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9-2019

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New Wilson's Phalarope Nesting Record from the Central Platte River Valley, Mormon Island, Hall County, Nebraska

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The southeastern portion of the Wilson's Phalarope's (*Phalaropus tricolor*) breeding range encompasses parts of Nebraska (Colwell and Jehl 1994), including the Sandhills and northern Panhandle (Silcock and Jorgensen 2018). Additionally, there have been a number of breeding records from southcentral and southeastern Nebraska within the Rainwater Basin ecoregion since the mid-1990s (Mollhoff 2016, Silcock and Jorgensen 2018). However, there is very little evidence of regular breeding activity in the nearby Central Platte River Valley (CPRV), which spans from Chapman west to Overton, Nebraska, and is considered a globally important area for waterbirds (Johnsgard and Brown 2013, Silcock and Jorgensen 2018). Sutton and Arcilla (2018) documented two juvenile Wilson's Phalaropes with two adults on 28 June 2017, confirming successful breeding in the CPRV on Mormon Island, Hall County, Nebraska. However, Sutton and Arcilla (2018) did not document an active nest and therefore lack a detailed description of the nesting habitat used by Wilson's Phalaropes in this unique ecoregion.

On 6 June 2019 we found a Wilson's Phalarope nest while walking between avian point count stations on Mormon Island, 4.7 km northwest of Doniphan and 14.4 km southwest of Grand Island, Nebraska, on land owned and managed for the benefit of migratory birds by the Crane Trust (<https://cranetrust.org/>). The landscape is managed with rotational grazing and prescribed fire to simulate natural disturbance regimes (Fuhlendorf et al. 2009). Mormon Island contains the largest contiguous tract of wet meadow remaining in the CPRV (Currier and Henszey 1996, Brei and Bishop 2008). Mormon Island consists of about 1075 hectares (ha) or 2,656 acres (ac) of primarily relict and restored wet meadow and lowland tallgrass prairie habitat, and exists within a complex of 2,425 ha (5,992 ac) of land protected for conservation purposes along a 13 km (~8 mi.) stretch of the Platte River.

The nest was found when an adult male Wilson's Phalarope flushed directly off the nest from the ground at a distance of approximately 3 meters (m) from approaching observers. The nest was located in a wet meadow (For "wet meadow" see Tiner 2016; N 40.80045, W -98.41100; 577 m elevation), topographically above and 4.5 m north of an east-west oriented slough (For "slough" see Meyer and Whiles 2008). The slough contained predominantly shallow marsh habitat (For "shallow marsh" see Kantrud et al. 1989), which was dominated by aquatic-emergent vegetation including Common Spikerush (*Eleocharis palustris*), Slimstem Reedgrass (*Calamagrostis stricta*), Broom Sedge (*Carex scoparia*), American Bur-Reed (*Sparganium americanum*), and included about 30% open water (vascular plant identification following Kaul et al 2011). The slough spanned about 6.5 meters in

wetted width and had a maximum water depth of about 25 cm as of 6 June 2019. The nest, which contained 4 eggs as of 6 June 2019, was on the ground and primarily constructed from senesced perennial graminoid leaves (Figure 1). The interior diameter of the nest cup was approximately 70 mm and the cup depth was about 20 mm. The nest was relatively well covered by surrounding vegetation, which averaged about 40 cm in height around the outer circumference of the nest including Clustered Field Sedge (*Carex praegracilis*), Poverty Rush (*Juncus tenuis*), and Common Threesquare (*Schoenoplectus pungens*) (Figure 1). Great Plains breeding birds depend on particular spatial as well as temporal habitat niches as site characteristics vary across ecological succession and are regulated by the duration since and intensity of “focal disturbances” such as fire and grazing (Fuhlendorf et al. 2019). The 115 ha (284 ac) pasture used by the Wilson’s Phalaropes for nesting was grazed beginning 15 April 2019 by about 250 cows in conjunction with another 120 ha (297 ac) pasture, resulting in an estimated stocking rate of 1.95 animal unit months per ha (0.79 AUM/ac) at the time of the nest observation. The area was last burned 17 April 2014.

Figure 1. Photograph of Wilson’s Phalarope nest containing four eggs taken on 6 June 2019 within a wet meadow on Mormon Island, Hall County, Nebraska.



On 6 June 2019 we observed two adult Wilson’s Phalaropes in the vicinity of the detected nest after quickly examining and photographing it. We noted two additional adults approximately 450 m to the southwest as well. On 10 June 2019 we revisited the nest location but were unable to conclusively relocate the nest site despite the use of a high quality Global Positioning System unit (GPS 73, Garmin Ltd., Lenexa, KS). However, we located a grassy depression reminiscent of the nest, which contained no eggs or adult male Wilson’s Phalaropes attending. Nevertheless, we observed two adults about 120 m south (~ 200° bearing) of the documented nesting location within 5 m of another slough wetland with open marsh habitat. On 10 June

2019 we documented a total of 6 individual adult Wilson's Phalaropes within one general area (within 800 m) near the documented nesting location.

On 28 June 2019 another Wilson's Phalarope nest was detected on Mormon Island while we were conducting wet meadow vegetation surveys. The nest was located as surveyors approached within 5 m and a chick jumped out of its nest suggesting it had recently hatched, as Wilson's Phalaropes leave the nest within 1 day of hatching (Colwell and Jehl 1994). The nest was empty of other chicks. The chick unsuccessfully attempted flight several times after leaving the nest and eventually ran to seek cover under a nearby False Indigo Bush (*Amorpha fruticosa*). At least two adult male Wilson's Phalaropes which called and circled overhead were detected nearby, potentially indicating the presence of fledglings from more than one nest in the area. Observers quickly recorded a GPS coordinate near the nest (N 40.79815, W -98.42532; 579 m elevation) before continuing their vegetation surveys. This nest was located 4 meters north of one slough and 18 meters south of another slough, both of which contained about 3 inches (~8 cm) of water at the time of the observation. This nesting site was approximately 1,245 m west of the nesting site documented on 6 June 2019. The nest was located on a small hummock of Switchgrass (*Panicum virgatum*), Slimstem Reedgrass (*Calamagrostis stricta*), and Clustered Field Sedge (*Carex praegracilis*), and the surrounding vegetation consisted of Fowl Mannagrass (*Glyceria striata*), Common Threesquare (*Schoenoplectus pungens*), and False Indigo Bush (*Amorpha fruticosa*). The 107 ha (264 ac) pasture was periodically grazed by approximately 250 cattle during the 2018 growing season (mid-April to early-November); the cattle also had periodic access to 3 other pastures resulting in an estimated stocking rate of ~2.47 animal unit months per ha (~1.00 AUM/acre). This area was last burned in early March 2014.

Data from a long-term weather station near Hastings, Nebraska, 17.4 km southwest of the Wilson's Phalarope nest documented in 2019 (Hastings 4N; N 40.6471, W -98.3835; 591 m elevation), demonstrated that the mean precipitation in May from 1894 to 2019 was 10.36 ± 5.38 cm (range = 1.19 cm to 31.67 cm; NOAA 2019). Wilson's Phalaropes were recorded during breeding bird point count surveys conducted from 21 May to 15 July on Mormon Island in 2017 and 2019, both of which demonstrated above average May precipitation levels (16.03 cm and 20.60 cm respectively, NOAA 2019). However, they were not detected on Mormon Island during breeding bird surveys in 2015, 2016, or 2018, all of which recorded average or slightly below average May precipitation (Range = 8.99 to 10.90 cm; NOAA 2019). The Wilson's Phalarope migration peaks during the first half of May in southcentral Nebraska (Silcock and Jorgensen 2018). It is possible that wet conditions in May are associated with Wilson's Phalaropes "short stopping" to breed south of their core breeding range (Elmberg et al. 2014). Crane Trust long-term research staff has conducted 33-80 breeding season point count surveys per year across 62 sites from 2015 to 2019 (Crane Trust, unpublished data). With this relatively consistent effort it is probable that we would reliably detect Wilson's Phalaropes during the breeding season if they were present.

Hydroperiod, the timing and duration of surface water inundation, can vary widely across slough wetlands in the CPRV. Whiles and Goldowitz (2005) documented annual hydroperiods ranging from 158-365 days from April 1997 to April 1998 across four sites at Shoemaker and Mormon Islands. Hydroperiod also varies

widely within slough wetlands across years, with some sites ranging from zero to six months of annual inundation across only a three-year period (Meyer and Whiles 2008). Henszey and Wesche (1993) demonstrated that precipitation is likely the second most important factor driving wet meadow hydrology aside from river stage. Interestingly, from 2015 to 2019, aside from the spring of 2018, river discharge (cubic ft. per sec.) and river stage (ft.) were at or above median levels from mid or late-May to mid or late-June each year (USGS 2019). Sutton and Arcilla (2018) suggested that the Wilson's Phalaropes detected in 2017 depended upon overflow from an open above-ground cattle water tank because of a lack of naturally available surface water during late June of 2017. Despite the wet May of 2017, June 2017 was quite dry recording just 3.51 cm precipitation, well below the 10.03±5.87 cm average (range = 0.97 cm – 29.74 cm) recorded from between June 1894 and 2019 (NOAA 2019). In the CPRV open water habitat is available through the Wilson's Phalarope breeding season in some years, but not in others. This stochasticity and unpredictability may be why southcentral Nebraska, and particularly the CPRV, appears to only be an occasional breeding location for Wilson's Phalaropes, as the species depends upon the availability of shallow water for foraging during the breeding season (Colwell and Oring 1988a). Our observations suggest nesting was predominantly in wet meadows and near sloughs containing shallow or deep marsh habitat (For "deep marsh" see Kantrud et al. 1989).

Colwell and Oring (1988b) found relatively high numbers of nesting Wilson's Phalaropes from 1984 to 1987 at a 100 acre site actively grazed with 40 to 65 cattle throughout the growing season. Our observations also demonstrated that nesting occurred in recently and actively grazed pastures, suggesting this species may be relatively tolerant of moderate stocking rates during the breeding season. Our results also indicate that breeding may be more likely occur in the CPRV when conditions are wetter than average during the peak of the Wilson's Phalarope migration in May. To our knowledge this is the first detailed description of a Wilson's Phalarope nesting site in the CPRV.

Acknowledgements

Research was funded by the Crane Trust, Johanna DeStefano via the Lila O. Wilson Biological Monitoring Internship, and Nebraska EPSCoR (Established Program to Stimulate Competitive Research, grant # OIA-1557417). We want to thank Dustin Ranglack for his role in securing EPSCoR funding for a student intern position and all our partners for their support of student-involved natural history research.

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