database (Martha Tacha, personal communication). The USFWS numbering identified twelve groups of Whooping Cranes present in the study area during the survey including 1 undetected radioed group that was reported by the public. Note that GPS locations were not assigned a USFWS Crane ID unless they were reported by the public.

Table 10. Comparison of Program Crane ID and USFWS Crane ID.

Program Crane ID (Prefix 2013SP)	Program Name	USFWS Crane ID (Prefix 13A)	Dates of Occurrence	# of cranes
01-03,06,08-09	Wild Rose single	05	March 21-29	1:0
04-05,07	Shoemaker I single	09	March 23-25	1:0
10	Radioed pair	70	March 29	2:0
11	Odessa family	19	March 31	2:1
12,14	Westering pair	24	April 1-2	2:0
13	Wyoming group	25	April 2	4:1
15	Dippel pair	23	April 2	2:0
Jim Jenniges report	Cottonwood single	48	April 11	1:0
16,18	Mangelsen single	50	April 12-13	1:0
17	Odessa single	49	April 12	1:0
19	Meier single	45	March 10-11	1:0
20	Undetected radio	31	April 5-7	4:1

Radio-marked Whooping Cranes and Platte River Use.—

About 35 GPS radios attached to Whooping Cranes were active prior to the 2013 spring migration.

Analyses of Whooping Crane survey data collected by U.S. Fish and Wildlife biologists at Aransas National Wildlife Refuge reported a population size of 267 individuals (254 within the survey area and 13 outside the survey area) for winter 2011–2012 and 279 individuals (257 within the survey area and 22 outside the survey area) for winter 2012–2013 (http://www.fws.gov/nwrs/threecolumn.aspx?id=2147512080). These estimates were calculated from survey results from Whooping Crane abundance surveys involving survey methodology that may not be directly comparable to past population estimates. Table 11 depicts the percent of the population observed stopping within the study area on the Platte River. Note that the radio-marked groups (2013SP20 and the group south of Lexington only detected via telemetry) not detected by AIM personnel were not included in this estimate.

Table 11. A comparison of the Whooping Crane population size and the percent of the population stopping on the Platte River.

		SPRING 2013	
Year	WC Pop January 2013	# Platte	% Using Platte
2013	279	19	6.8

Searcher Efficiency Trials.—

Whooping Crane decoys were placed at 30 locations between March 26 and April 28 (Table 12). The air observers detected a decoy at 5 (50%) riverine, 0 (0%) corn, and 2 (20%) grassland sites for an overall detectability rate of 23%.

Table 12. Random locations of decoys for detectability trials.

Decoy #	Date	Leg	X	Y	Detected	Habitat
1	29-Mar	West	496425	4500506	No	River
2	5-Apr	West	502892	4501292	Yes	River
3	12-Apr	West	500293	4501096	No	River
4	13-Apr	East	506010	4504211	No	River
5	19-Apr	West	459916	4503823	Yes	River
6	20-Apr	East	538648	4511326	No	River
7	21-Apr	East	507402	4501794	Yes	River
8	25-Apr	East	557189	4520331	Yes	River
9	25-Apr	West	474312	4503062	No	River
10	28-Apr	East	569587	4533750	Yes	River
11	3-Apr	East	504640	4502061	No	Corn
12	4-Apr	East	563928	4527828	No	Corn
13	4-Apr	West	503335	4499375	No	Corn
14	13-Apr	East	524316	4509044	No	Corn
15	14-Apr	East	526294	4506435	No	Corn
16	14-Apr	West	475969	4501103	No	Corn
17	23-Apr	West	447866	4506106	No	Corn
18	24-Apr	East	533476	4509790	No	Corn
19	24-Apr	West	500462	4500149	No	Corn
20	24-Apr	West	441411	4503782	No	Corn
21	26-Mar	East	545480	4515570	No	Grassland
22	27-Mar	East	513285	4502297	Yes	Grassland
23	3-Apr	West	486209	4503293	No	Grassland
24	3-Apr	East	511909	4504783	No	Grassland
25	4-Apr	West	497461	4500939	No	Grassland
26	13-Apr	West	478804	4503512	Yes	Grassland
27	14-Apr	West	460655	4502169	No	Grassland
28	14-Apr	East	506287	4500910	No	Grassland
29	20-Apr	East	540767	4518484	No	Grassland
30	23-Apr	West	488152	4502557	No	Grassland

Incidental Take.—

The USFWS requested 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-

AIM's monitoring effort did not result in any crippling or lethal take of Whooping Cranes this season.

HARASSMENT-

AIM and Program personnel did not observe or engage in any activity that could be construed as "harassment" as defined by USFWS.

PUBLIC DISTURBANCE-

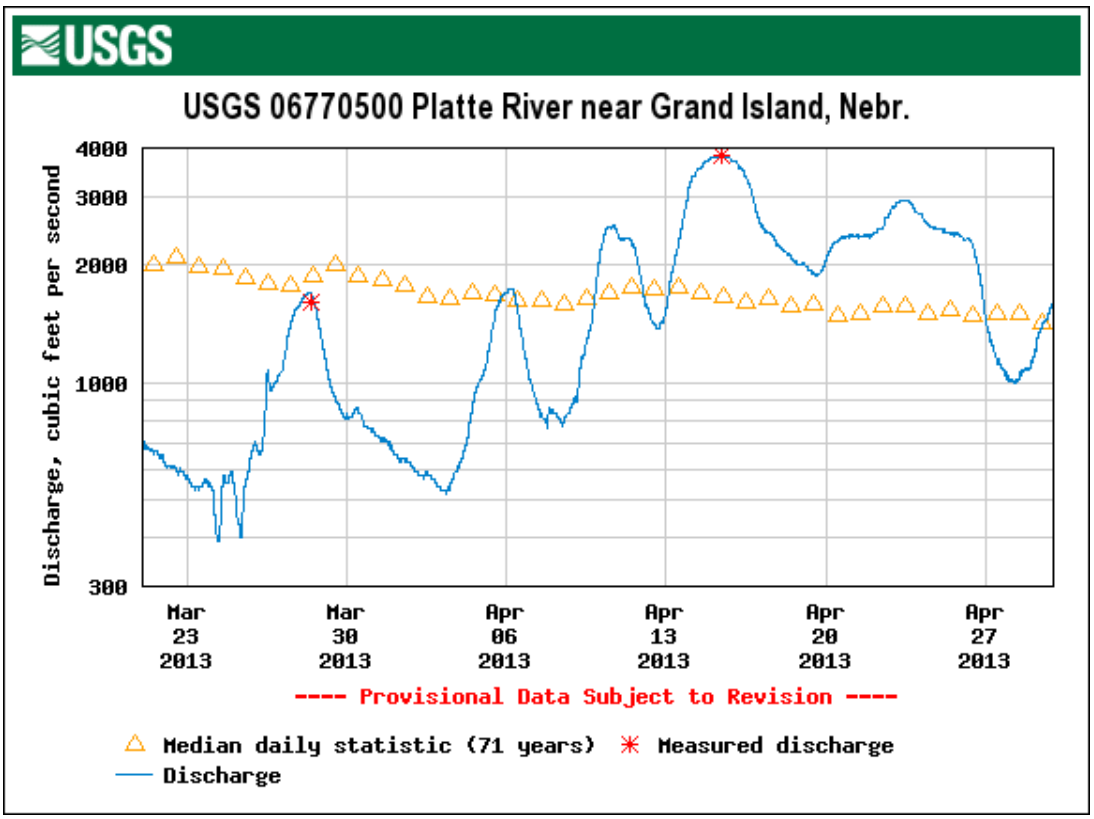
AIM personnel did not observe any public disturbance of Whooping Cranes this season.

Supplements

QAQC of the database was completed by AIM.

Original Data Sheets

Figure 1. Platte River discharge (cfs) and gage height at Grand Island.



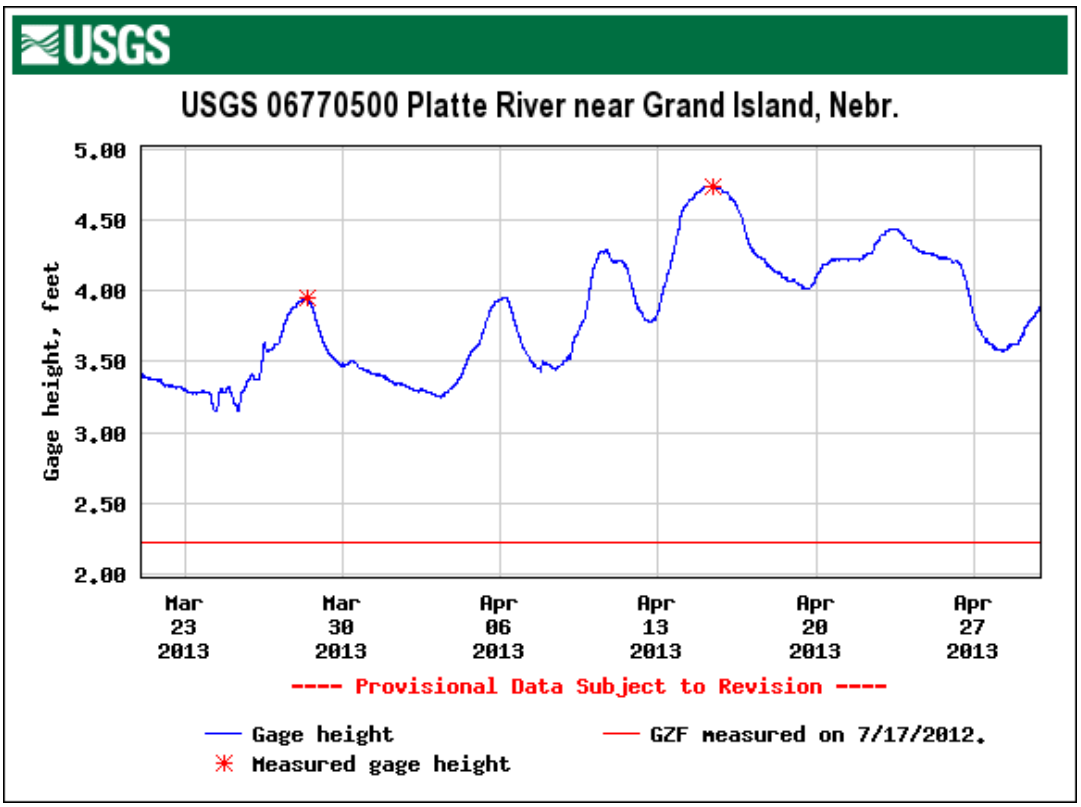
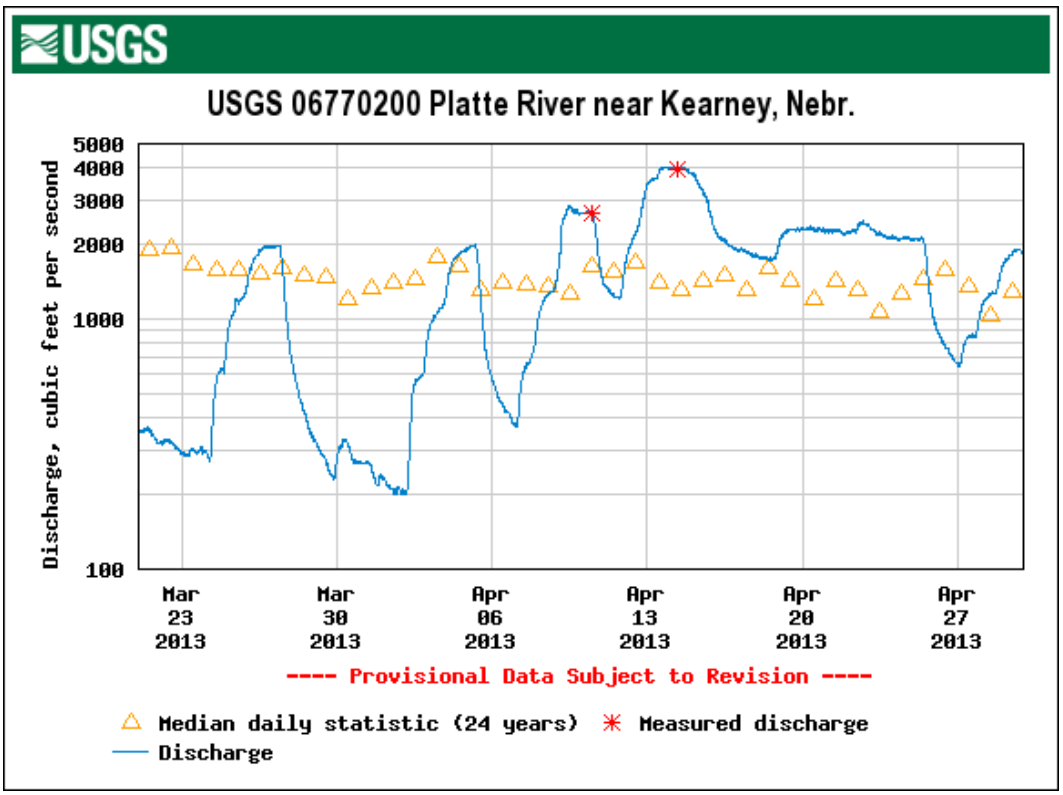


Figure 2. Platte River discharge (cfs) at Kearney.



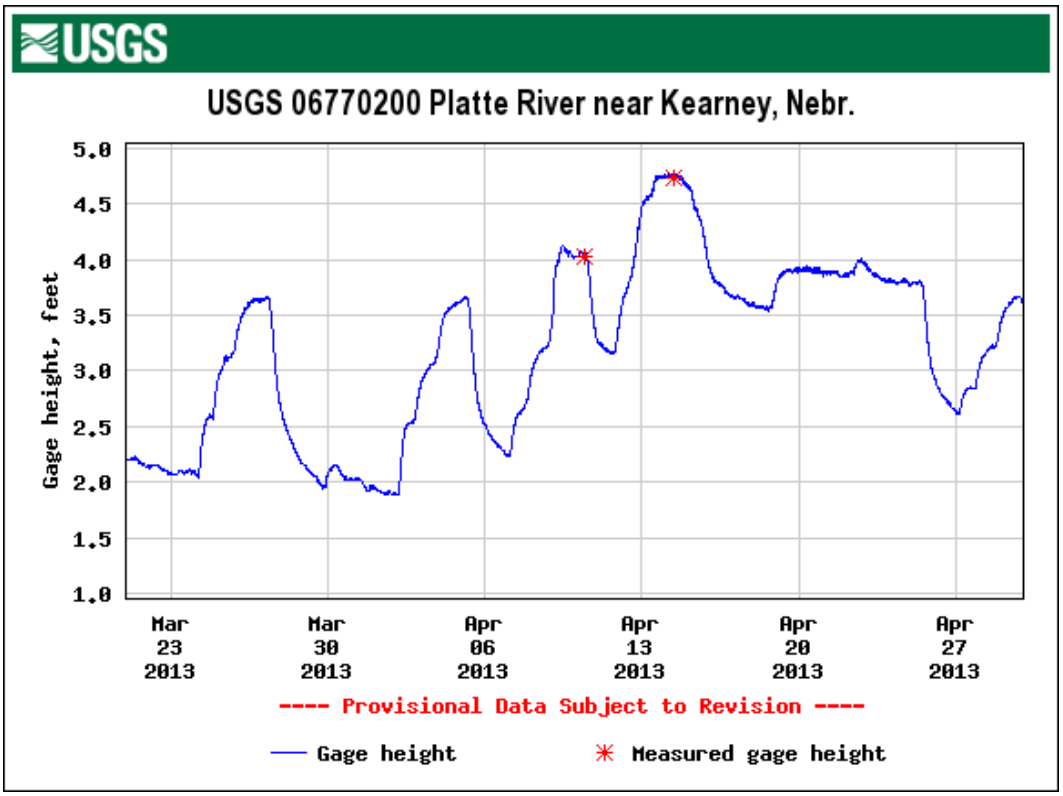
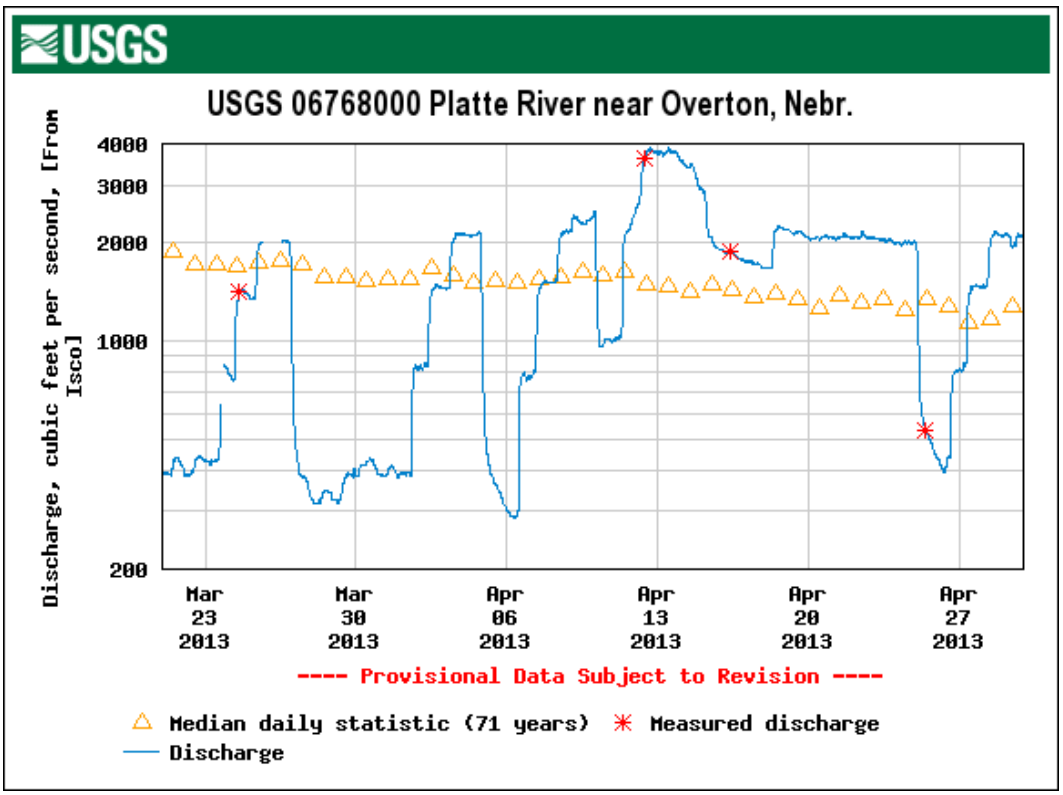


Figure 3. Platte River discharge (cfs) at Overton.



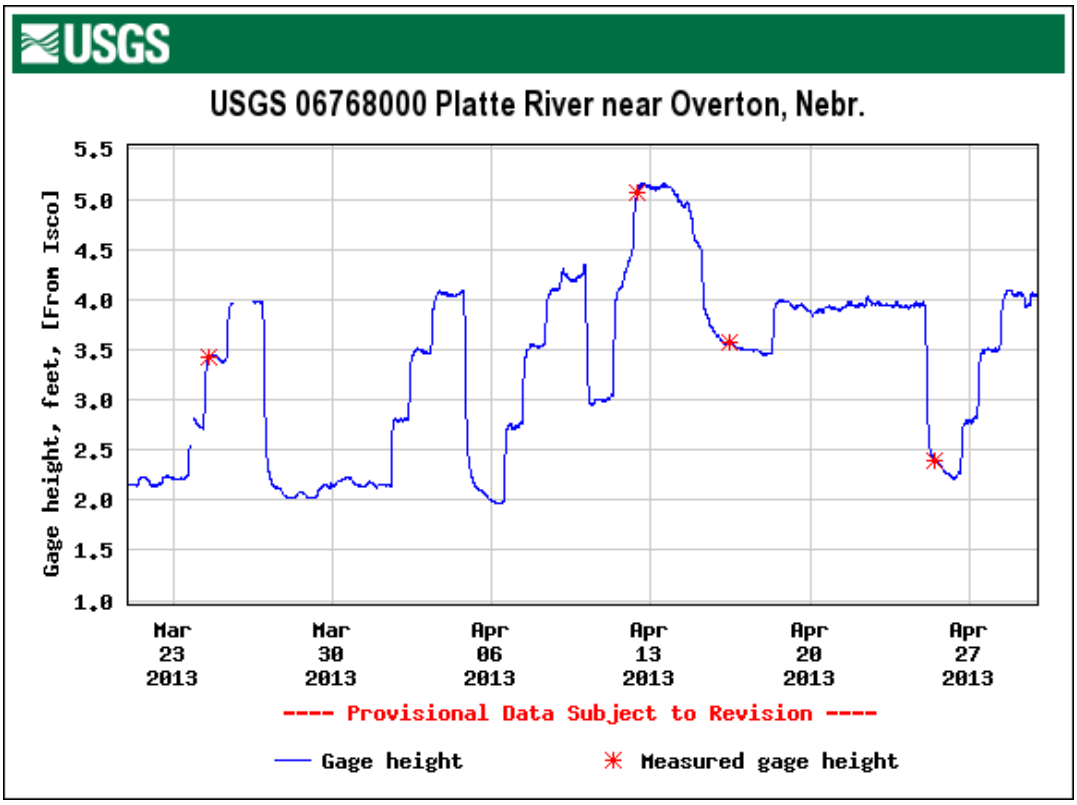


Figure 4. Whooping Crane Use Site 1 (above) 0.3 mi east of the Odessa bridge and 2 (below) 3 mi east of the Odessa bridge (left to right bank). Crane Group 2013SP17 and 11 respectively.

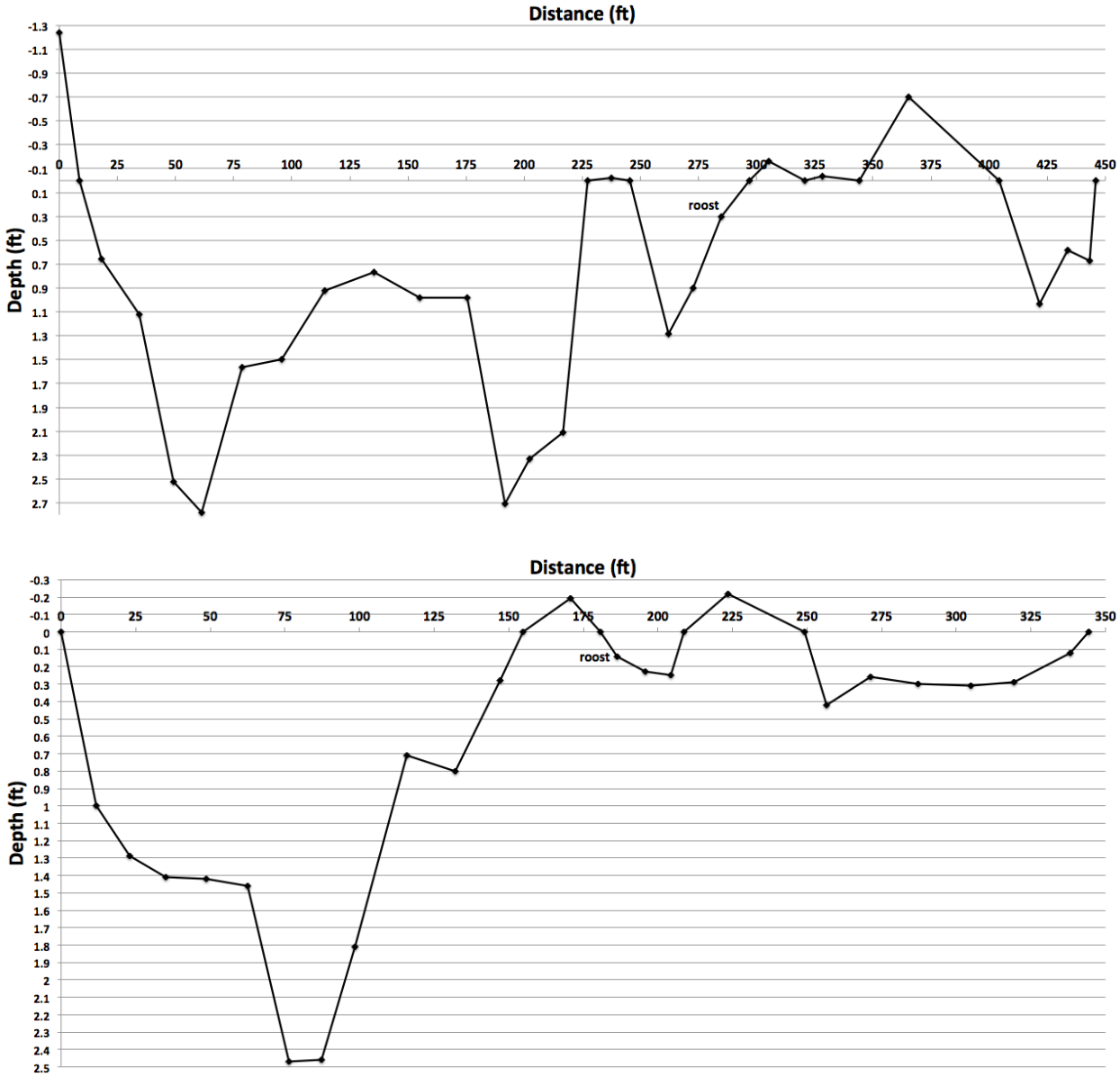


Figure 5. Whooping Crane Use Site 3 (above) and 4 (below) (left to right bank). Crane Group 2013SP13 and 15 respectively.

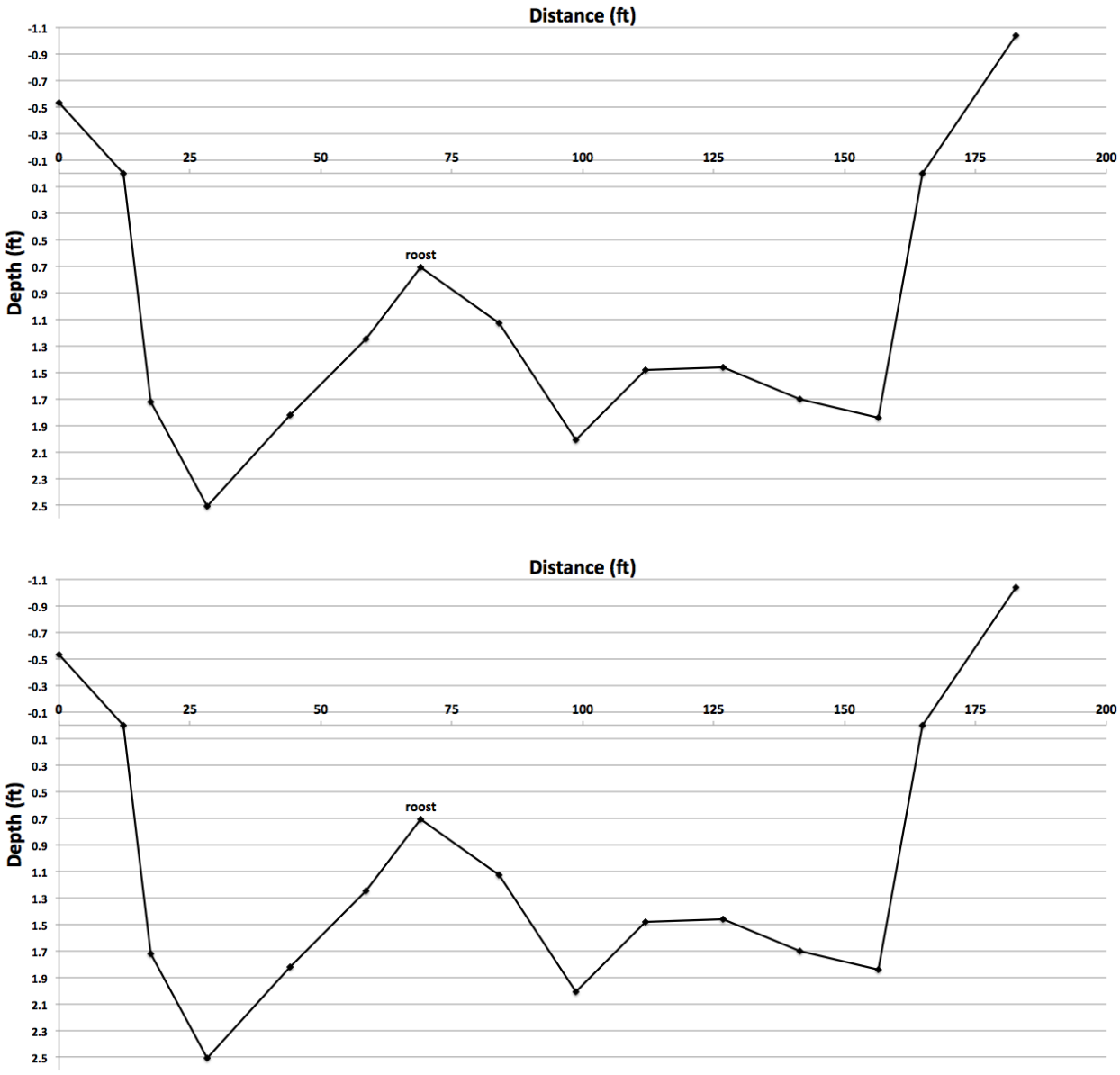
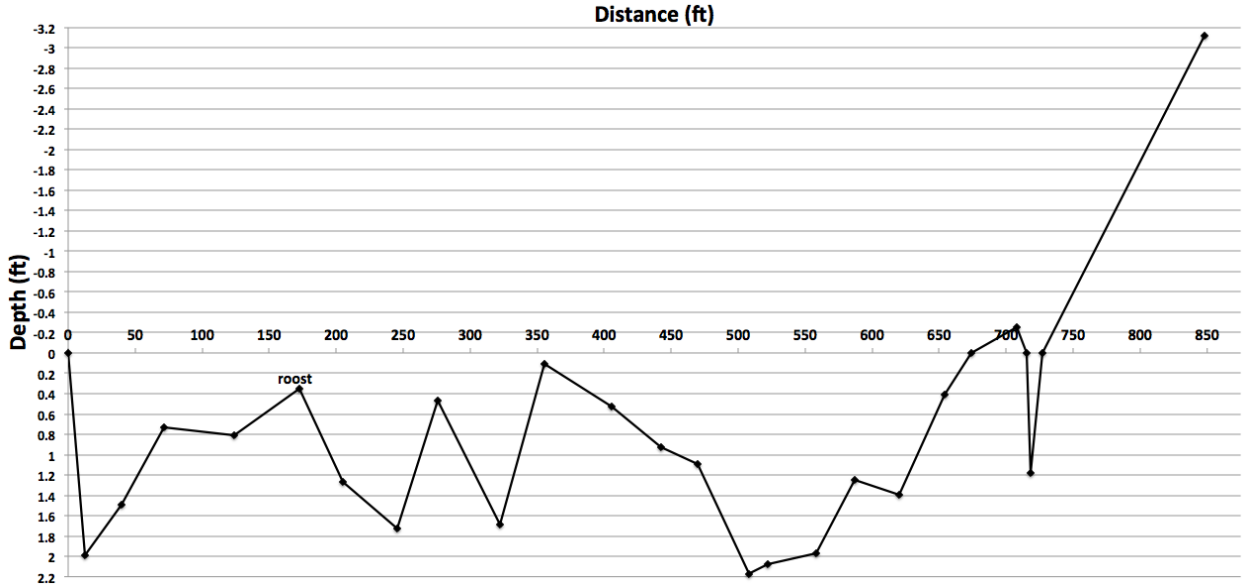


Figure 6. Whooping Crane Use Site 6 (above) and 7 (below) (left to right bank). Crane Groups 2013SP16 and 10,12,& 13 respectively.



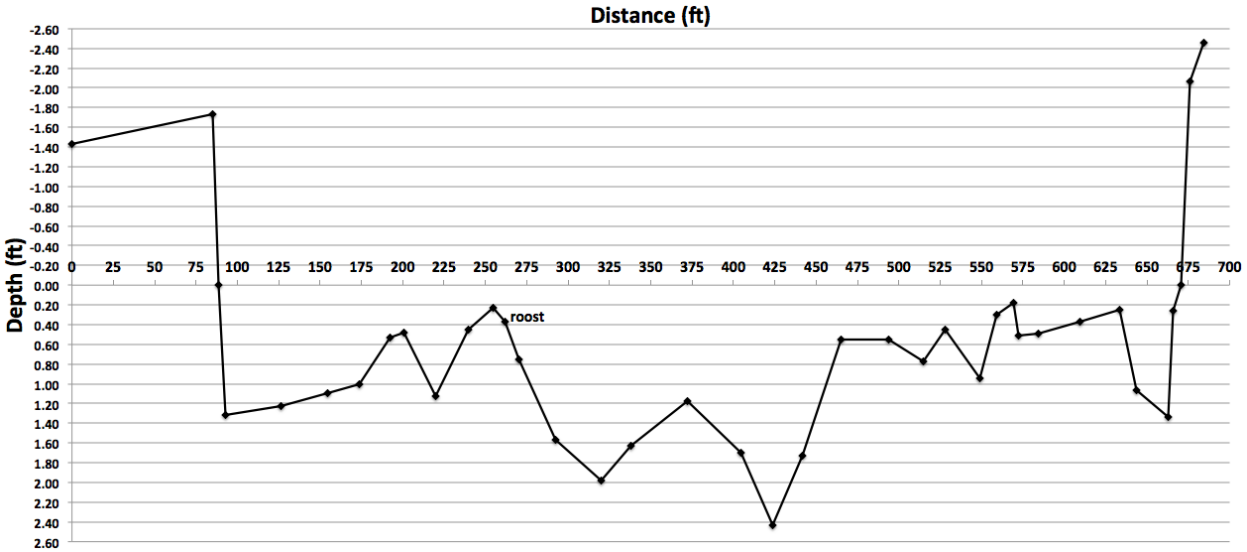
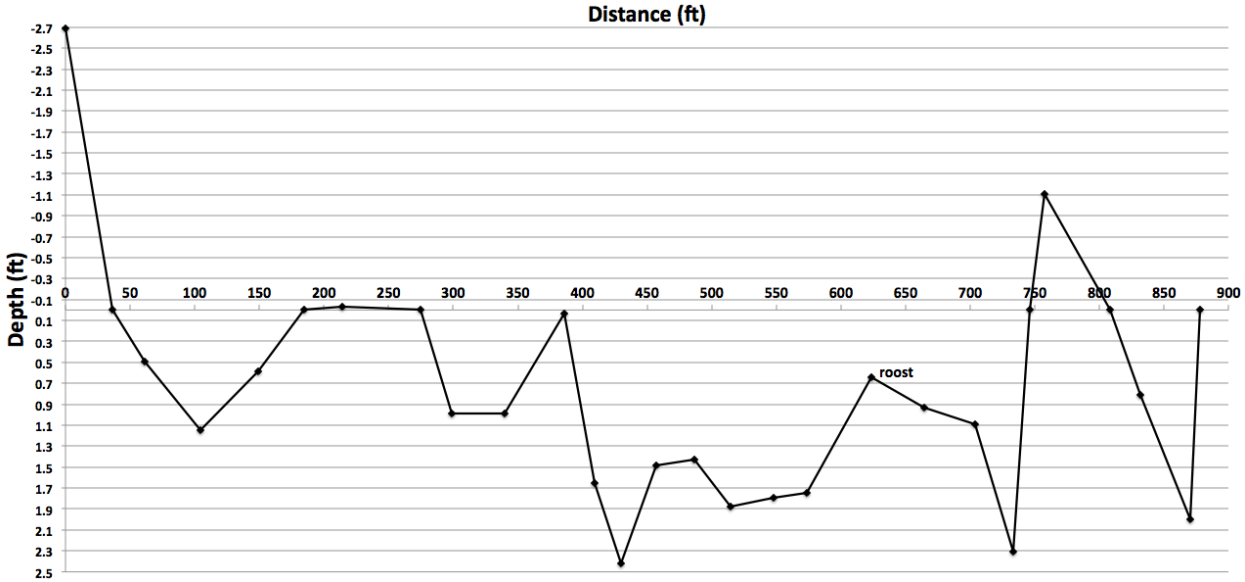


Figure 7. Whooping Crane Use Site 8 (above) and 12 (below) (left to right bank). Crane Group 2013SP20 and 9 respectively.



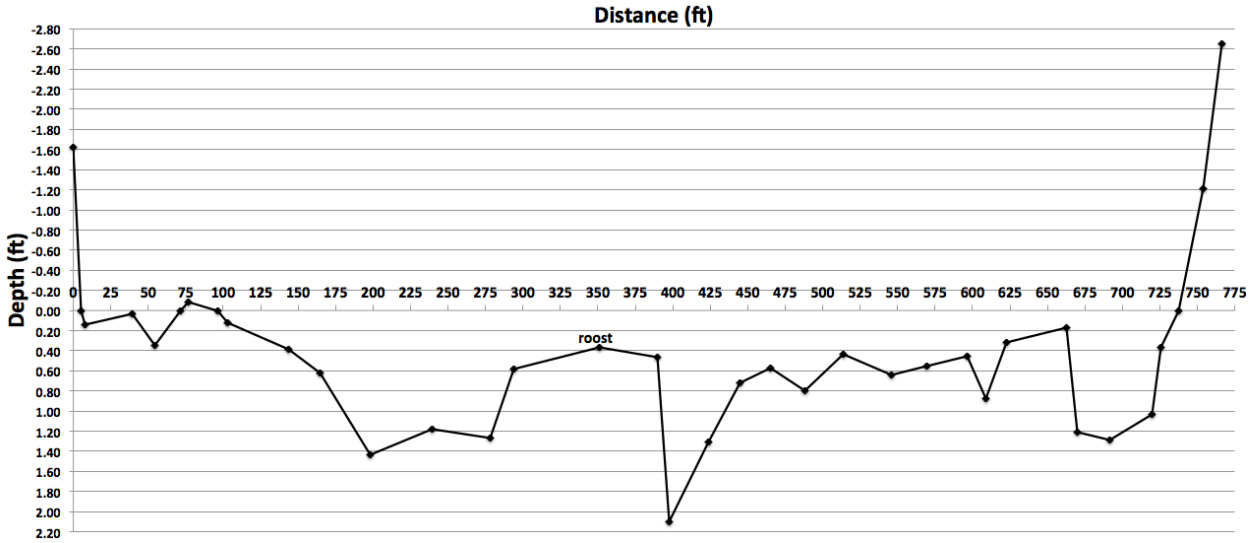


Figure 8. Whooping Crane Use Site 13 (above) and 14 (below) (left to right bank). Crane Group 2013SP2 and 6 respectively.

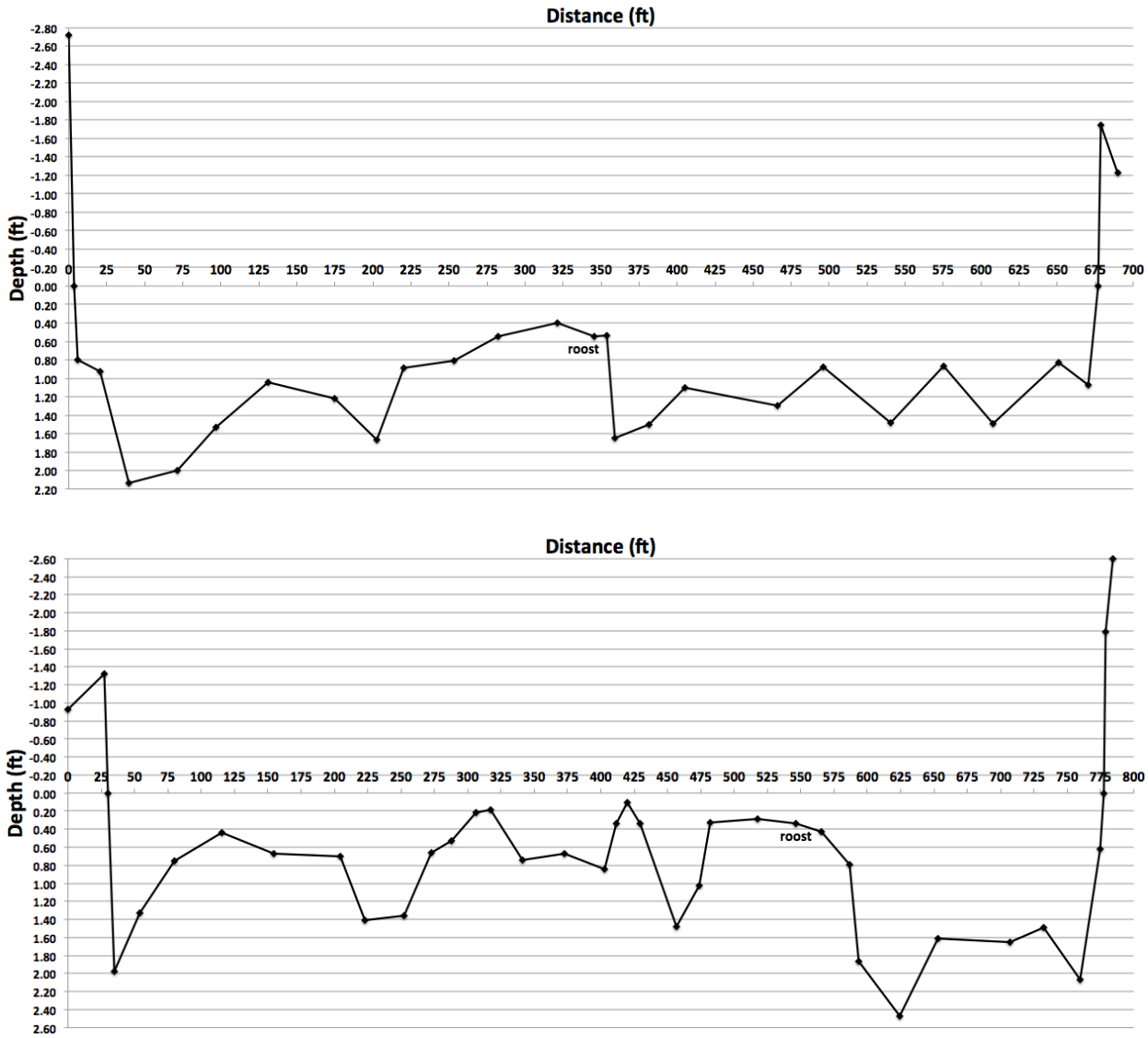


Figure 9. Whooping Crane Use Site 18 (above) and 19 (below) (left to right bank). Crane Group 2013SP19 and 8 respectively.

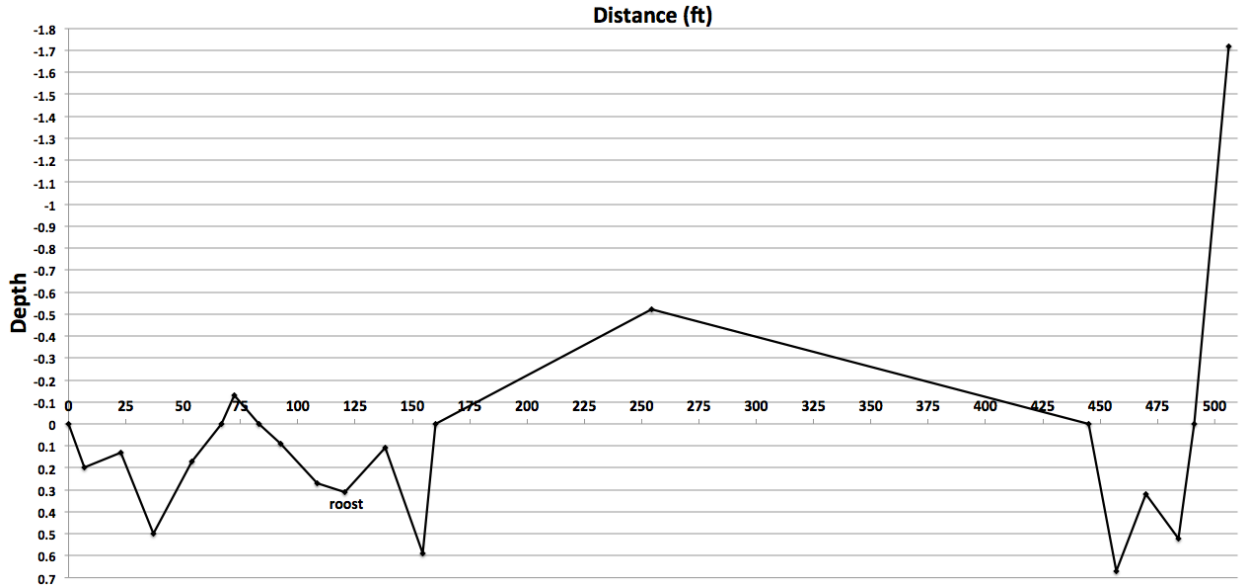


Figure 10. Whooping Crane Use Site 21 (above) and 22 (below) (left to right bank). Crane Group 2013SP5 and 7 respectively.

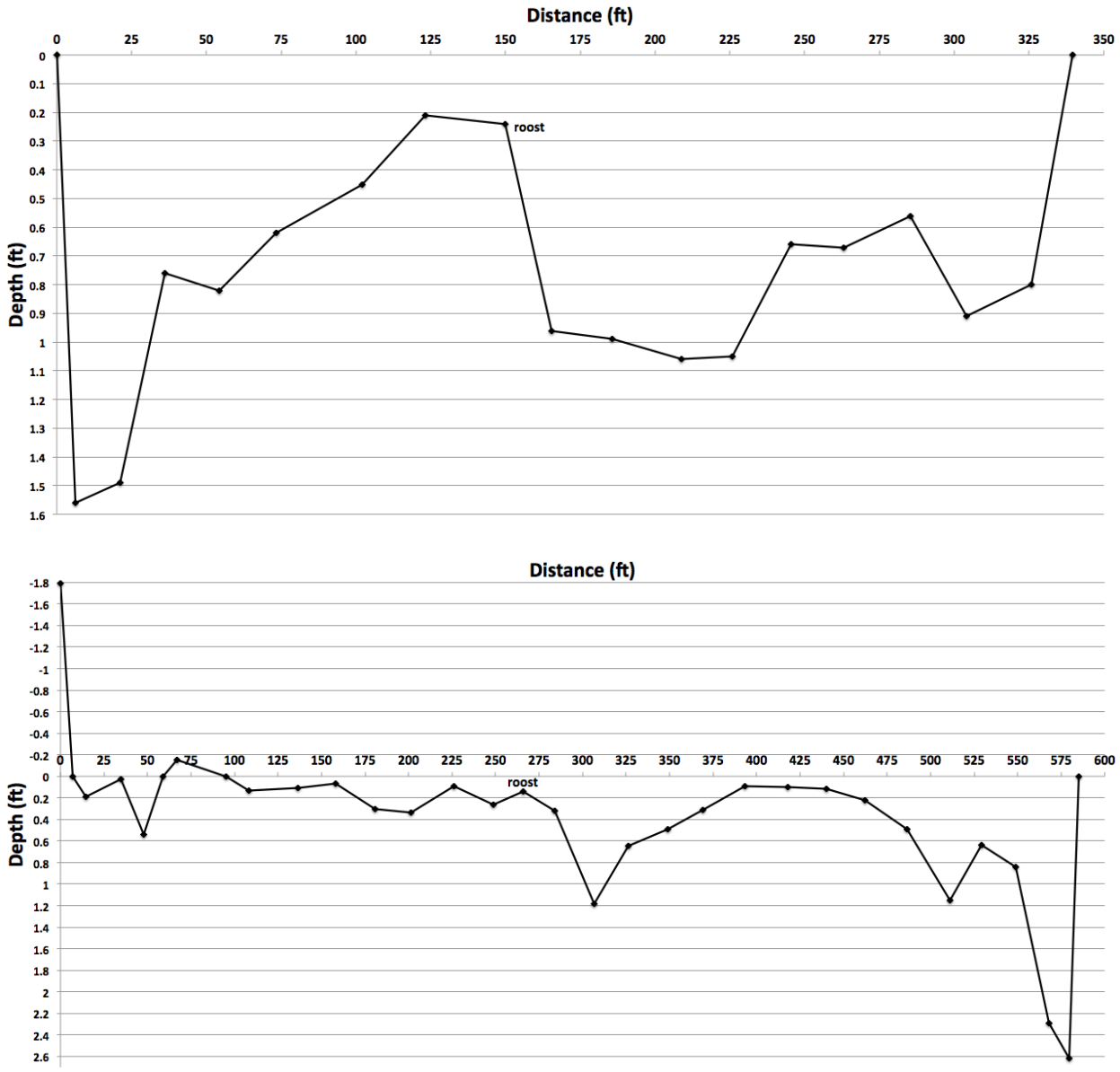


Figure 11. Whooping Crane Use Site 23 (north to south). This was a sandpit located adjacent to I-80 and was used by radioed Crane Group 2013SP20.

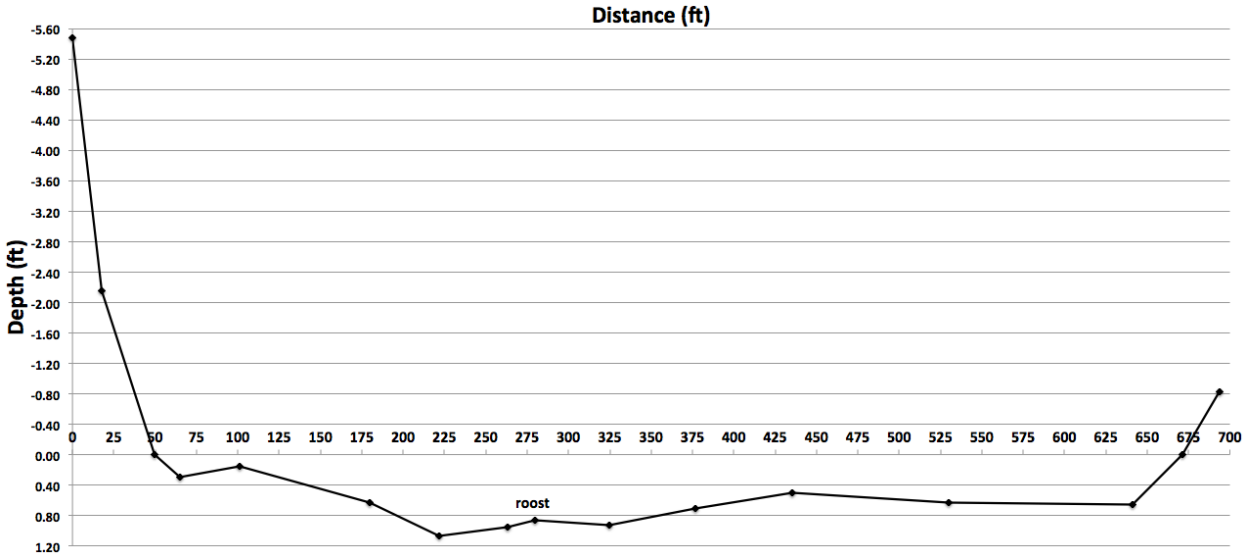


Figure 12. Whooping Crane use locations downstream of the I-80 bridge. Red lines indicate Use Sites 20, 24, 21, and 22 left to right respectively and are where measurements were taken. Crane Group 2013SP05 used Use Sites 20, 24, and 21 and field locations 3/24A&B. Crane Group 2013SP07 used Use Site 22. Crane Group 2013SP04 used a cornfield on March 23.

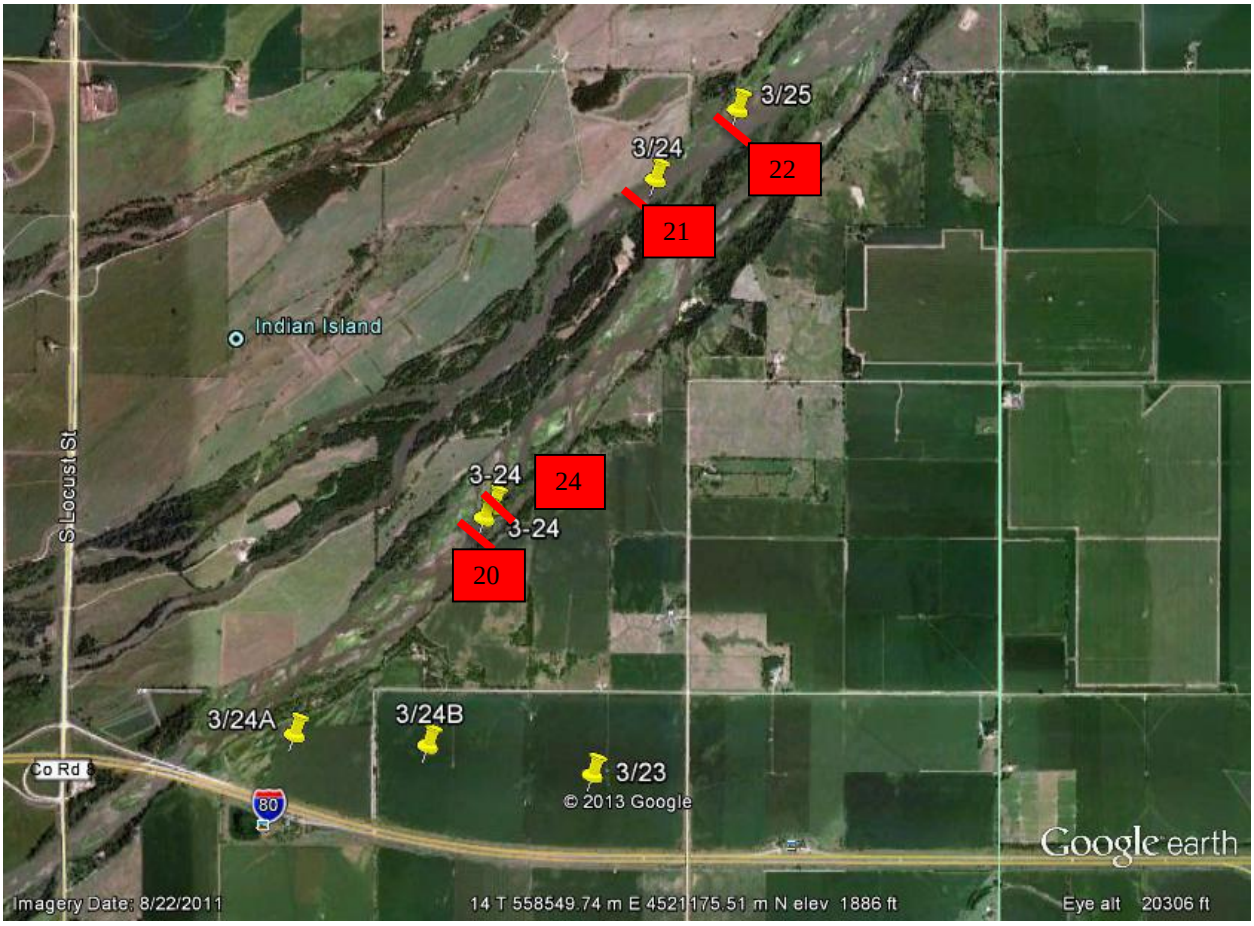


Figure 13. Whooping Crane use locations between the vicinity of the Alda bridge and the U.S. 281 bridge. Use Site 19 (red box) was used by Crane Group 201308 (red line indicates where measurements were taken) and field location 3/27. Other dates and corresponding Crane Group follow: 3/21=01, 3/22=02, 3/23=04; 3/24A-D=06; 3/29=12; 4/11=19. Figure 14 includes a closer view of use locations around Shoemaker Island.

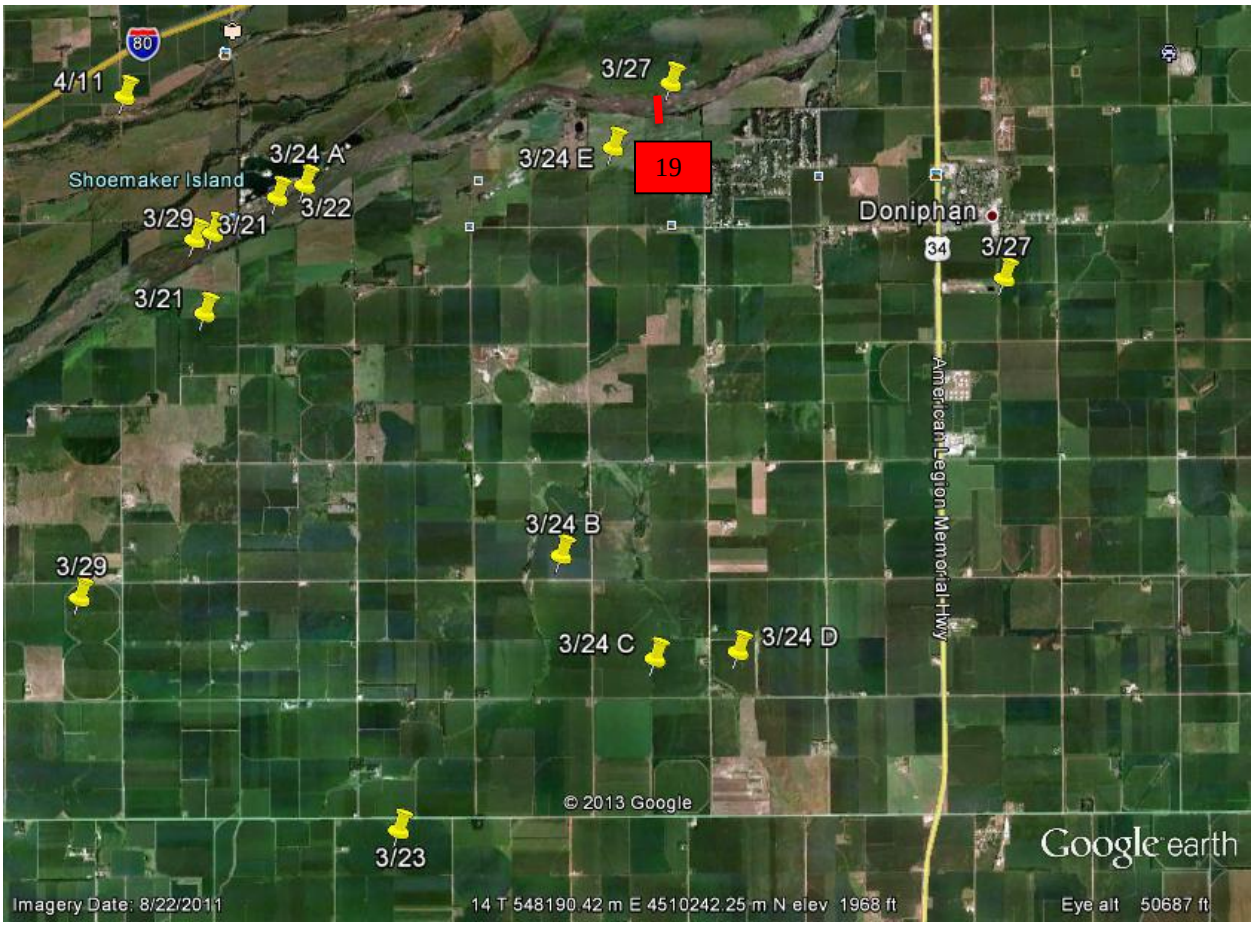


Figure 14. Whooping Crane Use Sites 12, 13, 14, and 18 (red lines indicate where measurements were taken) near the Alda bridge. Crane Groups 2013SP01 and 09 used Use Site 12, Crane Group 2013SP02 used Use Site 13, Crane Group 2013SP06 used Use Site 14, and Crane Group 2013SP19 used Use Site 18.

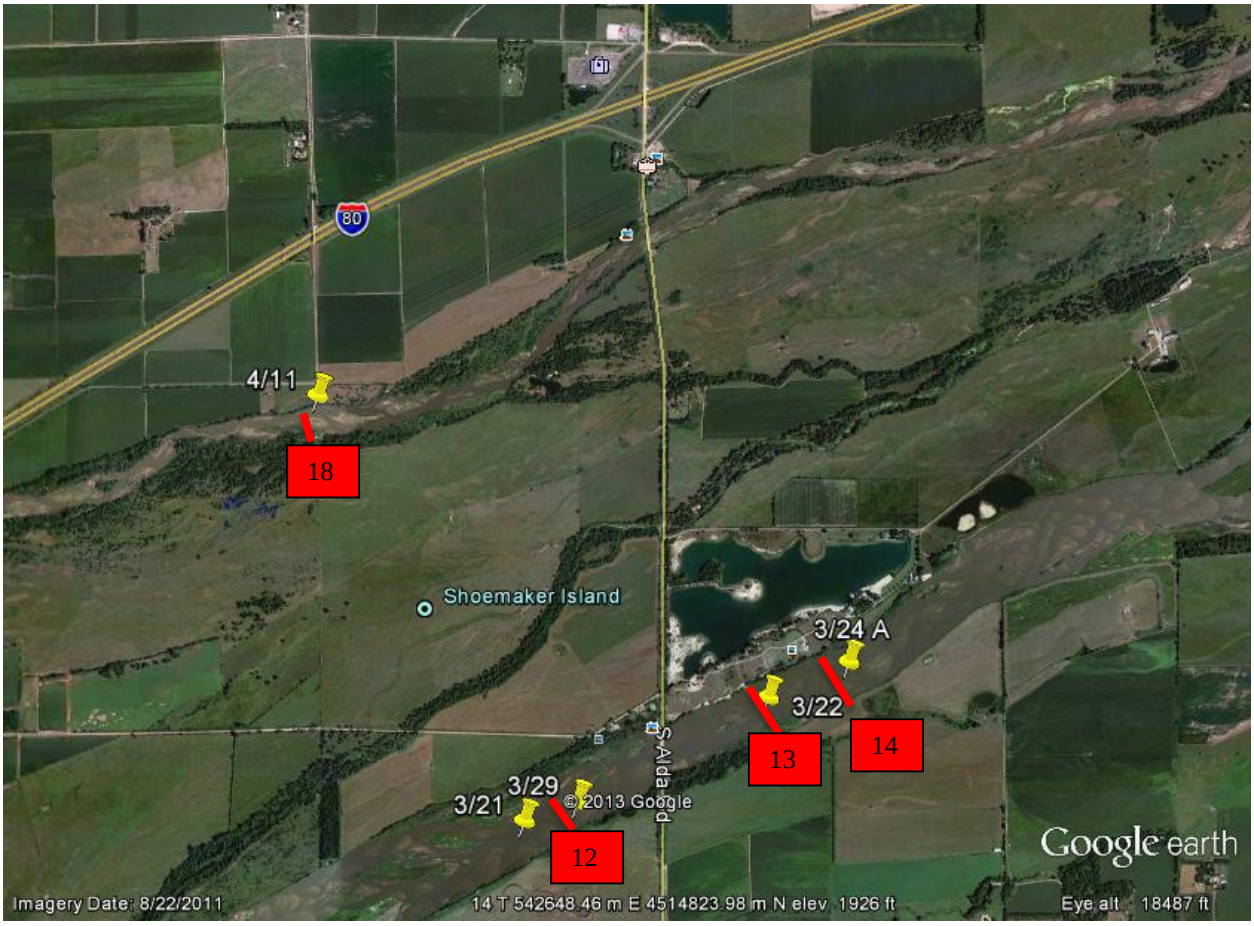


Figure 15. Whooping Crane use locations near the Shelton and Wood River bridges. Red boxes indicate Use Sites 5-9 (red lines indicate where measurements were taken). Crane Group 2013SP18 used Use Site 5 and field locations 4/12A-C; Crane Group 2013SP16 used Use Site 6 and field locations 4/13A-B; Crane Groups 2013SP10,12,&14 used Use Site 7 on Mar 29, Apr 1 & 2 respectively; and Crane Group 2013SP20 used Use Sites 8 & 9. Crane Group 2013SP14 used field location 4/2.

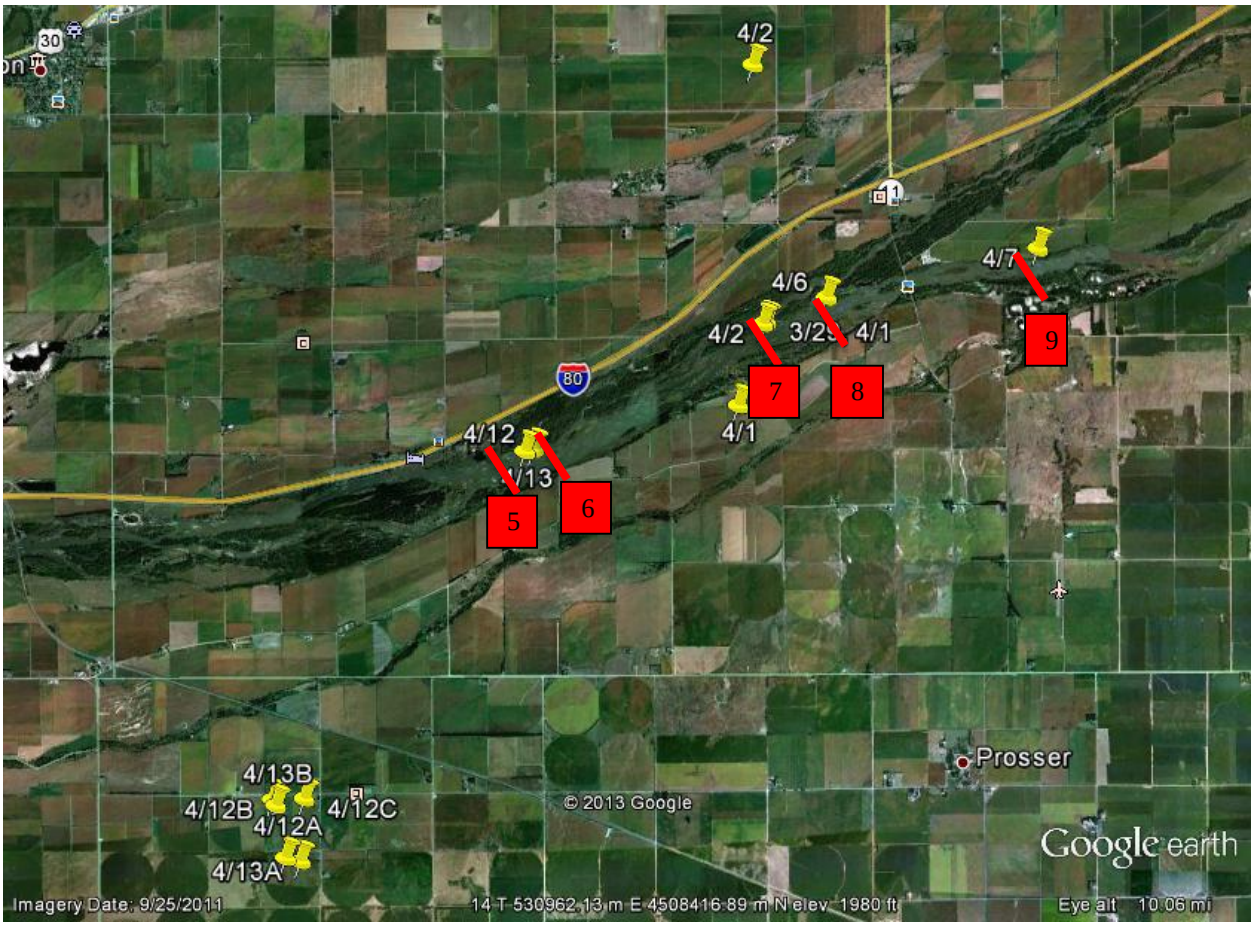


Figure 16. Whooping Crane Use Sites 4 and 23 (red lines indicate where measurements were taken) east of the Gibbon bridge. Crane Group 2013SP15 used Use Site 4 and Crane Group 2013SP20 (GPS location) used Use Site 23.

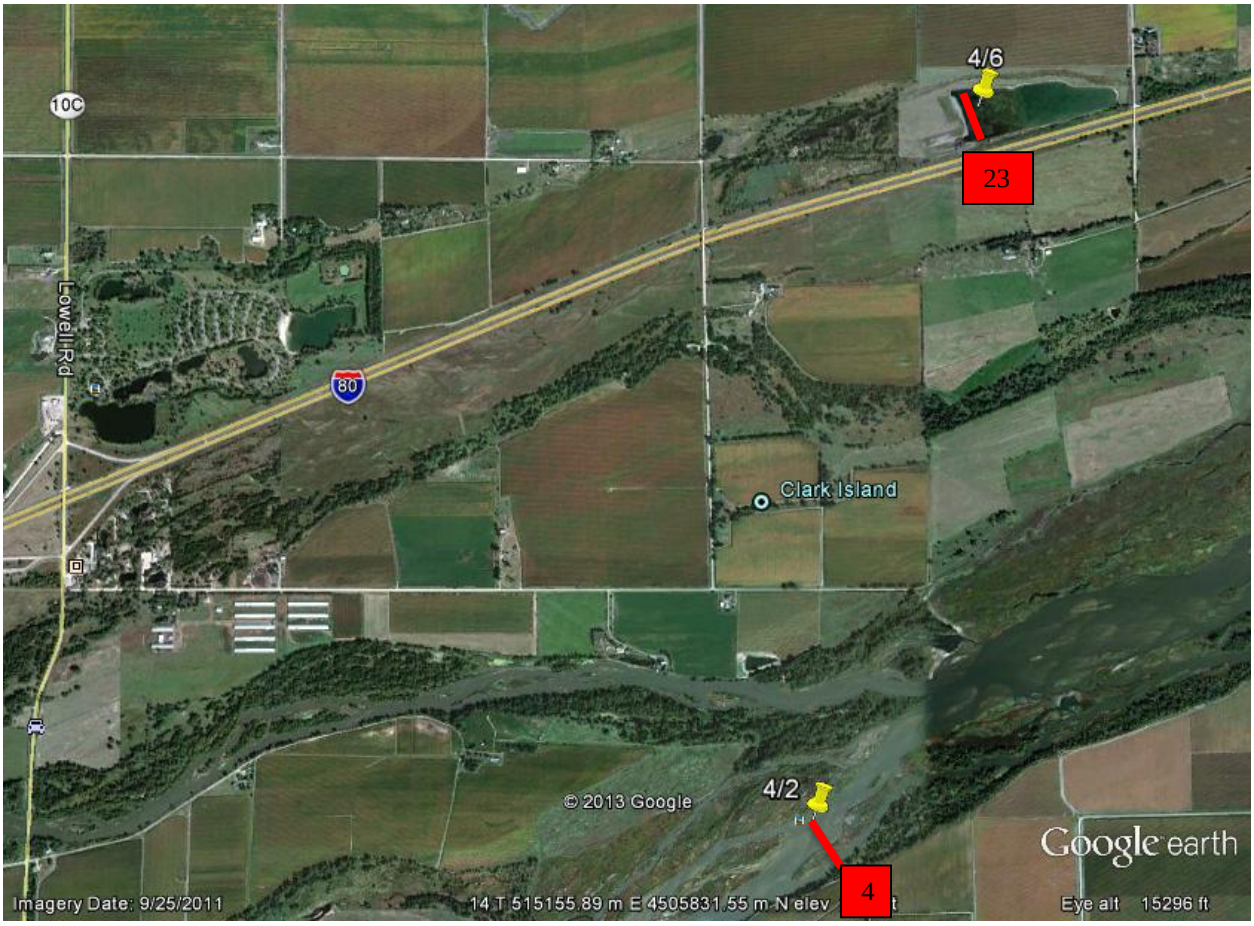


Figure 17. Whooping Crane Use Site 3, located on the Wyoming ground, was used by Crane Group 2013SP13 (red line indicates where measurements were taken).

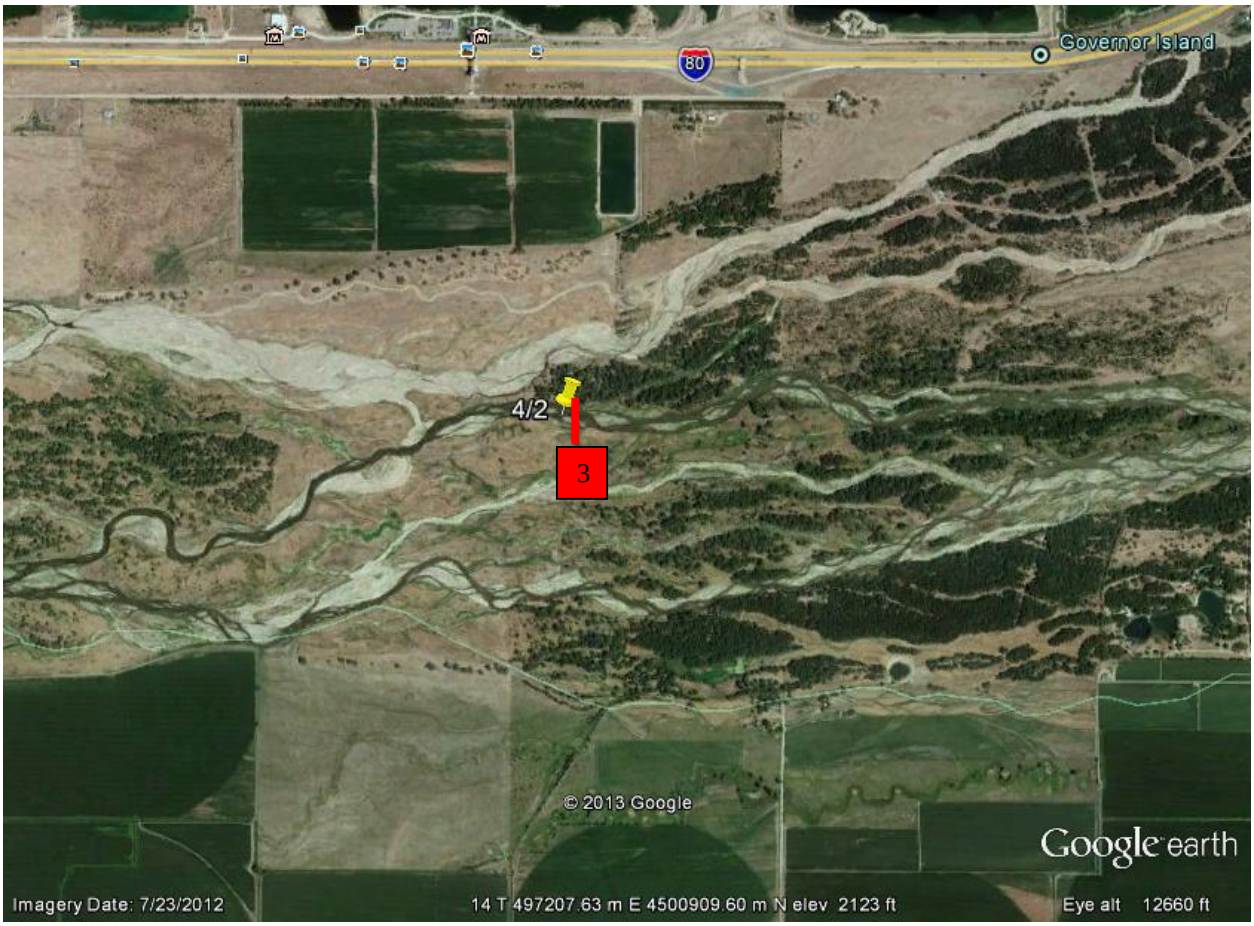


Figure 18. Whooping Crane use locations east of the Odessa bridge. Use Sites 1 ane 2 are shown (red line indicates where measurements were taken). Crane Group 2013SP17 (radioed bird) was detected on April 12 and Crane Group 2013SP11 was detected on March 31.

Figure 19. Crane Groups 2013SP01, 02, 03, and 06 (March 21-24 respectively) was considered to be the same individual and its' movements are depicted below. Crane Group 2013SP08 was present on March 27 and was considered to be a separate individual.

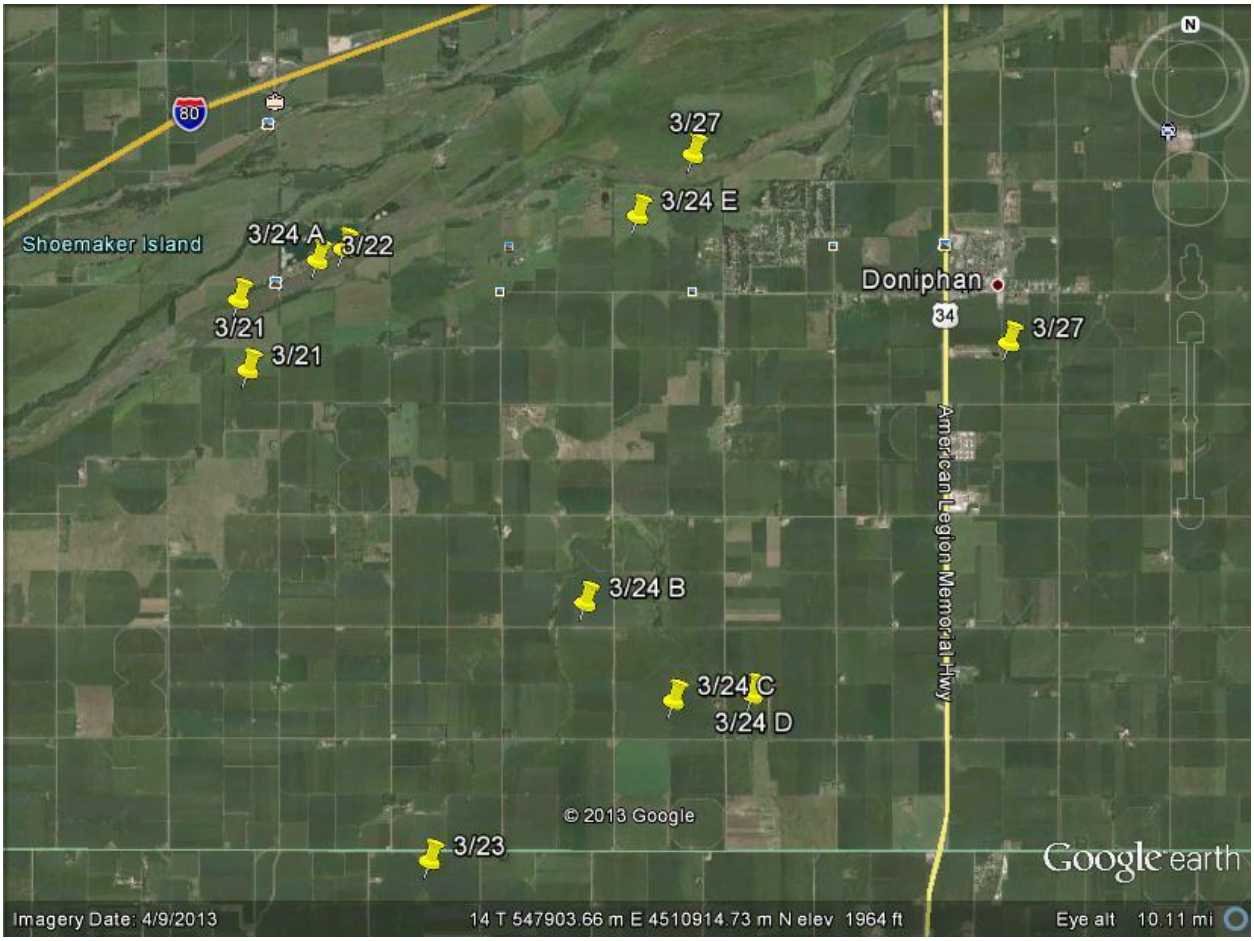


Figure 20. Locations of Crane Group 2013SP09 (March 29), 2013SP20 (GPS location on April 7), and 2013SP19 (April 11). These were unique groups.

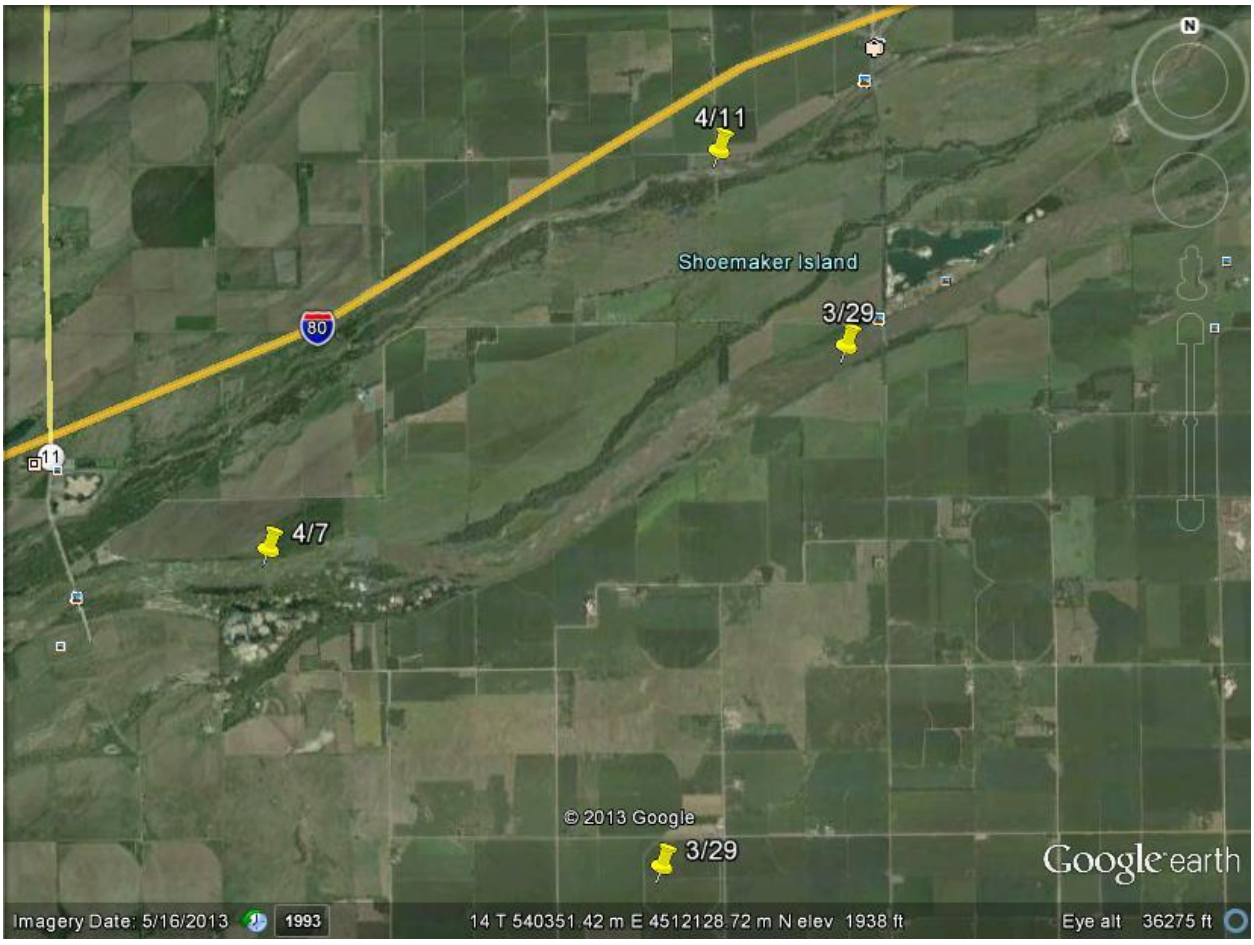


Figure 21. Crane Group 2013SP10 (March 29) consisted of 2 individuals, one of which was radioed. Crane Groups 2013SP12 & 14 (April 1-2) also consisted of 2 individuals and were considered to be the same birds, neither of them were radioed. Crane Group 2013SP20 was an undetected radioed group present on April 6.

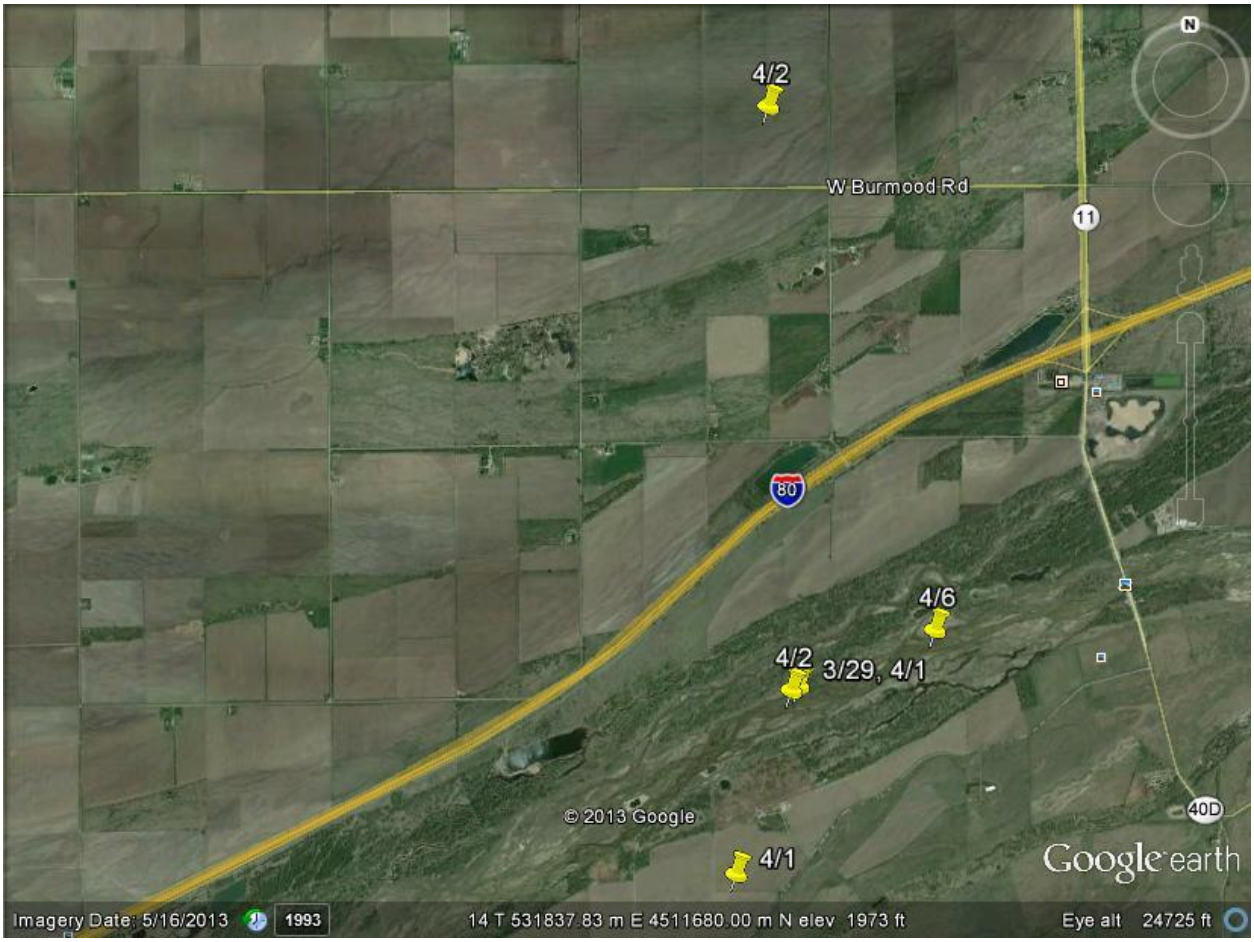


Figure 22. Crane Groups 2013SP16 & 18 (April 12 & 13 respectively) consisted of 1 individual and was considered to be the same bird. Its' movements are depicted below.