

LAKE OAHE AVIAN SURVEY
REPORT
2008
BY
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PROJECT DESCRIPTION

The project was to survey the approximately 172 river miles of Lake Oahe, that are within South Dakota, for nesting gulls, terns, and Barn Owls. The survey area started at the dam face of Lake Oahe and ended at the North Dakota border. The survey was conducted from mid May - August 2008.

PROJECT NEED

We know virtually nothing about what species truly nest on the islands, peninsulas, and cliffs of Lake Oahe, or the population size of these species. Yearly surveys are conducted for Piping Plovers and Least Terns on Lake Oahe to document nesting and population size, but the species that aren't federally or state listed we know very little about.

The projects primary target species were California Gulls, Herring Gulls, Ring-billed Gulls, Common Terns, and Caspian Terns. The secondary target species were Barn Owls. The target species tracked by the South Dakota Natural Heritage Database are: California Gull, Common Tern, Caspian Tern, and Barn Owl. Herring Gull should be possibly added to the tracked species list. Last year I documented the first state record of Herring Gulls nesting in South Dakota on lower Lake Oahe (Olson 2008).

Since 2005 I have been surveying selected areas of lower Lake Oahe for breeding gulls and terns, donating my own time and money. My exciting findings showed a need for a more intensive survey. I documented the first breeding of California Gulls on lower Lake Oahe in 2005. The breeding California Gull population I documented was approximately 200 adults (Olson 2007). The first California Gull breeding records on Lake Oahe were in documented in 1994-1996 (Harris and Betts 1998).

Bruce Harris also documented the states first Caspian Tern nesting record in 1996; this was on upper Lake Oahe (Harris and

Betts 1998). In 2006 I documented 20 Caspian Terns on nests in lower Lake Oahe (Olson 2007). This Caspian Tern population is the largest colony documented in South Dakota. I have recently documented Common Terns nesting on four islands in lower Lake Oahe. Bruce Harris's area surveys and mine are the only surveys conducted to locate and document these gull and tern species on Lake Oahe. Lake Oahe as a whole in South Dakota had never been completely surveyed. Our efforts showed that there were many unanswered questions, and many things yet to be discovered about Lake Oahe's breeding avian species.

In recent years Kenny Miller, Doug Backlund, and I have documented Barn Owls excavating and breeding in holes in sandy cliffs of lower Lake Oahe. The extent of Barn Owls inhabitation of upper Lake Oahe was not known.

PROJECT OBJECTIVES

The primary objective was to locate, document, and count breeding colonies of Herring Gulls, California Gulls, Ring-billed Gulls, Common Terns, and Caspian Terns on Lake Oahe In South Dakota.

The secondary objective was to as time and resources permit, to locate holes in the banks of Lake Oahe inhabited by Barn Owls and document breeding of this species if possible.

PROJECT METHODS

The survey was conducted by boat. The main emphasis was to drive by boat both main shorelines of Lake Oahe, from the Oahe Dam face to the North Dakota border. Many bays and arms of Lake Oahe were surveyed. When target-nesting species were encountered they were identified, counted, and photographed if possible. The locations were entered into a handheld GPS and noted on a map.

If the breeding location was an island, the island was photographed, and a brief description of soil and vegetation composition noted.

EXPECTED RESULTS

The final report would supply a baseline of the gull and tern species breeding on Lake Oahe, enabling the SD GF&P to better manage and protect monitored species with the knowledge gained. At the time of submission of this grant, the South Dakota Breeding Bird Atlas Project II had been proposed to be conducted in the near future. The data from my project was intended to enhance in the planning stage of the atlas project. In the prior Atlas Project there were no breeding records documented for California Gull, Herring Gull, Ring-billed Gull, Common Tern, Caspian Tern, and Barn Owl in the Counties along Lake Oahe (Peterson 1995). As it turned out, the Atlas project started this year, allowing my data to be directly incorporated.

Part I

Gulls and Terns

Herring Gull

On 20 May 2008 one pair of Herring Gulls (Photos 2 &3) were nesting on an island in Stanley County (44.52278 -100.55207). This location is the purple symbol on following map (Figure 1). In 2007 there were two pairs documented nesting and a total of five adults present on this island (Photo 1) (Olson 2008). Because the island has so many gulls, areas of tall vegetation present, and to minimize my disturbance, I did not walk on the island. Another Herring Gull pair or two could have possibly been present. I estimate the breeding population on Lake Oahe is currently 1-3 pairs.



PHOTO 1



Photo 2



Photo 3

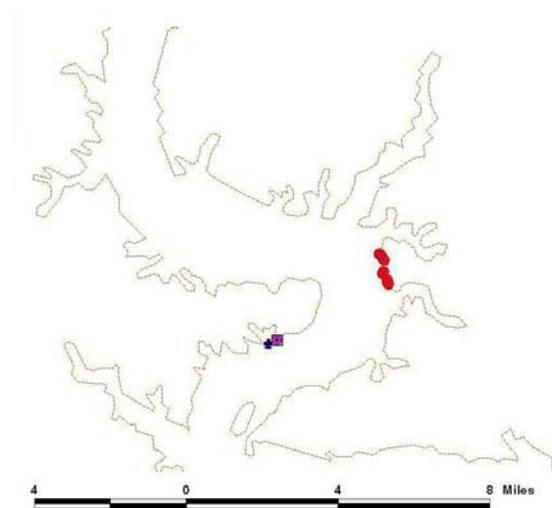


Figure 1

Ringed-billed Gull

On 20 May 2008 ten Ring-billed Gulls were observed on nests with another ten adults present (Photo 4) in Stanley County (44.52278 -100.55207). This location is the purple symbol on the map (Figure 1). In 2007 twelve Ring-billed Gulls were observed on nests at this island. Adult Ring-billed Gulls were observed in the Little Bend and Whitlock's Bay area during my survey. If the rising water hadn't inundated the large islands in these areas, I believe they possibly would have nested in these areas. I estimate the breeding population to be 10-15 pairs of Ring-billed Gulls on Lake Oahe in a normal year.



Photo 4

Caspian Tern

On 20 May 2008 three Caspian Terns were observed on nest and another adult present (Photo 5) in Stanley County (44.52278 - 100.55207). This location is the purple symbol on the map (Figure 1). In June 2007 seventeen Caspian Terns were observed on nests. In June 2006 twenty Caspian Terns were present on nests at this island. I surveyed this island early to count the gulls; I feel that there would have been more Caspian's nesting two weeks later. I estimate the breeding population on a normal year to be 15-20 pairs of Caspian Terns on Lake Oahe.



Photo 5

California Gull

On 20 May 2008 forty-seven California Gulls were observed on nests and another fifty-seven adults present (Photo 6) in Stanley County (44.52278 -100.55207). The following observations were made on this island. In July 2005 I observed seventy-five adults with many on nest and young of all sizes present. In June 2006 over 300 adults were observed with many on nest and young of all sizes present (Olson 2007). In June 2007 over 200 adults, many on nest, and abundant young were observed (Olson 2008). On 20 May 2000 on an adjacent island (44.52137 -100.55627) five California Gulls were observed on nest with another twenty-eight adults present. These locations are the purple and black symbol respectively on the map (Figure 1). Adult California Gulls were observed in the Little Bend and Whitlock's Bay area during my

survey. If the rising water hadn't inundated the large islands in these areas, I believe they possibly would have nested in these areas. I estimate the California Gull breeding population at 75-150 pairs depending on available island nesting habitat.



Photo 6

Common Tern

On 20 May 2008 in Stanley County (44.52137 -100.55627) four Common Terns were present with two on nests (Figure 1). Common Terns have been documented nesting on this island since 2005. On 20 May 2008 five Common Terns were observed with on one nest in Dewey County (44.76937 -100.55420) (Figure 2). Common Terns have been documented nesting on this or adjacent islands since 2006 with up to 75+ adults present. On 1 June 2008 twenty Common Terns were observed, several were carrying and feeding food to their mates on an island in Dewey County near the HWY 212 Bridge (45.03512 -100.35338) (Figure 3). On 21 June 2008 twenty Common Terns were observed in Dewey County near Swift Bird Bay (45.14202 -100.32245) (Figure 3).

The symbol on the map should be further east along the shoreline of the river, but this is where my GPS plotted it. This island was a large hill covered with tall sweet clover. When I attempted to walk the hill to count nests the terns took flight. To avoid stepping on unseen nests and further disturbance to the terns I left and estimated that ten of the twenty terns present were on nest.

In my experience the Common Terns on Lake Oahe tend to nest on little islands. They almost always are the only tern or gull species nesting on these islands. The only exception to this was the island in Stanley County this year where California Gulls were also present. There were fewer Common Terns present on this island than in previous years. When I returned later in the summer this island was underwater. I believe the California Gulls were only on this smaller island because the rising water had shrunk the adjacent large island. If the island had not been inundated it would have been interesting to see if the Common Terns would have stayed nesting with the California Gulls. The only exception to the little island rule I have observed is the Common Terns nesting on the big hill island in Dewey County this year. Again I think this only occurred because of dramatic rising water levels this year. Smaller islands are usually present in this location. I think the rising water level made the terns move to this highly vegetated large island to nest. As you can see the Common Terns on Lake Oahe will nest in varied habitats (Photos 7,8,9). On a normal year I would estimate there are 30-50 nesting pairs of Common Terns on Lake Oahe.



Photo 7



Photo 8



Photo 9



Figure 2



Figure 3

Other Species

During my surveys the following non-targeted species were documented breeding on the islands and banks of Lake Oahe: Bank Swallow, Lark Sparrow, Rock Wren, Turkey Vulture, Great Horned Owl, Least Tern, Piping Plover, Canada Goose, Upland Sandpiper and Bald Eagle. Spotted Sandpipers are on the islands and shorelines of the entire stretch of Lake Oahe during the breeding season, but I have never been able to document breeding. Probable non-breeding species encountered on Lake Oahe during my surveys are Common Loon and American White Pelican. Species that I observed in fairly large numbers that possibly breed in the area but not on Lake Oahe or its banks are: Black Tern, Franklins Gulls and Western Grebes. I do not know if these are non-breeding adults or breeding adults flying to Lake Oahe to feed.

DISCUSSION

During the late spring and summer of 2008 the water level of Lake Oahe steadily rose. The Corp of Engineers was not releasing water downstream, because the Missouri River was flooding in the states of Iowa and Missouri. Normally the water

level stays fairly constant during the summer months. The water level generally rises in June and then lowers through August, but not drastically as it occurred this year.

All the gull species and Caspian Terns documented breeding during my 2008 survey were observed on two adjacent islands in Stanley County. This area in the past had 3 islands present. This year there were only 2 islands present as the water level on Lake Oahe had risen. When I returned to this area on 29 June 2008 both islands were under water. I suspect only a few chicks if any successfully fledged. The islands in Dewey County near Little Bend were also inundated when I returned later in the summer. The only areas I am confident that successful breeding occurred this year were the Common Terns islands near the HWY 12 Bridge and Swift Bird Bay area of Dewey County.

My original plan was quantify the type of island required by my targeted species to stimulate breeding and successfully nest. I thought by measuring the island, noting substrate and amount of vegetation present, that I could project whether an island would be utilized for breeding and its location. Alas, that hypothesis went out the window. The following is what I am confident stating by analyzing the surveys conducted by Bruce Harris and I. The Herring Gull, California Gull, Ringed-billed Gull and Caspian Tern will nest on same island in a colony. They generally require an island approximately $\frac{3}{4}$ acre or larger. They will nest in marginal habitat with some tall vegetation or even small cottonwoods present. They will nest in the same general area if islands are present. There is almost always a large island in Cow Creek, Okobojo Creek and Corp/Government Bay, but in the 15 years I have visited these areas during breed season. These species have never utilized the islands for breeding. I do not know why. The areas they do breed in have just as much boat traffic as the areas they do utilize. As I mentioned before Common Terns generally breed on small islands by themselves and in varied habitat.

Through the knowledge I obtained in this and preceding years, in my opinion further surveying/monitoring of these gull and tern species could be limited to four areas and would encompass the majority of areas utilized for breeding by these species on Lake Oahe. I state this because of the geographic landscape of these areas. These areas contain many peninsulas. As some islands are covered by water or transform to become peninsulas new islands are formed. There is always available island habitat that remains viable throughout the breeding season. I did locate a few islands in between the suggested areas and upper Lake Oahe, but I observed no evidence of breeding of the targeted gull and tern species in these areas. Also the geology of the land in these areas would not support a reliable yearly breeding habitat.

The areas I suggest are the following sections of Lake Oahe. The first area are the islands encompassed in a 3-4 mile stretch of Lake Oahe north of Chantier Creek in Stanley County and the islands in Okobojo Creek in Hughes County. I count this as one area because both areas can be readily accessed from Spring Creek or Cow Creek boat ramps. The second area suggested, are the islands that are formed in Dewey County within six miles upstream or downstream of Bush's Landing. The third area encompasses the islands formed near the Highway 212 Bridge and 4 miles downstream in Dewey County. The fourth area encompasses a 1-2 mile stretch of Lake Oahe that includes Swift Bird Creek in Dewey County.

REFERENCES OR CITATIONS

Harris, Bruce K. and Barry Betts. 1998. Gull and Tern Colonies on the Missouri River: First Nesting of Caspian Tern in South Dakota, SDBN 50:32-35

Olson, Ricky D. 2007. Caspian Tern, Common Tern, Least Tern, and California Gull Nesting Colony on Lake Oahe, SDBN 50:42-44

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in South Dakota, SDBN 60:6-7

Peterson, R. A. 1995. The South Dakota Breeding Bird Atlas.
South Dakota Ornithologists' Union Aberdeen SD

Part II

Barn Owl

Originally, documenting the presence of Barn Owls along the shores of Lake Oahe was the secondary goal of my survey, but as the summer progressed it became my primary goal. Because of the rising water levels I was finding few islands in the upper half of Lake Oahe. The few islands I did find had recently formed and none of my target gull and tern species were present on these islands. Therefore, I increased my effort in finding holes in the banks and documenting breeding Barn Owls.

My original plan was to only concentrate my search for Barn Owl nest holes upstream from the Little Bend area, since Kenny Miller, Doug Backlund and I had documented breeding by this species in the Little Bend area and downstream in previous years. But, the South Dakota Breeding Bird Atlas II Project started this year, earlier than proposed, so later in summer I did search for nest holes downstream from Little Bend.

The one area I did not survey was the Little Bend peninsula and prime shoreline habitat across the river in Stanley County. I had surveyed this area for islands earlier. Later, when I attempted twice to survey this area for nest holes by boat, high winds foiled these attempts. Thus, Stanley County is the only county along Lake Oahe that I did not document Barn Owls breeding during my survey. Because of the fore mentioned problems there are also two nest holes sites that Kenny Miller located on the Little Bend peninsula that are not plotted on my map.

This survey affirmed many hypotheses about their breeding range and nesting habitat requirements. I thought that the Barn Owls would nest along Lake Oahe to the North Dakota border if the appropriate habitat was present. This was affirmed by my survey results.

The main requirement of my definition of appropriate habitat was that a layer of sand of at least 2-3 foot in depth had to be present in the cliff bank near the top of the bank. This was affirmed. All my sites had this layer of sand or a cliff bank that was all sand. Barn Owls require this layer of soft soil in order to be able excavate a nest hole. I surmised that I would find Barn Owl nest holes at Bank Swallow Colony sites. It's apparent that they share the same soil habitat requirement for nesting, as many of my sites were at utilized or old Bank Swallow Colonies. A typical nesting site is depicted in Photo 10. Barn Owls excavate an oblong hole an example of this is Photo 11. The majority of the shoreline banks of Lake Oahe are either shale or a gumbo soil. This soil type is not conducive to nesting by the Barn Owls. Therefore sometimes there are stretches 10-15 miles long of shoreline not used for nesting. There are also stretches of shoreline with no cliff habitat present. I found Barn Owls nesting or signs of past use in all appropriate habitat areas but one. This area was approximately five miles from the North Dakota border on the west shoreline. This area had experienced large amounts of rain in late spring and early summer. Large portions of the cliffs had sloughed off. I surmise any evidence of prior nesting was gone and when the cliffs stabilized it was too late in the breeding season for the owls to excavate new holes. I believe in the future evidence of Barn owl nesting could be found in this area.

I also surmised that if there was appropriate nesting habitat and a large prey base existed in an area that a concentration of breeding owls could be found. This assumption was based on prior experience with this species, Long-eared owls and Short-eared Owls. This assumption was also affirmed as can be seen in Photo 12. An approximately two mile stretch of appropriate nesting habitat between Cow and Spring Creek had nine nest holes being utilized when the area was surveyed. Three of the nest holes had young present the day I surveyed them.



Photo 10



Photo 11



Photo 12

I separated my sightings into several breeding code levels used by the South Dakota Breeding Atlas II Project and one category that showed Barn Owl recent or past site utilization. I included this last category so that future surveys could return to these appropriate habitat sites.

The results of my survey are listed and shown in Figure 4 below:

Confirmed Breeding- NY (nest with young seen or heard)

SULLY- 44.74987 100.49960
HUGHES- 44.54688 -100.49363
SULLY- 44.55475 -100.49595
SULLY- 44.55440 100.49560

Confirmed breeding ON (Occupied Nest) -Nest hole with adult present

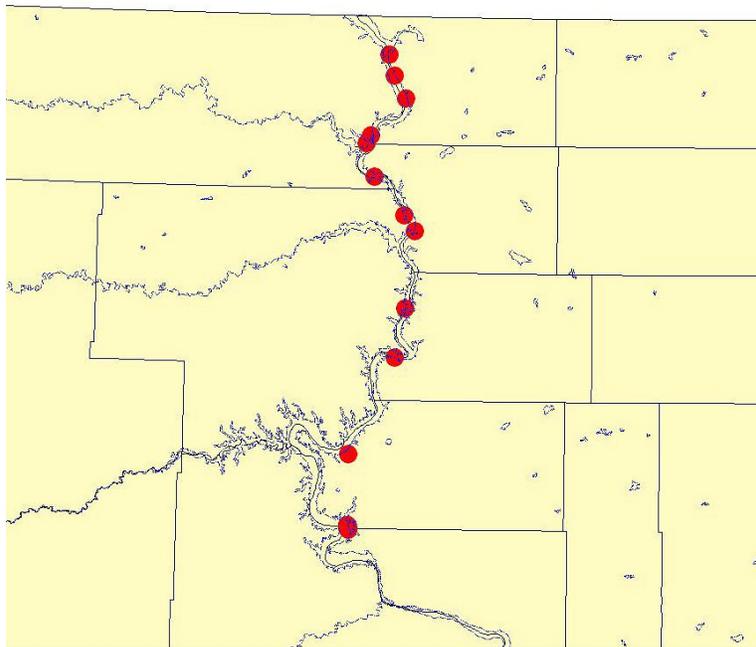
HUGHES- 44.54575 -100.49343
HUGHES- 44.54918 -100.49615
SULLY- 44.55665 -100.49802
POTTER- 45.01403 -100.32652
DEWEY- 45.14887 -100.28943
CAMPBELL- 45.72077 -100.2982
WALWORTH- 45.35973 -100.25825

Confirmed breeding? - UN (Used Nest) Nest hole being utilized (presence of several of the following: feathers, small mammal bones, pellets, fresh whitewash, and flies)

SULLY- 44.55005 -100.49577
SULLY- 44.55635 100.49760
SULLY- 44.55602 -100.49697
DEWEY- 45.40298 100.29688
CORSON- 45.59750 -100.44962

Nest hole not utilized (hole size, hole shape, soil and habitat correct, but no signs of recent use)

HUGHES- 44.54522 100.49283
CORSON- 45.50732 -100.41500
CORSON- 45.61845 -100.4340
CAMPBELL-45.78142 -100.34315
CAMPBELL-45.83873 -100.36652



● Barn Owl Nest Holes

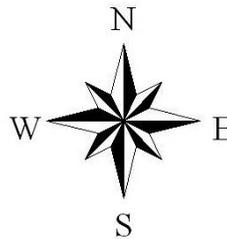


Figure 4