



Various waterfowl on Cibolo Creek - November 20,2019

Cibolo Preserve Waterfowl Monitoring

2020

This document summarizes data obtained during the eighth Waterfowl monitoring season on the Cibolo Preserve in Boerne, Texas from October 2019 to March 2020.

CIBOLO PRESERVE WATERFOWL MONITORING 2020

Monitors:

Team Leader – Tom Riordan
Team member – Tara Randle
Team member – Betty Dunn
Team member – Dick Park
Alternate team member – Kenneth Butler

Cibolo Preserve / Cibolo Creek Monitored Bi-Weekly: October 19, 2019 through March 11, 2020.

Background

The eighth season of monitoring abruptly ended with the March 11, 2020 survey. The following week, the little town of Boerne, Texas, as well as all the State, Country and World was hunkered down to thwart the spread of the virus SARS-CoV-2. The effort to identify and keep population counts of waterfowl present at the Cibolo Preserve was impacted by reducing the monitoring season by approximately 8 weeks (4 surveys) compared to years past.

This survey is intended to determine actual waterfowl species present including species in the *Anatidae*, *Rallidae*, & *Podicipedidae* families. These families include species commonly referred to as ducks, geese, waterfowl, grebes, cormorants and coots. The survey is documenting species presence and the timing of presence at the Cibolo Preserve. This survey year data will not be able to provide comparisons for years past with regards to March, April or May 2020.

Waterfowl are generally present on the Cibolo Preserve from October through May, as an over-wintering site along the Central Flyway, a well-documented corridor for bird migration. With 1.5 continuous miles of Cibolo Creek providing plentiful forage, mild winter temperatures, and habitat protected from human interference, the Cibolo Preserve is an ideal location for waterfowl to congregate.

This eighth year of monitoring began on October 9, 2019 with zero observations and continued through March 11, 2020 when 134 individuals were sighted. Four of the individuals were Neotropical cormorants *Phalacrocorax brasilianus*, a not so common species for this area. As mentioned previously, the SARS-CoV-2 virus halted the seasons surveys and even into August 2020 as this report is being written, the survey is unable to be re-implemented since it requires the surveyors to travel together in a vehicle. It is unlikely the survey will be re-implemented until the risks of SARS-CoV-2 have been substantially mitigated.

During the shortened survey season the four study areas along the creek continued to be utilized as waterfowl habitat. The same names that were used in the inaugural study continue to be used; Ronald's Reach, Bill's Reach, Rookery Bend and Fern Bank (Figure 5). Within each of these

study areas the species present, population count and, if possible, gender identification was recorded.

Gadwall, *Anas strepera* continued to be the most prevalent waterfowl species on the Cibolo Preserve. However, it's abundance this year is undoubtedly being exasperated by the lack of data for the last segment of the season when additional waterfowl species are commonly sighted. The Gadwall was at 80.82% abundance for the October 2019- March 2020 time period. Next were the Mallard *Anas platyrhynchos* at 4.59%, Bufflehead, *Bucephala albeola* at 3.96%, Lesser Scaup, *Aythya affinis* at 2.57% and lastly the Black-bellied Whistling-Duck, *Dendrocygna autumnalis* at 1.88% (Table 2, Figure 2). Again, these abundance values are based upon the limitation of an abbreviated season.

Notable observations this year include four Neotropic Cormorant, *Phalacrocorax brasilianus*. This species was first observed during the 2018 season with a count of 7, followed by 10 observations in 2019. It is unknown if a full season would have resulted in increased counts over past years. The Pied-billed grebe and American wigeon were also notable observations.

The 2019-2020 season total count of 1439 was nearly 2.5 times as many as last year and much more like 2018 (Figure 1) despite the shortened season. Continuance of this survey over the long term will help to determine if the Cibolo Preserve is an essential overwintering area for waterfowl, especially in times of water scarcity.

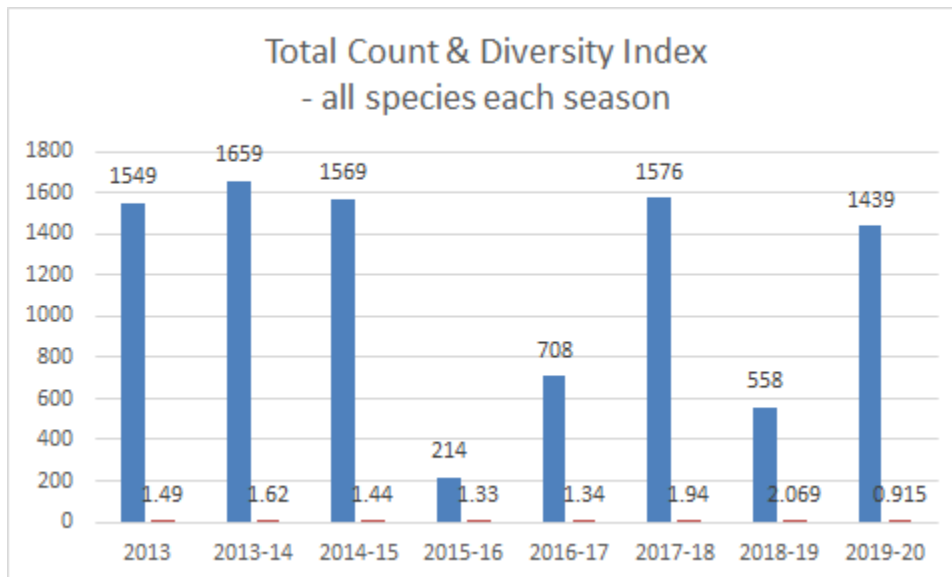


Figure 1. Total counts and diversity index of ALL species observed each season. The inaugural year of the survey 2013 was a partial study from January – May. Likewise, 2020 has been an abbreviated year from October – mid-March. All other years were complete seasons.

Species	2014	2015	2016	2017	2018	2019	2020
Black-bellied Whistling-Duck	354	54	0	3	39	21	27
Wood Duck	6	6	0	14	4	93	9
Gadwall	821	937	123	438	647	131	1163
American Wigeon	18	5	0	1	37	3	2
Mallard	24	147	1	5	101	17	66
Blue-winged Teal	91	74	14	5	66	122	18
Northern Shoveler	72	11	0	16	39	12	9
Northern Pintail	0	0	0	0	0	0	0
Green-winged Teal	25	16	37	0	5	11	8
Redhead	1	2	0	0	0	0	0
Ring-necked Duck	0	1	0	0	7	1	0
Lesser Scaup	52	59	19	52	119	8	37
Bufflehead	153	216	16	121	205	14	57
Hooded Merganser	2	10	1	16	37	5	13
Red-breasted Merganser	2	14	0	0	0	0	0
Ruddy Duck	0	0	2	2	0	0	0
Pied-billed Grebe	9	7	1	0	0	3	3
American Coot	1	0	0	0	1	1	0
Double-crested Cormorant	18	6	0	16	17	7	10
Common Golden-eye	6	0	0	0	4	0	0
Unidentified	4	4	0	19	240	99	13
Neotropic Cormorant*	0	0	0	0	7	10	4
Cinnamon Teal *	0	0	0	0	1	0	0
Total	1659	1569	214	708	1576	558	1439

Table 1. Total Count each species for each season 2014 through 2020.

Species	Count	Species Abundance (P*100)	Species Diversity (D)
Black-bellied Whistling-Duck	27	1.876	0.074599308
Wood Duck	9	0.625	0.031737535
Gadwall	1163	80.820	0.172102627
American Wigeon	2	0.139	0.009143234
Mallard	66	4.587	0.141358743
Blue-winged Teal	18	1.251	0.054804708
Northern Shoveler	9	0.625	0.031737535
Northern Pintail	0	0.000	----
Green-winged Teal	8	0.556	0.028865947
Canvasback	0	0.000	----
Redhead	0	0.000	----
Ring-necked Duck	0	0.000	----
Lesser Scaup	37	2.571	0.094127223
Bufflehead	57	3.961	0.127889638
Hooded Merganser	13	0.903	0.042521061
Red-breasted Merganser	0	0.000	----
Ruddy Duck	0	0.000	----
Pied-billed Grebe	3	0.208	0.012869544
American Coot	0	0.000	----
Double-crested Cormorant	10	0.695	0.034531749
Sandpiper	0	0.000	----
Common Golden-eye	0	0.000	----
Grebe sp.	0	0.000	----
Unidentified	13	0.903	0.042521061
Neotropic Cormorant*	4	0.278	0.01635972
Cinnamon Teal *	0	0.000	----
Total	1439	100.000	0.915169632

Table 2. 2020 Season specific totals for each species with calculated species abundance and diversity. Calculated using the Shannon-Wiener Index (H') a commonly used diversity index in ecological studies. Species diversity can range from 0-5; commonly it will fall within 1.5-3.5. Zero indicates very low species diversity and five indicates the most species diversity. *not included in study area counts shown in Table 3 or figure 4 since are rare sightings.

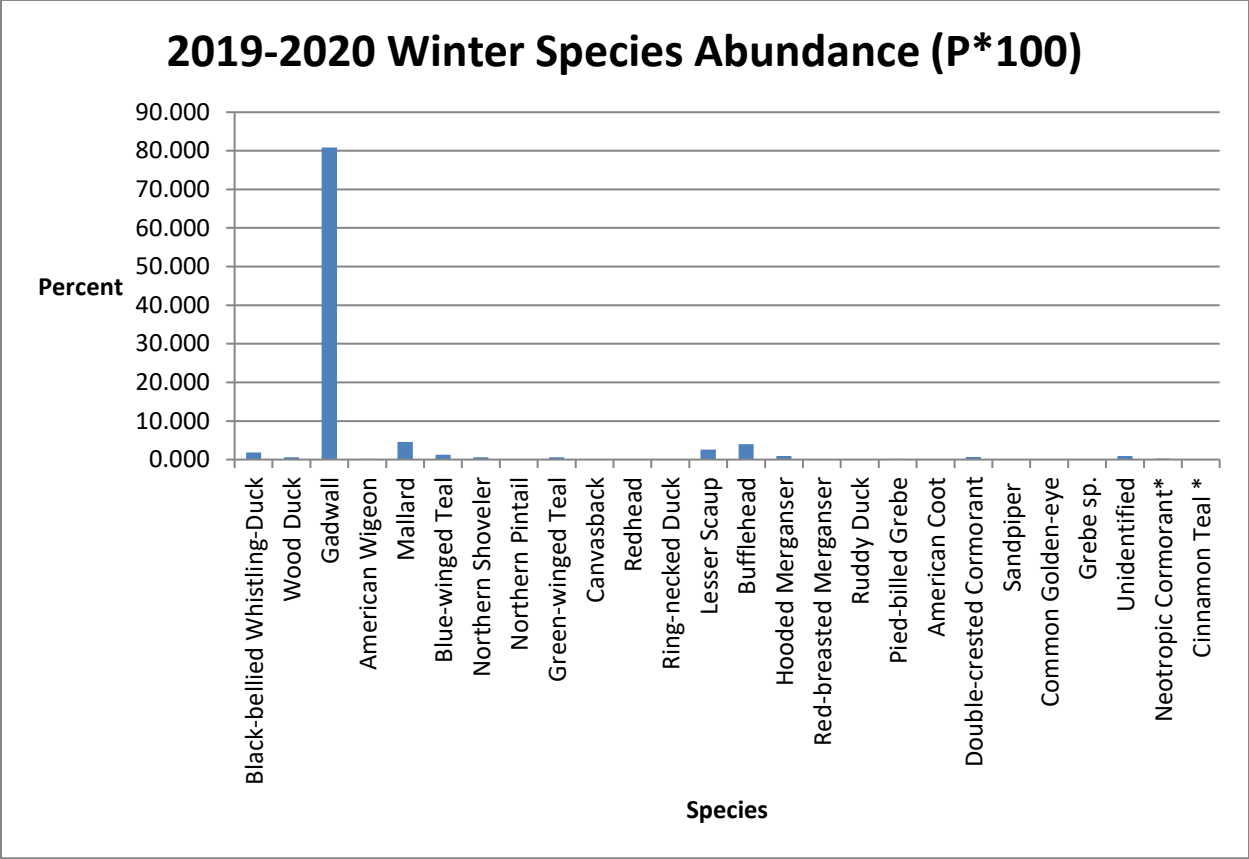


Figure 2. Total Species Abundance for 2019-20 Season.

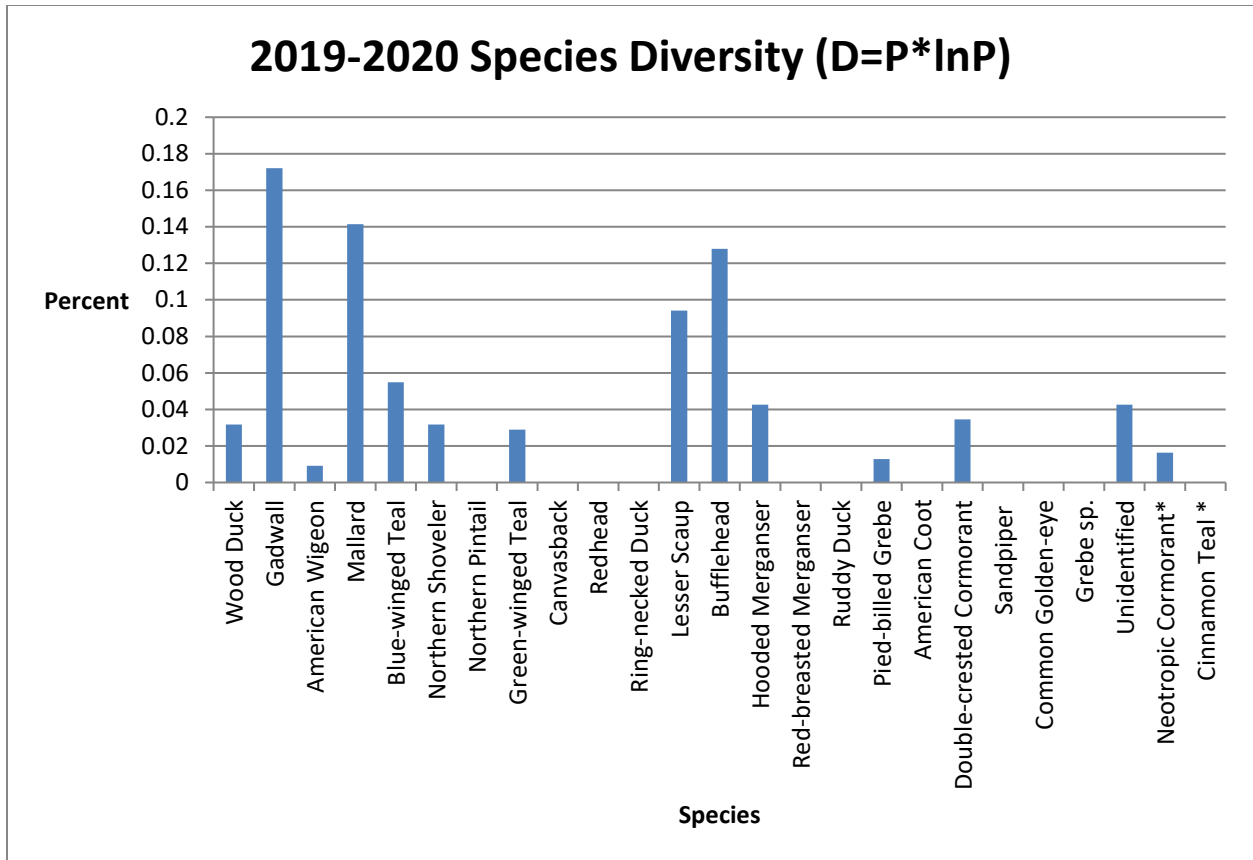


Figure 3. Total Species Diversity for 2019-20 Season. *not included in area counts shown below.

Species	Ron's Reach	Bill's Reach	Rookery Bend	Fern Bank	Total
Black-bellied Whistling-Duck	0	0	27	0	27
Wood Duck	4	0	3	2	9
Gadwall	58	249	459	397	1163
American Wigeon	0	0	1	1	2
Mallard	12	16	7	31	66
Blue-winged Teal	3	0	8	7	18
Northern Shoveler	0	0	9	0	9
Northern Pintail	0	0	0	0	0
Green-winged Teal	2	0	6	0	8
Canvasback	0	0	0	0	0
Redhead	0	0	0	0	0
Ring-necked Duck	0	0	0	0	0
Lesser Scaup	1	23	11	2	37
Bufflehead	7	13	17	20	57
Hooded Merganser	0	5	6	2	13
Red-breasted Merganser	0	0	0	0	0
Ruddy Duck	0	0	0	0	0
Pied-bill Grebe	0	1	1	1	3
American Coot	0	0	0	0	0
Double-crested Cormorant	0	0	7	3	10
Sandpiper	0	0	0	0	0
Common Goldeneye	0	0	0	0	0
Grebe sp.	0	0	0	0	0
Unidentified	2	0	5	6	13
					1435
Totals per area	89	307	567	472	

Table 3. 2019-20 Season specific count of each species observed in each study area.

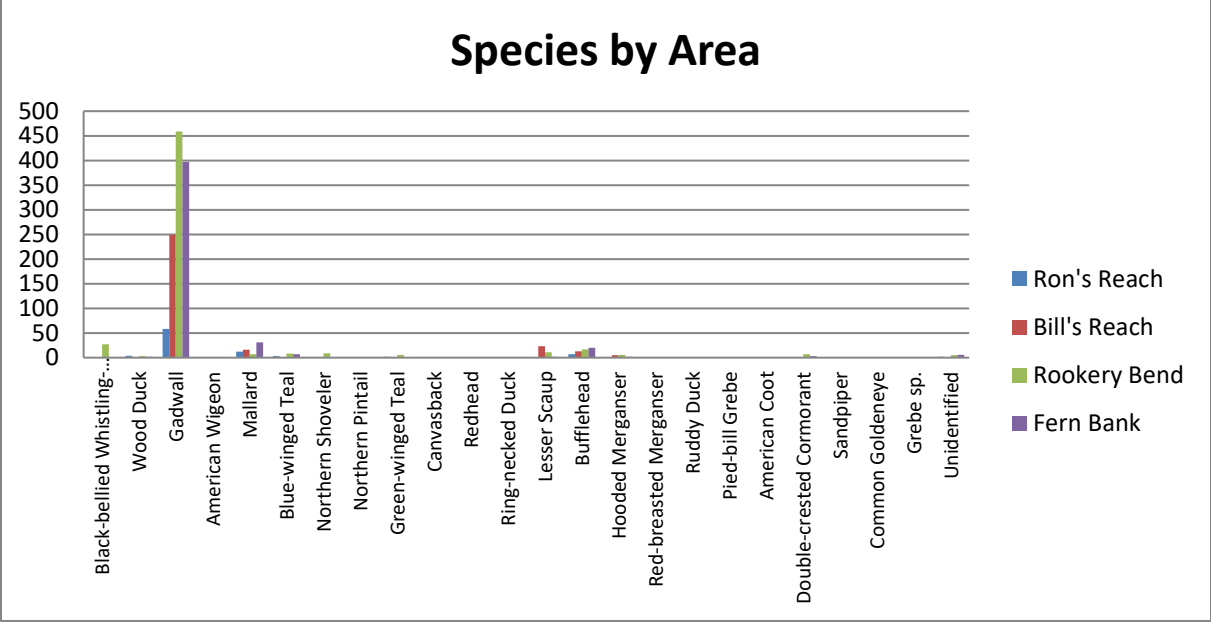


Figure 4. 2020 Survey - Species by study area.

Waterfowl Survey Areas at Cibolo Preserve



Figure 5. Study reaches on the Cibolo Creek at Cibolo Preserve