



U. S. DEPARTMENT
OF TRANSPORTATION
FEDERAL AVIATION
ADMINISTRATION

Wildlife Strikes to Civil Aircraft in the United States 1990 – 2022



U. S. DEPARTMENT
OF AGRICULTURE
WILDLIFE SERVICES



Federal Aviation Administration
National Wildlife Strike Database
Serial Report Number 29

Report of the Associate Administrator of Airports
Office of Airport Safety and Standards
Airport Safety & Certification
Washington, DC

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Wildlife Strikes to Civil Aircraft in the United States, 1990–2022

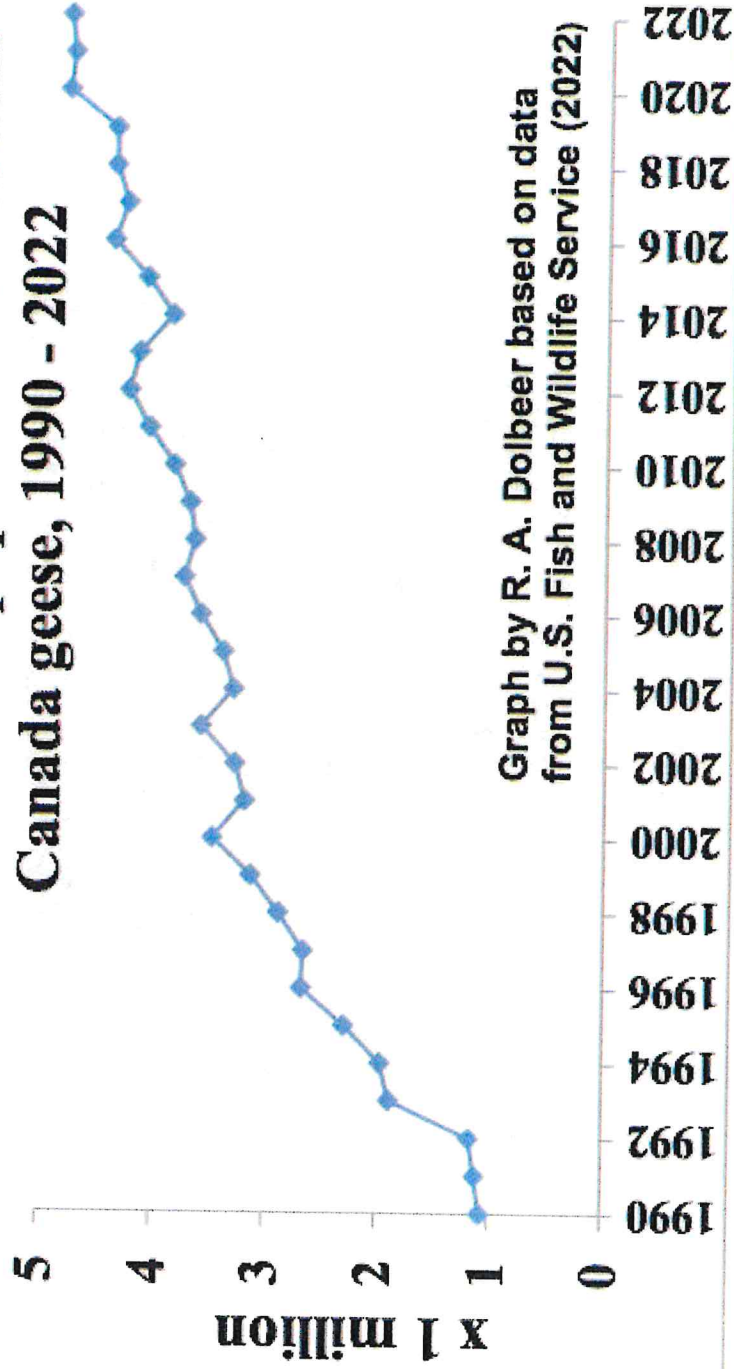
Table 2. Number of reported wildlife strikes to civil aircraft in USA by wildlife group, 1990–2022.

Year	Birds	Bats	Terrestrial mammals ¹	Reptiles ¹	Total strikes	Strikes with damage ²
1990	2,030	3	55	0	2,088	366
1991	2,418	3	58	0	2,479	395
1992	2,538	2	73	1	2,614	360
1993	2,518	6	66	0	2,590	395
1994	2,589	2	81	1	2,673	452
1995	2,676	4	85	8	2,773	487
1996	2,887	1	89	3	2,980	493
1997	3,383	1	92	14	3,490	566
1998	3,619	3	112	7	3,741	577
1999	4,921	6	97	1	5,025	687
2000	5,756	15	123	3	5,897	744
2001	5,543	8	138	8	5,697	631
2002	5,923	19	119	15	6,076	659
2003	5,706	20	123	5	5,854	611
2004	6,248	27	126	6	6,407	614
2005	6,899	27	131	7	7,064	591
2006	6,906	46	148	10	7,110	584
2007	7,369	51	171	7	7,598	552
2008	7,210	43	183	5	7,441	513
2009	8,946	66	229	10	9,251	587
2010	9,292	112	253	11	9,668	585
2011	9,491	138	201	15	9,845	521
2012	10,268	161	210	22	10,661	600
2013	10,749	223	207	33	11,212	601
2014	12,942	253	226	35	13,456	570
2015	12,964	316	213	36	13,529	611
2016	12,647	247	226	36	13,156	581
2017	13,872	408	272	59	14,611	667
2018	15,105	507	314	49	15,975	702
2019	16,101	553	416	87	17,157	747
2020	10,921	288	239	42	11,490	479
2021	14,634	451	295	68	15,448	652
2022	16,099	513	282	66	16,960	671
Total	261,170	4,523	5,653	670	272,016	18,851

¹ For terrestrial mammals and reptiles, species with body masses <1 kilogram (2.2 pounds) such as small rodents generally are excluded from database (Dolbeer et al. 2005).

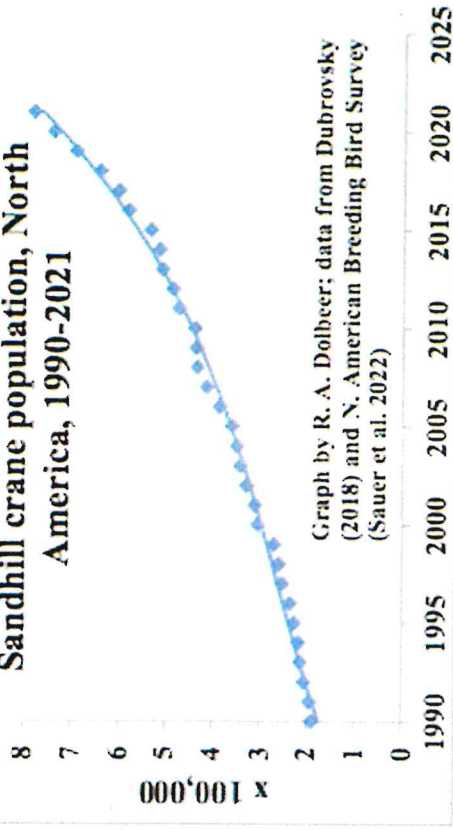
² Birds, terrestrial mammals, bats, and reptiles respectively accounted for 17.527 (93.0%), 1.289 (6.8%), 32 (0.2%), and 3 (<0.1%) of the 18,851 damage strikes.

North American population of resident Canada geese, 1990 - 2022



Graph by R. A. Dolbeer based on data
from U.S. Fish and Wildlife Service (2022)

Sandhill crane population, North America, 1990-2021

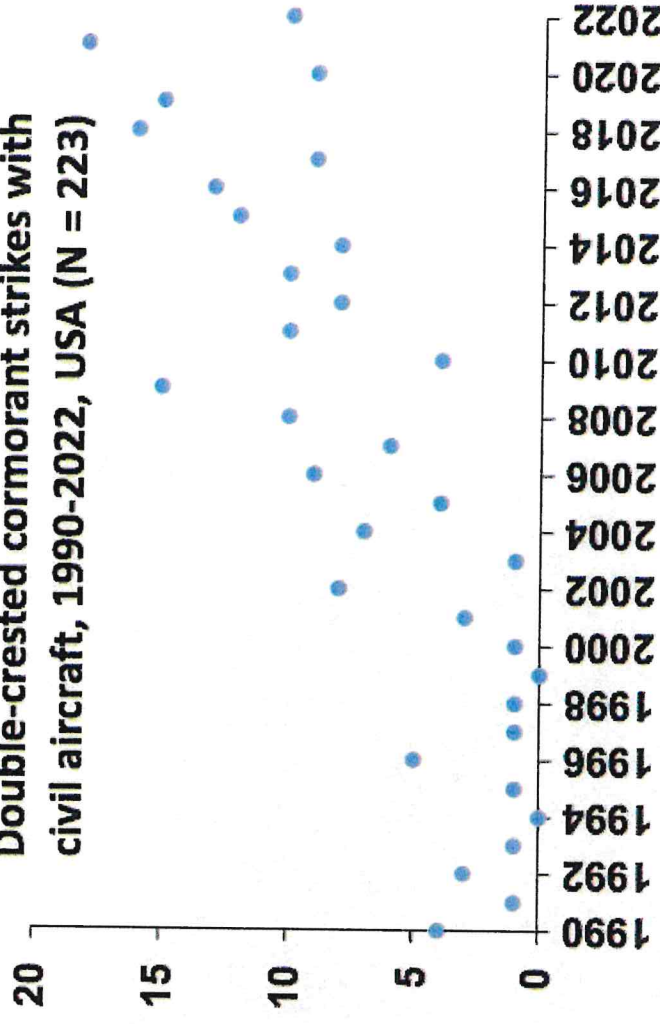


The sandhill crane population in North America has increased 4-fold, 1990-2021. As with other wildlife such as Canada geese, cranes are adapting to human habitats such as this cemetery in Michigan. From 1990-2022, 193 strikes involving sandhill cranes and civil aircraft were reported, USA. Photo, Nov 2022, J. Wharton.



A BE-400 BJET struck a double-crested cormorant during climb out of a coastal airport in Georgia, July 2022. The aircraft was en route to New York but diverted to an airport in Pennsylvania. The double-crested cormorant population in North America has doubled from about 450,000 to 900,000 birds, 1990-2021 (Dolbeer 2020, Sauer et al. 2022). Photo, Mike Crognale.

Double-crested cormorant strikes with civil aircraft, 1990-2022, USA (N = 223)

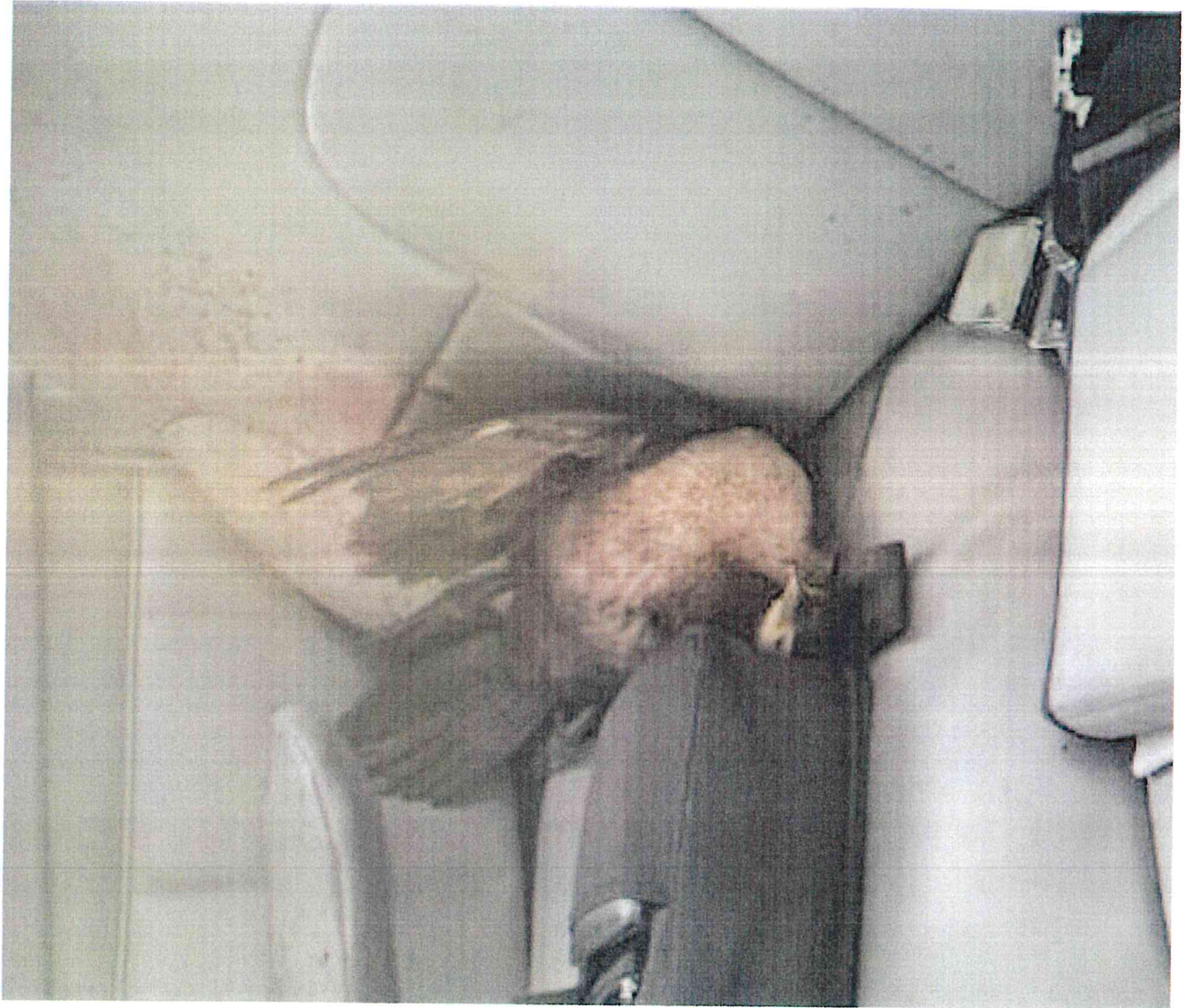


Over the 10-year period, 2013-2022, an average of 12 strikes per year were reported for double-crested cormorants (mean body mass = 2.1 kg) and civil aircraft in USA. At least 16% of the strikes involved multiple birds.

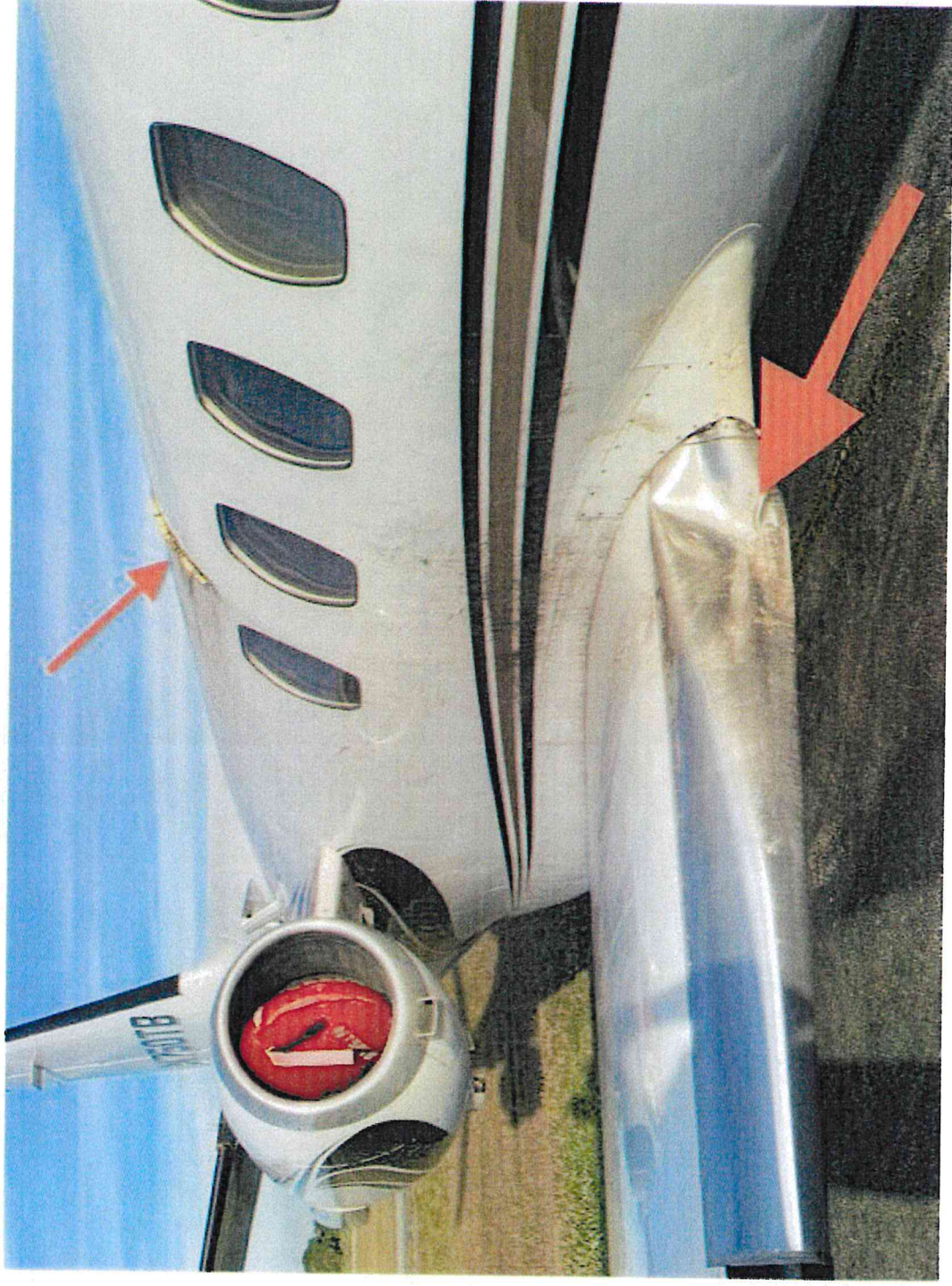
Cessna 172 vs Cormorant

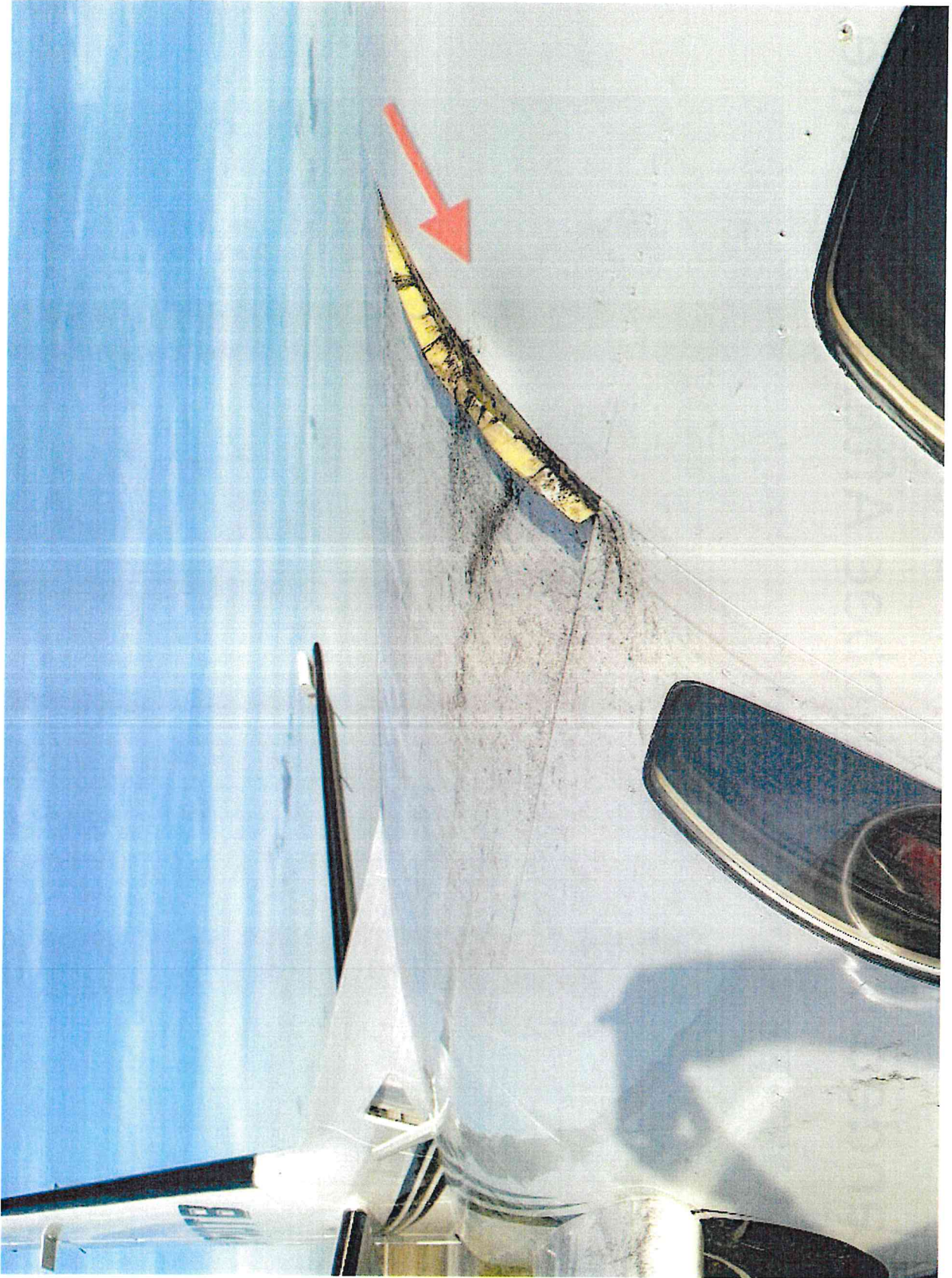


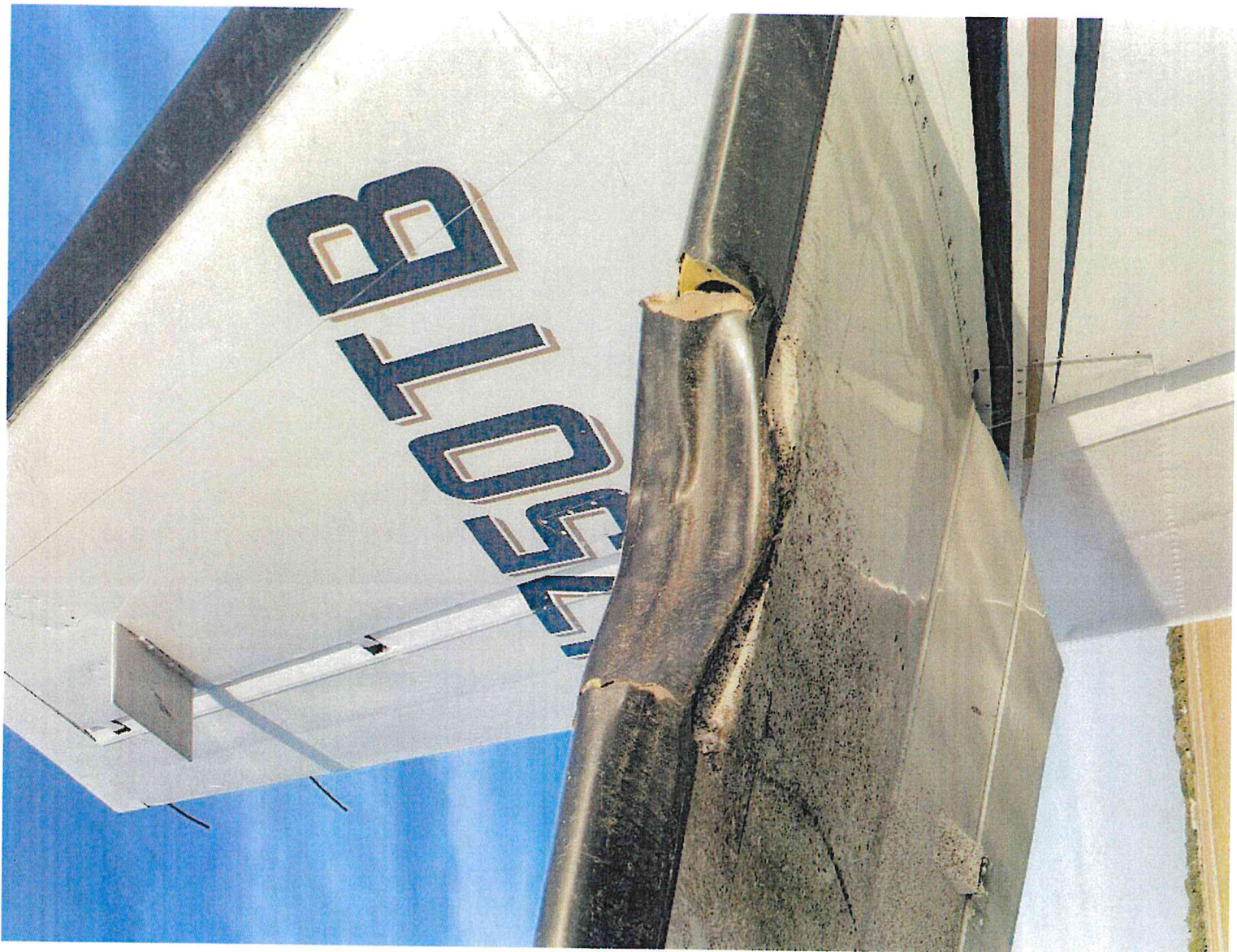




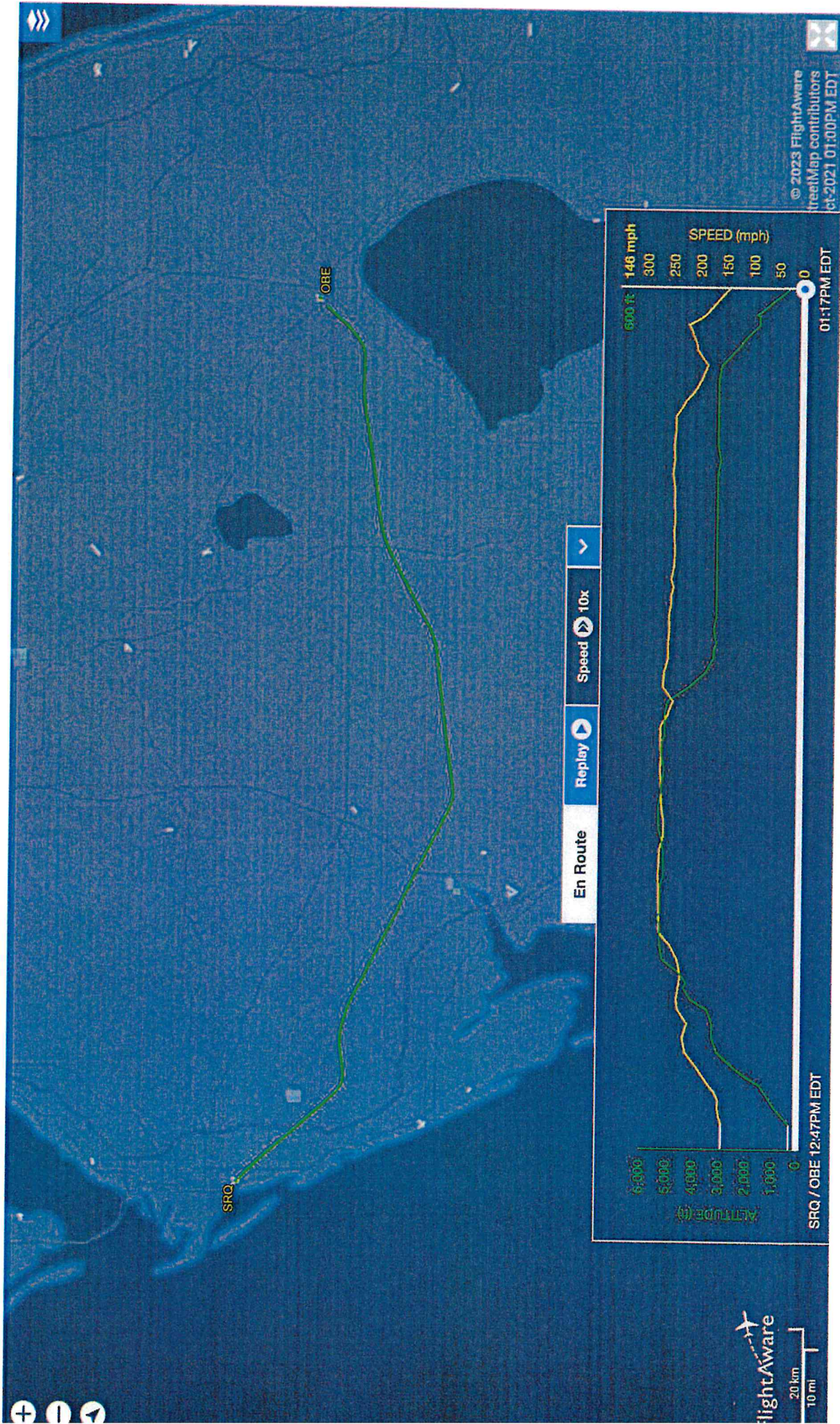
Cessna Citation Business Jet Landed in Okeechobee After Bird Strike











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treeMap contributors
ct-2021 01:00PM EDT

SRQ / OBE 12:47PM EDT

01:17PM EDT

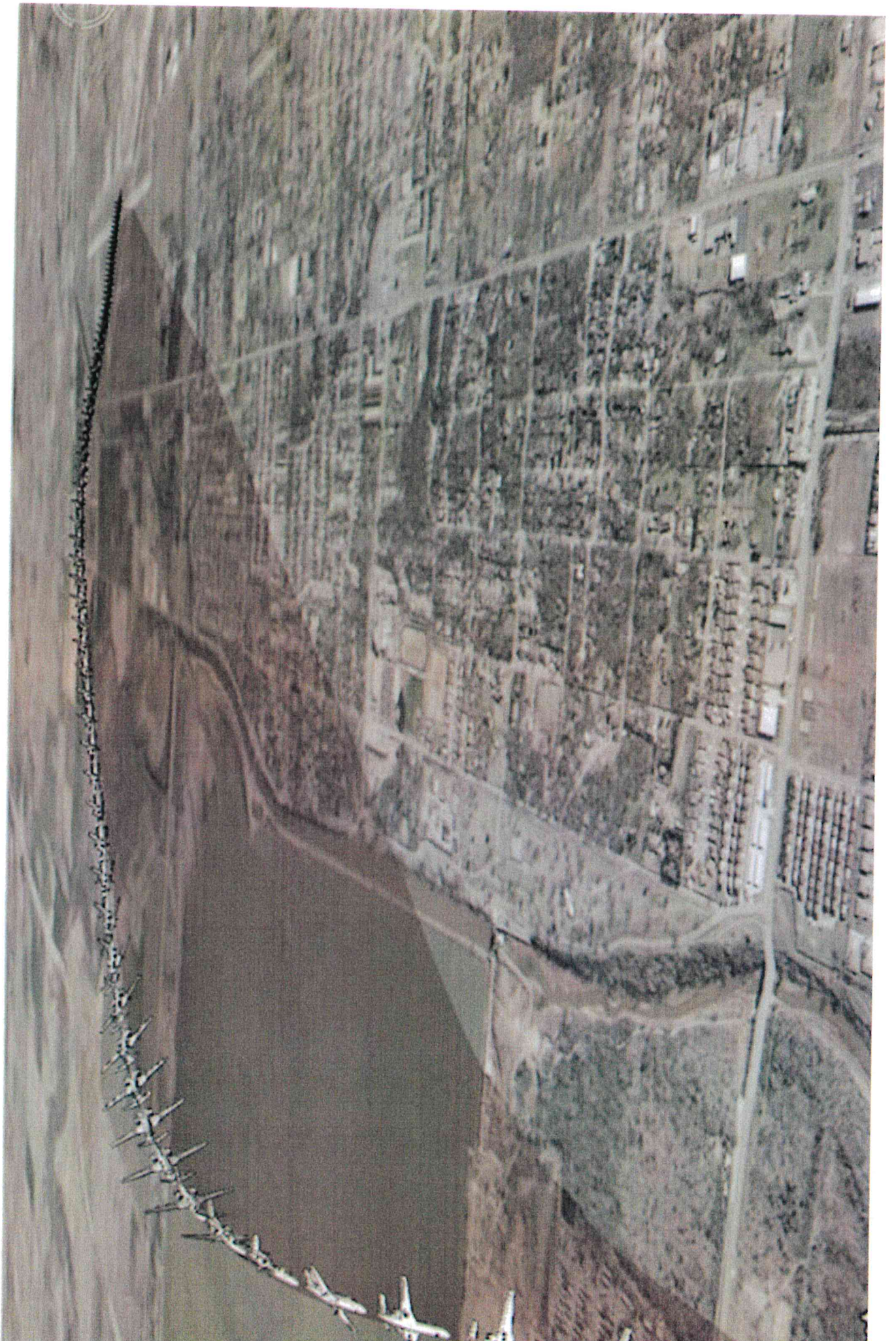
FlightAware
20 km
10 mi

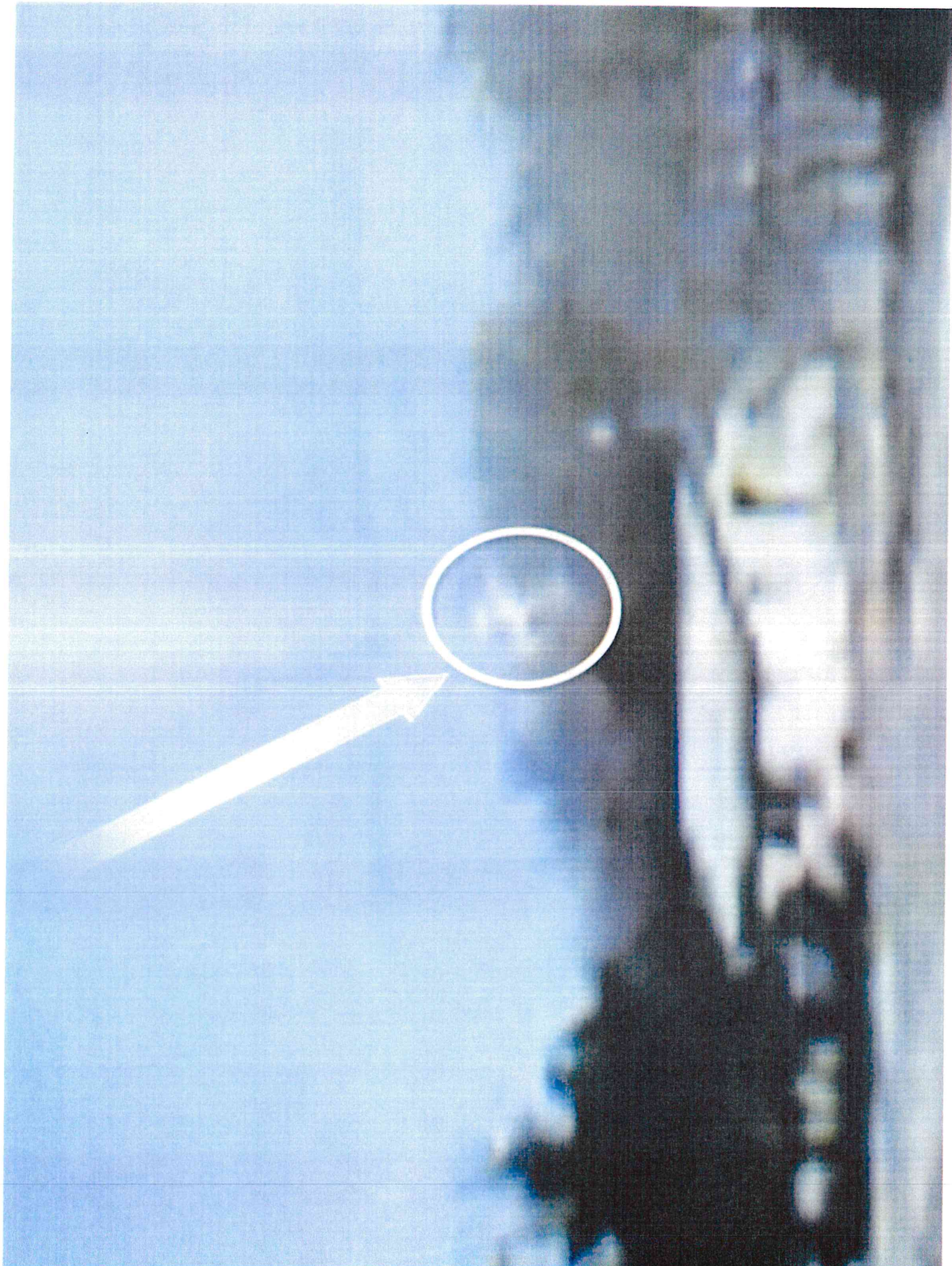


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Home » UF/IFAS Extension Polk County » American White Pelicans: Florida's Other Snowbird

American White Pelicans: Florida's Other Snowbird



American white pelicans are one of the largest birds in North America with wingspans up to 9.5 feet across, or in other words, a wingspan that can reach from your floor to your ceiling (assuming you live in an average Florida home)!

Although some migratory bird maps do not show American white pelicans migrating to inland Central Florida, squadrons of these majestic birds have been observed on lakes throughout Polk County for years.

Author Profile

Shannon Carnevale



As the Natural Resources and Conservation

Extension Agent for UF/IFAS Extension

Polk County, Shannon's outreach

work focuses on lake ecology, co-existing with wildlife, invasive species management, and urban forestry. ...

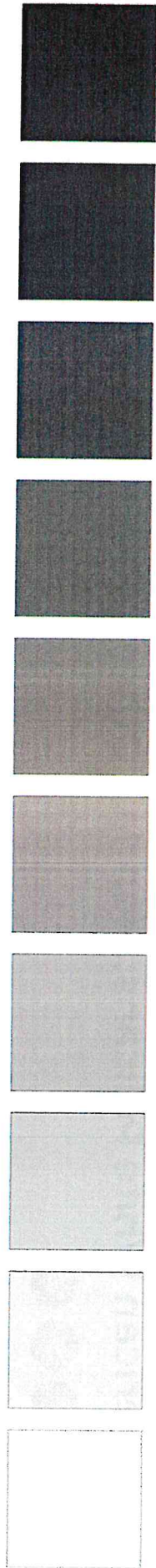


Exhibit 2 –Avian Species with Potential for Utilization of Proposed LKBSTA

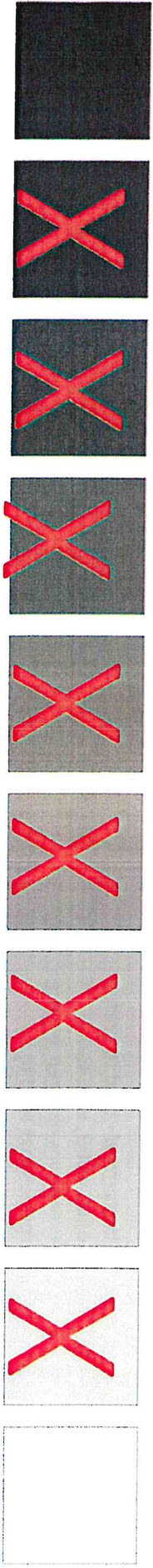
This list was compiled using data from eBird (a vetted, citizen-science-based online database). Two reference sites in or near Okeechobee County were used: Lakeside Ranch STA and Taylor Creek STA. This list is not a complete list of expected species but includes the species that are most likely to occur based on the detections at the other nearby STAs. Further, some species listed may not occur at LKB STA-W.

Waterbirds with Potential for Occurrence in Okeechobee County

Waterbirds are listed and grouped based on avian family; general note: associated with each group are provided. Each species has been assigned to one of three categories: Open Water, Dens Cover or Both.

Family (and description)	Species	Open-water	Dense-cover	Both
	Black-bellied Whistling-Duck	x		
	Fulvous Whistling-Duck	x		
	Graylag Goose	x		
	Canada Goose	x		
	Mute Swan	x		
	Egyptian Goose	x		
	Muscovy Duck	x		
	Wood Duck			x
	Blue-winged Teal	x		
	Northern Shoveler	x		
	Gadwall	x		
	American Wigeon	x		
	Mallard	x		
	Mottled Duck	x		
	Mallard x Mottled Duck (hybrid)	x		
	Northern Pintail	x		
	Green-winged Teal	x		
	Ring-necked Duck	x		

Waterfowl - tend to prefer open water, with some exceptions like tree nesting species that tend to be somewhat secretive, especially in breeding season

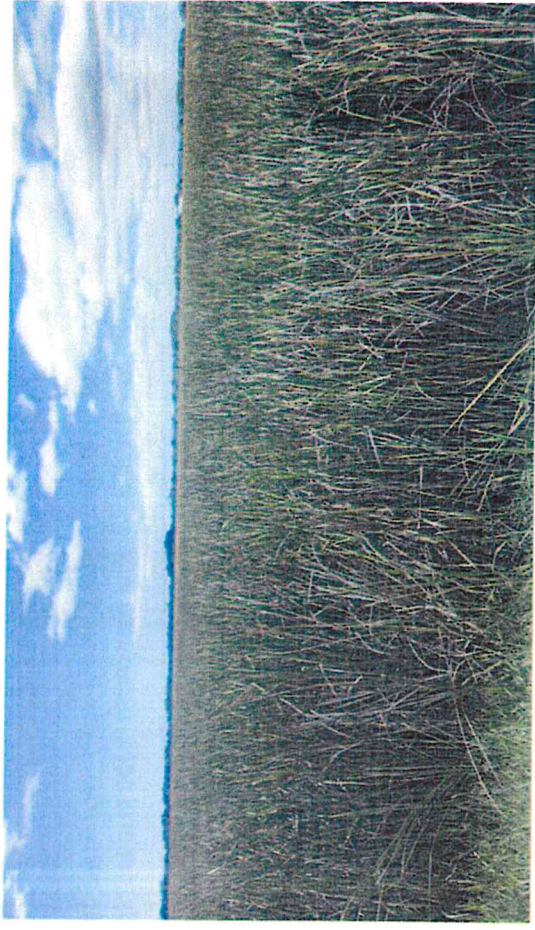


Open Water



Lake Okeechobee Image from
Okeechobee County Website

Dense Vegetation



Lakeside Ranch STA (ESA photo 11-18-2023)

Dense Vegetation Image Provided by
ESA in Wildlife Hazard Review Memo



Introducing Lakeside Ranch Stormwater Treatment Area

▶ 🔊 0:05 / 3:58



Only Picture of Lakeside Ranch STA Wildlife Hazard Review Memo



Lakeside Ranch STA (ESA photo 10-18-2023)

Tree Ducks Featured in Lakeside Ranch STA Video

