

## Whooping Crane Survey Results: Winter 2015–2016

329 Wild Whooping Cranes Estimated

The U.S. Fish and Wildlife Service has completed aerial surveys of the primary survey area centered on Aransas National Wildlife Refuge to estimate the abundance of whooping cranes in the Aransas-Wood Buffalo population. Preliminary analyses of the survey data indicated 329 whooping cranes (95% CI = 293–371; CV = 0.073) inhabited the primary survey area (Figure 1). This estimate included 38 juveniles (95% CI = 33–43; CV = 0.078) and 122 adult pairs (95% CI = 108–137; CV = 0.071). Recruitment of juveniles into the winter flock was 13 chicks (95% CI = 12–14; CV = 0.036) per 100 adults, which is comparable to long-term [average recruitment](#). The precision of this year's estimate achieved the target set in the [whooping crane inventory and monitoring protocol](#) (i.e., CV < 0.10).

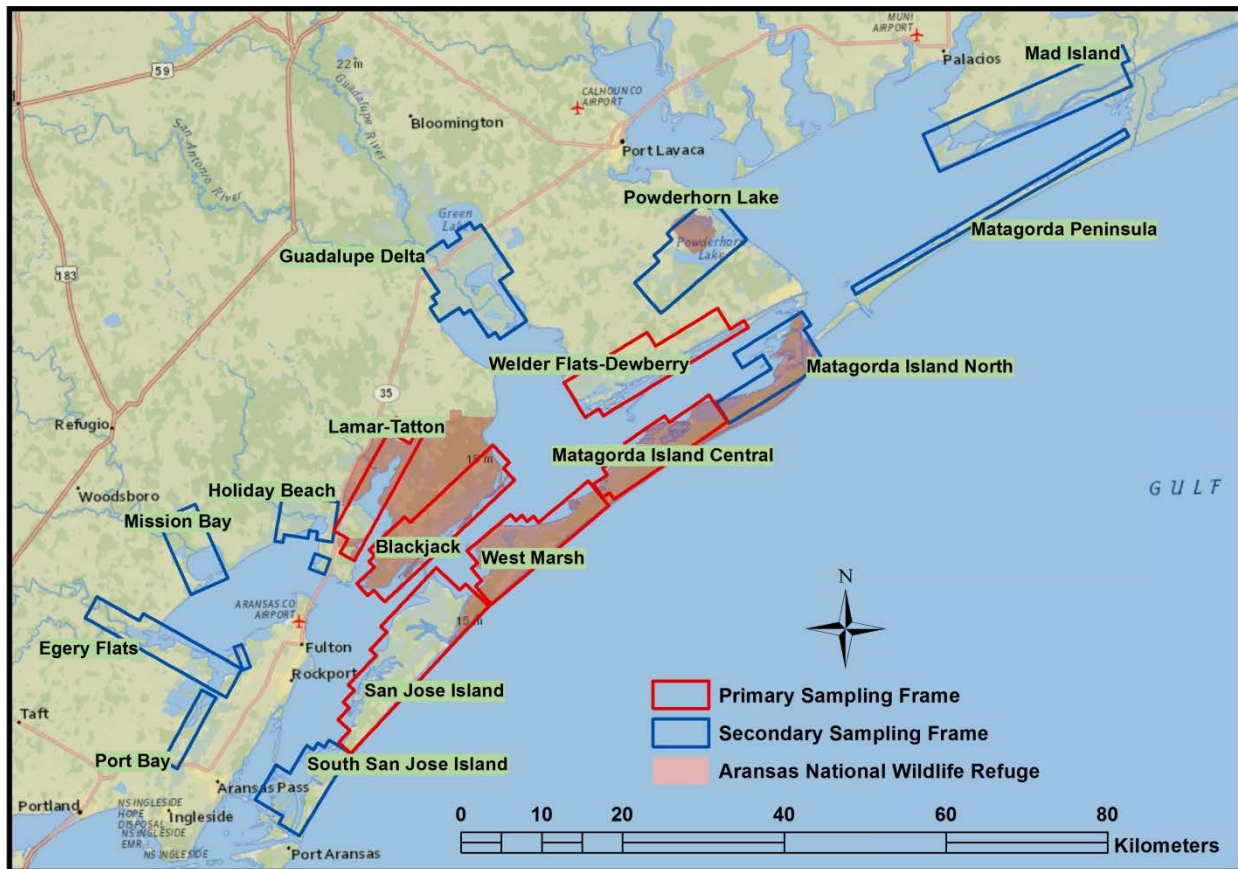


Figure 1. The sampling frame used to monitor whooping crane abundance on their wintering grounds along the Texas coast of the Gulf of Mexico, USA.

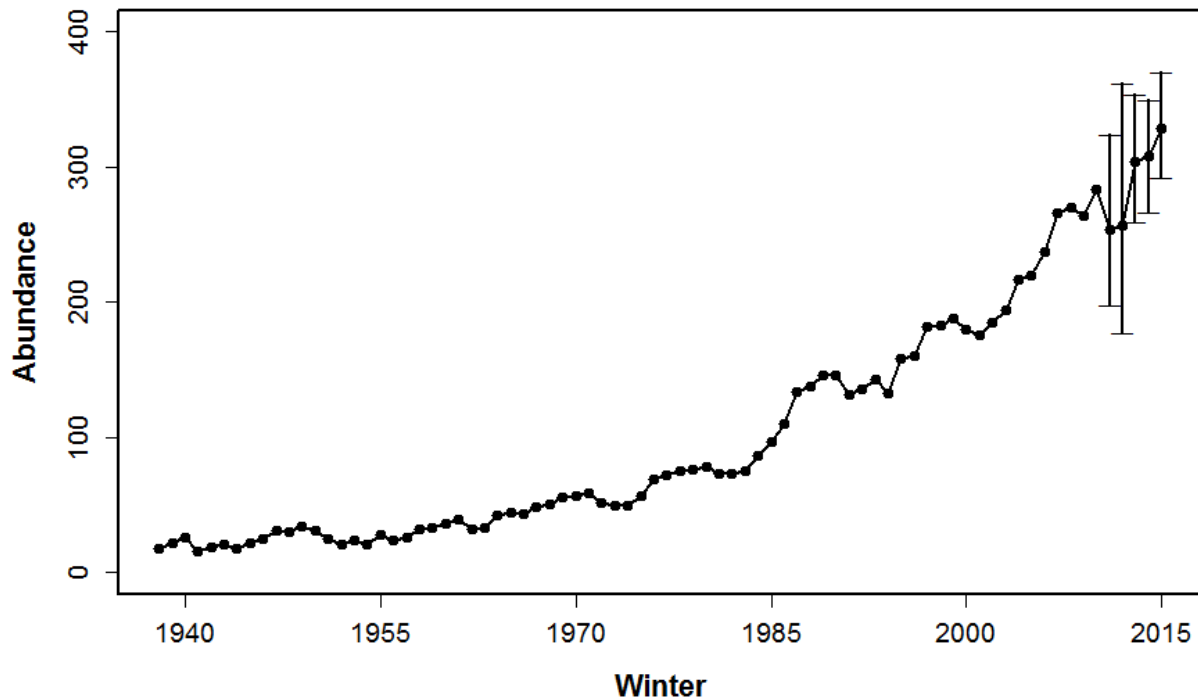
A continued upward trend in whooping crane abundance over the last five years was observed (Table 1), which is consistent with the long-term trend of approximately 4% growth per year. Examination of the 78-year trend in whooping crane abundance shows an increase with occasional, [periodic declines](#) occurring, on an approximate 10-year cycle (Figure 2).

**Table 1. Preliminary whooping crane abundance estimates for the Aransas-Wood Buffalo population on their wintering grounds, winter 2011–2012 through winter 2015–2016.**

Survey year	Abundance <sup>a</sup>	CV	95% CI		No. assumed beyond primary survey area <sup>b</sup>
			LCL	UCL	
winter 2011–2012	254	0.126	198	324	13
winter 2012–2013	257	0.186	178	362	22
winter 2013–2014	304	0.078	260	354	6
winter 2014–2015	308	0.067	267	350	6
winter 2015–2016	329	0.073	293	371	9

<sup>a</sup> Estimated whooping crane abundance in the primary sampling area using aerial surveys and hierarchical distance sampling. CV = coefficient of variation, CI = confidence interval, LCL = lower confidence limit, and UCL = upper confidence limit.

<sup>b</sup> Provides our best understanding of the number of whooping cranes, at the time of the aerial surveys, that were outside of the primary survey areas. This information was based on data from Texas Whooper Watch, Ebird reports, the whooping crane GPS tracking study, and aerial surveys conducted in the secondary survey areas. Note, an additional GPS-tracked bird was observed in Fayette County on December 10<sup>th</sup> but was available for detection in the primary sampling area beginning on December 11<sup>th</sup> (available for at least half the survey flights).



**Figure 2. Time-series of whooping crane abundance estimates for the Aransas-Wood Buffalo population beginning in winter 1938–1939. Starting in winter 2011–2012, the precision of abundance estimates were displayed as 95% confidence intervals (these are preliminary estimates). During years prior to winter 2011–2012, the precision of abundance estimates was unknown.**

During winter 2015–2016, the primary survey area (approximately 153,950 acres; Figure 1) was surveyed multiple times during December 7 through December 17, 2015. Blackjack Peninsula, Lamar

Peninsula-Tatton Unit, and San Jose Island were surveyed seven times and Matagorda Island Central, West Marsh, and Welder Flats-Dewberry Island were surveyed six times. During the same period, the secondary survey area (approximately 169,300 acres; Figure 1) was surveyed to monitor ongoing expansion of the whooping crane's occupied winter range. All secondary areas were surveyed twice during December 7 through December 17, 2015.

During the survey period, some whooping cranes were observed outside of the primary survey area. These data were based on information from [Texas Whooper Watch](#), [Ebird](#) reports, the whooping crane GPS tracking study, and aerial surveys conducted in the secondary survey areas. Compared to winter 2011–2012 and winter 2012–2013, few whooping cranes were observed outside of the primary survey area (Table 1). Table 2 provides our best understanding of whooping cranes that were outside the primary survey areas during the mid-December survey period. Some birds may have been missed. It is impossible to be absolutely certain that individuals did not move between these locations and to/from the primary survey area during the survey period.

**Table 2. Whooping cranes documented outside of the primary survey area during December 7 through December 17, 2015.**

General area	Data source	Adults	Chicks	Total	Notes
North Matagorda Island (secondary survey area)	Aerial survey	1	0	1	Individual detected twice during aerial surveys on different days at same location.
Holiday Beach (secondary survey area)	Aerial survey	2	0	2	Pair detected once during aerial surveys.
Powderhorn Lake (secondary survey area)	Aerial survey	2	1	3	Group detected twice during aerial surveys on different days at same location.
Mad Island (secondary survey area)	Aerial survey	2	0	2	Pair detected once during aerial surveys.
Kleberg County (south of Kingsville near Ricardo, TX)	Texas Whooper Watch Ebird	1	0	1	Reported on November 20 <sup>th</sup> , December 6 <sup>th</sup> , and again on multiple dates in January and February.
Fayette County (near La Grange, TX)	GPS tracking study	1	0	1	Observed near La Grange on December 10 <sup>th</sup> but was observed within the primary survey area beginning on December 11 <sup>th</sup> .

*The data and results presented in this report are preliminary and subject to revision. This information is distributed solely for the purpose of providing the most recent information from aerial surveys. This information does not represent and should not be construed to represent any U.S. Fish and Wildlife Service determination or policy.*

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