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First Nesting Record and Status Review of the Glossy Ibis in Nebraska

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INTRODUCTION

Glossy Ibis (*Plegadis falcinellus*) is believed to be a recent colonist from the Old World whose numbers have increased and range has expanded in North America over the past two centuries (Patten and Lasley 2000). Glossy Ibis range expansion has been described as involving periods of relative stability followed by periods of rapid increase (Patten and Lasley 2000). Prior to the 1980s, Glossy Ibis were primarily found in the southeastern United States and along the Atlantic Coast (Patten and Lasley 2000). In the mid- to late 1980s, Glossy Ibis began to rapidly increase and expand into Texas. By the early 1990s they were increasingly reported in the Great Plains (Thompson et al. 2011), particularly along the front range of Colorado and New Mexico (Patten and Lasley 2000).

In Nebraska, the first documented occurrence of Glossy Ibis was a single adult with 28 White-faced Ibis (*Plegadis chihi*) at Wilkins Waterfowl Production Area (WPA), Fillmore County, 24 April 1999 (Jorgensen 2001). Since the initial record, the number of reports of Glossy Ibis has increased. Glossy Ibis status was elevated from accidental to casual by the Nebraska Ornithologists' Union Records Committee (NOURC) in 2005 (Brogie 2005). Only a few years later in 2014, its status was elevated again from casual to regular and NOURC no longer sought documentation for sightings (Brogie 2014). In 2015, Jorgensen observed this species nesting in the Rainwater Basin. Given the recent observation of nesting, the rapid increase in annual observations, along with field identification challenges as a result of similarity to and hybridization with the White-faced Ibis, the status of the Glossy Ibis in Nebraska is in need of clarification. Here, we provide observational details about the first confirmed nesting by the species in Nebraska, review all reports of Glossy Ibis and apparent Glossy x White-faced Ibis hybrids and comment on this species' overall status in the state.

METHODS

Nesting observation

The Rainwater Basin is a relatively flat landscape in south-central Nebraska with numerous embedded playa wetlands whose water levels are variable and dependent on precipitation (LaGrange 2005, Jorgensen 2012). During June 2015, heavy rain fell over much of the Rainwater Basin. For example, Clay Center, Clay County, received a total of 8.5 inches during June which is 102% above the average June total precipitation for this location (U.S. Climate Data 2015). As a result of heavy rainfall, many Rainwater Basin wetlands received abundant runoff and had water levels above average (JGJ, personal observation). During July and August 2015, Jorgensen surveyed several wetlands in the Rainwater Basin for breeding birds. On 7 July, Harvard WPA, Clay County, was surveyed via kayak. We summarize Glossy Ibis observations from that survey.

Status review

We assembled documented and undocumented sightings of Glossy Ibis and possible Glossy x White-faced Ibis hybrids (herein referred to as hybrid ibis) from the following: NEBirds (an internet discussion group), eBird.org, seasonal field reports of the *Nebraska Bird Review*, and the NOURC (Nebraska Ornithologists' Union Records Committee) documentations for the years 1999-2015. Earlier reports (prior to 1999) of Glossy Ibis were addressed by Sharpe et al. (2001); all were considered to have resulted from confusion with White-faced Ibis and are not considered here. Two or more reports at one location separated by more than seven days were considered independent observations unless there was evidence to suggest that a single individual was involved.

Sightings evaluated by NOURC were not reviewed further to determine whether observers distinguished apparent Glossy Ibis from White-faced Ibis or hybrid ibis. The remaining sightings were evaluated by us in order to determine whether details provided by observers were sufficient to distinguish Glossy Ibis, White-faced Ibis, or hybrid ibis. A key field mark is the pattern and coloration of the facial skin (Kaufman and Peterson 1999). Adult White-faced Ibis in breeding plumage possess reddish facial skin bordered by white feathers at the base of the bill (Kaufman and Peterson 1999). Adult Glossy Ibis in breeding plumage possess a cobalt blue facial skin border at the base of the bill (Kaufman and Peterson 1999). Purported hybrid ibis in breeding plumage show intermediate characters including purplish facial skin (Arterburn and Grzybowski 2003). We summarize assembled information to show temporal and spatial occurrence patterns and trends of Glossy and hybrid ibis in Nebraska.

RESULTS

Nesting observations

The wetland at Harvard WPA was approximately 80% open water on 7 July 2015. Maximum depth was approximately 1.5 meters (5 ft). Areas with standing vegetation were restricted to the perimeter, where water extended into areas typically not inundated, including one large “island” of cattails (*Typha spp.*) and bulrush (*Scirpus spp.*) located in the interior of the wetland where nesting ibis were observed. Since a kayak was used, Jorgensen was able to slowly and quietly move through the vegetation and birds often did not flush until they observed him visually. Jorgensen flushed several *Plegadis* ibis and Black-crowned Night-Herons (*Nycticorax nycticorax*) and located several White-faced Ibis nests, some with young. Jorgensen also observed a *Plegadis* ibis he recognized as a Glossy Ibis standing on what appeared to be a nest. Among other field marks, the adult ibis had cobalt blue facial skin. Once the bird flew, Jorgensen inspected the nest and found five light blue eggs. Jorgensen subsequently observed and photographed another adult Glossy Ibis standing on a nest with four eggs (NBR, Vol. 83 (1), page 25) as well as a third adult Glossy Ibis on a nest that contained four eggs. In total, Jorgensen observed approximately 70 adult White-faced and three adult Glossy Ibis, 11 White-faced and 3 Glossy Ibis nests, and 5 *Plegadis* ibis fledglings in the rookery. In addition, Jorgensen observed 38 (28 adults, 10 first-year birds) Black-crowned Night-Herons. A complete inventory of nests and young was not conducted to minimize disturbing the birds. Thus, the totals reported here probably represent only a proportion of the total number of nests.

Status review

We located 73 Glossy Ibis reports, 23 of which were accepted by NOURC (Table 1). Single documented reports were recorded 1999–2001, and there were no reports 2002–2003, but the number of annual reports increased sharply thereafter. Since 2004, the number of annual reports has ranged from 1 to 12 (mean = 6). Of the 73 records, 75.3% (n = 55) were from spring (April–May), 13.7% (n = 10) were from summer (June–July) and 11.0% (n = 8) were from fall (August–October). Of the 73 records, 67.1% (n = 49) were from the Rainwater Basin, 10.9% (n = 8) were from the Sandhills lakes of Sheridan and Garden Counties and 4.1% (n = 3) were from areas near or portions of Lake McConaughy (Figure 1). The remaining thirteen records were distributed in other areas of the state. Glossy Ibis have been recorded in 19 of Nebraska’s 93 counties. Two observers (JGJ, PD) reported 47 of the 73 (64.4%) reports.

Table 1. Glossy Ibis records for Nebraska 1999-2015. Records shaded are those accepted by NOURC. NOURC did not review records after 2013.

#	Date(s)	Location	County	Observer*
<u>1999</u>				
1	24 April	Wilkins WPA	Fillmore	JGJ
<u>2000</u>				
1	7 May	McMurtrey Refuge	Clay	JGJ
<u>2001</u>				
2	14-20 July	Harvard WPA	Clay	JGJ, WRS, SJD
<u>2004</u>				
1	21-22 May	Krause WPA	Fillmore	JGJ, PD
<u>2005</u>				
1	14 April	Harvard WPA	Clay	PD, JGJ, WRS, RE
1	-26 May	Mallard Haven WPA	Fillmore	JGJ
1	3 May	Trumbull Basin	Adams	JGJ
1	19 May	near Hastings	Adams	PD
<u>2006</u>				
1	19 April	Harvard WPA	Clay	MS
5	6 May	Harvard WPA	Clay	PD
1	3 May	Clear Creek WMA	Keith	JGJ, TJW
1	10 May	Weis WPA	Fillmore	JGJ
1	13 May	near Hastings	Adams	PD
1	15 May	Lake McConaughy	Keith	SJD
1	5 Oct	Rainwater Basin		JGJ
<u>2007</u>				
1	25 May	Fontenelle Forest	Sarpy	EB
1	2 June	Harvard WPA	Clay	PD
<u>2008</u>				
1	3-4 May	Greenwing WPA	Clay	JGJ
1	16 May	Lake McConaughy	Keith	SJD
1	18 May	Mallard Haven WPA	Fillmore	JGJ
2	12-14 June	Hultine WPA	Clay	PD
1	27 July			
1	- 3 Aug	North Lake Basin WMA	Seward	JG, CNK, JGJ
1	3 Aug	La Platte Bottoms	Sarpy	MC
1	9-16 Aug	Straight Water WMA	Seward	JGJ
1	23 Aug	Tamora WPA	Seward	JG

2009

1	23 April	Harvard WPA	Clay	PD
1	26 April	County Line WPA	York	JGJ
2	30 April	Sheridan Co	Sheridan	CG
1	3 May	North Platte	Lincoln	TJW
1	9 May	Mallard Haven	Fillmore	JGJ
	10-17			
1	May	North Lake Basin	Seward	JGJ
1	14 May	County Line WPA	York	JGJ

2010

1	24 April	Sprikerush WMA	York	JGJ
1	29 April	n. Garden Co.	Garden	CG
1	30 April	near Greenhead WMA	Clay	JGJ
1	30 April	Smith WPA	Clay	JGJ
1	30 April	Smartweed WMA	Nuckolls	JGJ
1	2 May	Verona Complex	Clay	JGJ
1	2 May	near Mitchell	Scotts Bluff	CG, KD, RS
1	3-8 May	North Lake Basin WMA	Seward	BP, LP, LE
1	3 May	Straight Water WMA	Seward	JGJ
1	6 May	n. Garden Co.	Garden	CG
2	17 May	Sheridan Co	Sheridan	LE
3	29 May	Deep Well WMA	Hamilton	JGJ

2011

1	17 April	Harvard WPA	Clay	PD
1	29 April	Harvard WPA	Clay	PD
1	27 April	Fuchtman Playa	Antelope	MB
1	4 May	Kissing Basin WMA	Clay	JGJ
	7-14			
1	May	Moger WPA	Clay	JGJ
2	17 May	Kissing Basin WMA	Clay	PD, BF
		Sacramento-Wilcox		
1	18 July	WMA	Phelps	WF

2012

	12-15			
1	May	north of Lincoln	Lancaster	LE, EA, RSt
	18-20			
1	May	Bittern's Call WMA	Dawson	DL, TJW

2013

1	14 May	Harvard WPA	Clay	PD
1	20 July	Harvard WPA	Clay	PD
1	21 Aug	Jack Sinn WMA	Saunders	LE

2014

1	20 April	Jack Sinn	Saunders	GR
1	27 April	Chilibaba	Scotts Bluff	KD, AK
1	5-9 May	Pawnee lake	Lancaster	MW, JK
1	14 May	Chilibaba	Scotts Bluff	AK
1	15 May	Medicine Creek Res.	Frontier	JGJ, TJW
1	16 May	Tamora WPA	Seward	KS

2015

1	3 May	Real WPA	Fillmore	JGJ
3	8 May	Goehner basin	Seward	JGJ
	12-15			
1	May	North Lake Basin WMA	Seward	LE, JGJ
1	12 May	Marsh Duck WMA	York	JGJ
1	25 May	Straight Water WMA	Seward	NR
3	9 July	Harvard WPA	Clay	JGJ
1	24 July	Sheridan Co	Sheridan	JGJ
1	24 July	Sheridan Co	Sheridan	JGJ
1	24 July	Sheridan Co	Sheridan	JGJ
1	24 July	Sheridan Co	Sheridan	PH
1	16 Aug	Trumbull Basin	Adams	JGJ

Table 2. Hybrid ibis reports for 1999-2015.

#	Date	Year	Location	County	Observer*
1	6-May	2006	Harvard	Clay	JGJ
1	27-July - 3-August	2008	North Lake Basin WMA	Seward	JG, CNK, JGJ
1	7-May	2011	Moger WPA	Clay	JGJ
1	7-May	2011	Smith WPA	Clay	JGJ
1	25-Apr	2012	Goehner basin	Seward	JGJ
1	24-Jul	2015	Sheridan co	Sheridan	JGJ

*Observers: AK: Alice Kenitz, BP: Babs Padelford, BF: Bill Fink, CNK: Clem N. Klaphake, CG: Cory Gregory, DL: Dan Leger, EA: Edward Allen, EB: Elliott Bedows, GR: Gary Roberts, JGJ: Joel G. Jorgensen, JG: Joseph Gubanyi, JK: Jon King, KD: Kathy DeLara, KS: Kent Skaggs, LE: Larry Einemann, LP: Loren Padelford, MB: Mark Brogie, MC: Matthew Cvetas, MS: Michael Stromer, MW: Michael Willison, NR: Neal Ratzlaff, PD: Paul Dunbar, PH: Peter Hill, RE: Rick Eades, RS: Ruben Siegfried, RSt: Ruthie Stearns SJD: Stephen J. Dinsmore, TJW: T.J. Walker, WF: William Flack, WRS: W. Ross Silcock

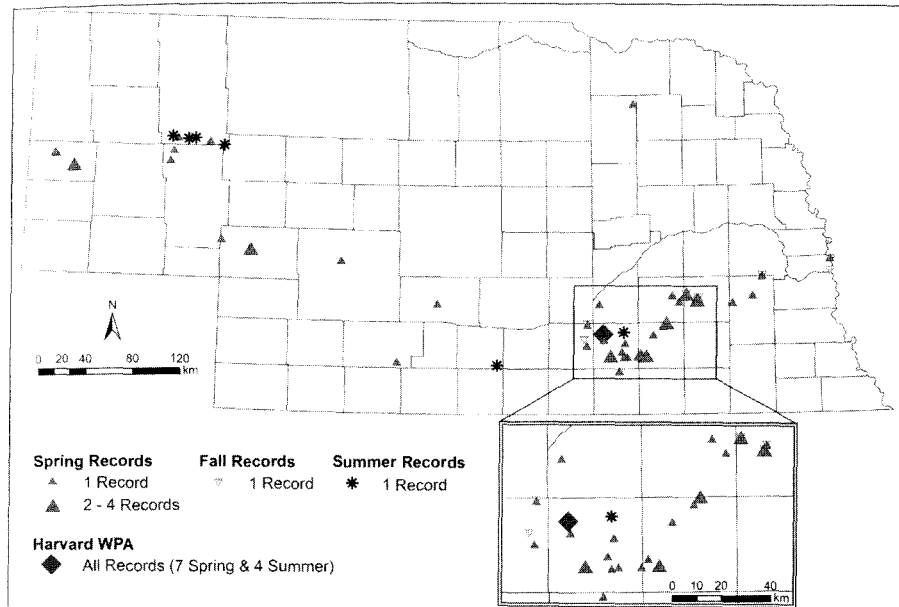


Figure 1. Spatial distribution of Glossy Ibis records in Nebraska 1999-2015. The inset shows a clustering of records in the eastern portion of the Rainwater Basin. Map by Lauren R. Dinan.

A few reports of Glossy Ibis prior to 2015 were suggestive of breeding. Two adults at Harvard WPA in 2001 were suspected of being part of a flock that was nesting earlier in the summer at Kissinger Basin Wildlife Management Area (WMA). In 2007, an adult Glossy Ibis was found in a White-faced Ibis nesting colony at Harvard WPA on 2 June by Paul Dunbar. Similarly, two adult Glossy Ibis were found with nesting White-faced Ibis at Hultine WPA 12-14 June (P. Dunbar, personal observation). However, in all of these instances direct evidence that Glossy Ibis were nesting was not observed.

We located seven reports of hybrid ibis, all of which were from 2006 – 2015 (Table 2). Five reports were from spring and two were from summer or early fall. All reports were during the period 25 April – 3 August. All but one of these reports, a 2015 observation from the Sandhills lakes regions of Sheridan and Garden County, were from the Rainwater Basin.

DISCUSSION

Few species have undertaken a range expansion and population increase comparable to that of the Glossy Ibis in North America. Those which have are generally introduced species such as Rock Pigeon (*Columba livia*), House Sparrow (*Passer domesticus*) and European Starling (*Sturnus vulgaris*). However, the increase and expansion of the Glossy Ibis in the New World does share similarities to at least one other immigrant wading bird, the Cattle Egret. In Nebraska, we are aware of only one other species (Eurasian Collared-Dove *Streptopelia decaocto*) that has gone from being unrecorded to attaining “regular” occurrence status during the past twenty-five years. Great-tailed Grackle (*Quiscalus mexicanus*) and Lesser Goldfinch (*Spinus psaltria*), both native species which now occur regularly, were first recorded in Nebraska in 1976 and 1984, respectively (Sharpe et al. 2001).

The discovery of Glossy Ibis nesting in Nebraska and the Rainwater Basin is not unexpected. In addition to other observations from the Rainwater Basin suggestive of nesting by Glossy Ibis, the species has also been found nesting elsewhere in the Great Plains. Glossy Ibis were suspected of breeding and hybridizing with White-faced Ibis in Oklahoma in 2002 (Arterburn and Grzybowski 2003), found breeding and hybridizing with White-faced Ibis in Wyoming in 2005 (Faulkner 2005), and was first documented nesting in South Dakota in 2012 (North American Birds 66:695). It should be noted that while direct evidence indicating Glossy Ibis nested in Nebraska was obtained in 2015, it is not known whether the Glossy Ibises observed were paired with other Glossy Ibises or whether one or all were part of mixed-species pairs with White-faced Ibis.

Hybridization between the two *Plegadis* ibis species presents identification challenges to birders and may lead to confusion about the status of the two species in Nebraska and the Great Plains. However, the number of reports of hybrid ibis has not kept pace with reports of Glossy Ibis in Nebraska. The limited number of reports may be due, in part, to birders overlooking or ignoring hybrid ibis, or as observed by Arterburn and Grzybowski (2003) in colonies in Texas in which both species nest and hybridization was not observed, hybridization is not common. Furthermore, Burger and Miller (1977) noted differences in nesting sites between the two species. In the Great Plains, hybridization may occur more frequently than elsewhere because of limited habitat and also the non-availability of mates since White-faced Ibis still greatly outnumber Glossy Ibis. We encourage birders to closely scrutinize, photograph, and report suspected hybrid ibis in the future.

White-faced Ibis numbers and breeding range have also increased greatly in the Great Plains in recent decades (Jorgensen and Dinsmore 2001). This may also be a

factor in breeding interactions between the two species. Even though Nebraska's first nesting record for White-faced Ibis was from what is now Harvard WPA in the Rainwater Basin in 1916 (Swenk 1918), there were no other breeding records for this species in this region until 2001 when a small group nested at Kissinger Basin WMA, Clay County, (Jorgensen 2012). Since 2001, an additional eight nesting records have been tallied (Jorgensen 2012, JGJ personal observation). Thus, White-faced Ibis breeding status in the Rainwater Basin is rapidly evolving as well.

It is important to consider that spatial and temporal patterns of Glossy Ibis occurrence are likely biased by observers' distribution and effort in the state. This is particularly evident when noting that two observers who live near and spend substantial time birding in the Rainwater Basin were responsible for the overwhelming majority of reports. The absence of records from north-central Nebraska, including areas within and near Valentine National Wildlife Refuge where abundant wetland habitat is available, is possibly due to a limited number of observers birding in these areas.

Glossy Ibis in Nebraska are almost always reported with White-faced Ibis. White-faced Ibis are known to be fairly common migrants and occasional breeders in central and western Nebraska in appropriate habitat, specifically marshes and wetlands of the Sandhills (Sharpe et al. 2001). More recently, White-faced Ibis was noted to be very common during the summer of 2015 in the extensive wetlands of Garden and Sheridan Counties (Kenitz 2015; JGJ, personal observation). Four Glossy Ibises were found with White-faced Ibises when searched for during this period (JGJ, PH). Thus, we believe that the distribution and occurrence of Glossy Ibis is similar to the distribution and occurrence of White-faced Ibis in the state, although numbers of the latter are lower.

The initial documented occurrences, subsequent increase in reports, and confirmed nesting of the Glossy Ibis in Nebraska is arguably one of the more notable series of events of avian occurrences observed in the state during the past twenty-five years. The true status of the Glossy Ibis in Nebraska is possibly confounded by similarity in some plumages to White-faced Ibis, hybridization with White-faced Ibis, and also observer distribution relative to ibis distribution in the state. However, we conclude the evidence suggests Glossy Ibis is currently an uncommon spring migrant, rare summer visitor, and rare fall migrant in Nebraska. Additional observations supported by identification details (e.g., photos) are needed to further clarify this species' evolving occurrence and distribution in the state. We anticipate that Glossy Ibis will continue to increase and may eventually become a fairly common or even common spring and fall migrant and regular breeder in the state.

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