

BAND RECOVERY AND HARVEST DATA SUGGEST ADDITIONAL AMERICAN BLACK DUCK RECORDS FROM TEXAS

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ABSTRACT.—We reviewed band recovery data and Cooperative Waterfowl Parts Collection Survey (PCS) data for records of American Black Ducks (*Anas rubripes*) shot in Texas. The PCS is an annual U.S. Fish and Wildlife Service (USFWS) survey of waterfowl harvest composition that relies on duck wings from a random sample of hunters. Between 1914 and 2009, 43 banded American Black Ducks were recovered in Texas; 74% of these recoveries involved American Black Ducks banded within their breeding range. Between the 1970–71 waterfowl hunting season and the 2008–2009 season, wings of 35 Texas harvested American Black Ducks were submitted to the PCS. For both data sets, over 50% of records were associated with the Coastal Prairies.

American Black Ducks (*Anas rubripes*) are rare in Texas. The Texas Bird Records Committee (TBRC) recognizes only eight records since 1950 (Lockwood and Freeman 2004). Seyffert (2001) reviewed 10 potential occurrences from the Texas Panhandle for the period 1934–1994. These included a duck captured and banded in Moore County and one taken by a hunter in Hemphill County.

American Black Ducks are a TBRC review species (Lockwood and Freeman 2004), meaning potential records will likely require firm documentation (e.g., photograph or specimen). They are similar in appearance to both Mottled Ducks (*A. fulvigula*) and Mexican Ducks (*A. platyrhynchos diazi*), two Texas residents (Bellrose 1980, Lockwood and Freeman 2004). Seyffert (2001) noted Mottled Ducks are encountered with a greater frequency in regions north of their traditional range and cautioned they could be mistaken for American Black Ducks. Similarly, Fedynich and Rhodes (1995) documented several “dark” ducks in the High Plains that resembled hybrid Mallard (*A. platyrhynchos*) x Mottled Ducks, hybrid Mallard x American Black Ducks, or Mexican Ducks. Thus, caution is warranted relative to potential American Black Duck sightings. Even so, we suspect American Black Ducks are more common in Texas than acknowledged sighting records suggest. To investigate this proposition, we examined band recovery data and PCS data for potential records from Texas.

METHODS

We searched data on waterfowl banding and band recovery locations held by the U.S. Geological Survey’s Bird Banding Laboratory (BBL). All but the most recent data are available in a publicly-accessible database located online (U.S. Geological Survey 2009). We first queried the data for “American Black Ducks” banded “anywhere” and recovered in “Texas” during “any year.” To minimize chances of including other species mistakenly identified as American Black Ducks when banded, we further filtered the data for ducks banded in the primary breeding range. We assumed banders highly familiar with American Black Ducks are less likely to band a similar species or hybrid by mistake. However, some records excluded in this second query included American Black Ducks banded in South Dakota and Saskatchewan, which are within the postbreeding dispersal range (late summer and early fall) of American Black Ducks (Wright 1954). Banders working in these areas regularly capture and band American Black Ducks; moreover, many banders working in this region are trained waterfowl biologists and are familiar with American Black Ducks. We also queried the same data set for hybrid “Mallard x American Black Ducks” banded “anywhere” and recovered in “Texas” during “any year.”

Data from the PCS were reviewed for American Black Ducks wings submitted from Texas. This dataset is derived from an annual survey of random

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samples of waterfowl hunters in each state. The primary purpose of the PCS is to collect information on species, sex, and age composition of the annual waterfowl harvest. This information is used to monitor populations, evaluate annual production, set hunting regulations, and model population dynamics (e.g., Hestbeck 1995, Afton and Anderson 2001, Kennamer 2001, Raftovich et al. 2009). Hunters in the survey are instructed to submit, via postage-paid envelopes provided by the USFWS, one wing from each duck harvested during the waterfowl hunting season. Each wing is mailed separately in its own envelope. Depending on where the hunter lives, their wings are submitted to one of four "wingbees" held in the U.S. Texas waterfowl hunters submit their wings to the Central Flyway Wingbee. Hunters record harvest date, harvest county, and harvest state on each wing's envelope prior to mailing. Once wings arrive at wingbee sites, they are sorted by species and frozen. Data collected during wingbees include species, sex, and age (hatch year or after-hatch year) of each wing (Raftovich et al. 2009).

Staff (primarily wildlife biologists) representing federal and state conservation agencies attend wingbees, which are conducted in late winter after most waterfowl hunting seasons have closed. Biologists are separated into small groups (3–5 people), and each group is assigned a "checker." All checkers have received training and passed tests confirming their ability to identify wings by species, age, and sex. Biologists in each small group examine wings methodically, double checking species information and recording age and sex data. Criteria used to determine species, sex and age include color, color patterns, size, feather shape, feather wear, and wing size (Carney 1964, 1992, 1993). Each wing is then passed to the group's checker, and information recorded by biologists is then double checked. An unusual wing for a particular wingbee, such as an American Black Duck in the Central Flyway, would be checked a third time by one of at least two checkers regularly attending all four wingbees. These individuals have extensive experience identifying wings of all species of ducks harvested in the U.S.

Mottled Ducks are commonly encountered at Central, Mississippi, and Atlantic Flyway Wingbees and is most similar in appearance to American Black Ducks. However, there are clear differences in wing morphology of these two species (Fig. 1). Wings of American Black Ducks

have less brown edging on coverts (lesser, middle, greater, and greater tertial) and tertials are much larger than Mottled Duck wings (Carney 1992). The wing notch lengths for adult male American Black Ducks and adult male Mottled Ducks average 290.6 mm (SE = 0.4) and 262.0 mm (SE = 1.4), respectively (Carney 1993). Moreover, the American Black Duck cohort with the smallest wing size, immature females, has wings on average (264.2 mm, SE = 0.3) longer than those of the Mottled Duck cohort with the largest wings, adult males (Carney 1993). Measuring wings is a regular part of the protocol for determining sex in both species.

Coordinates associated with band recovery records were displayed in a spatial database (ArcMAP 2006) to determine (1) location banded and (2) ecological region where recovered in Texas. Coordinates associated with banding records do not represent the exact location of where the specimen was encountered, but rather the center of the corresponding 10-min (latitude by longitude) block. Ecological regions follow the Natural Areas of Texas (Lyndon B. Johnson School of Public Affairs 1978) presented in the *TOS Handbook of Texas Birds* (Lockwood and Freeman 2004). American Black Duck records from PCS data were summarized by decade and county.

RESULTS

Between 1914 and 2009, nine hundred ninety-two thousand two hundred fifty-four American Black Ducks were banded. During this same time, 166,452 banded American Black Ducks were recovered (that is, recaptured, shot, or found dead and the band number reported to the BBL). Forty-three of the band recoveries occurred in Texas (Table 1) and 74% of these involved American Black Ducks banded within their breeding range (Longcore et al. 2000). Considering only American Black Ducks banded in their breeding range, Texas recoveries occurred in the Coastal Prairies (16), Post Oak Savannah and Blackland Prairies (5), Pineywoods (3), Edwards Plateau (2), Rolling Plains (2), and High Plains (2) (Fig. 2). Two others were recovered in Texas, but the specific recovery location is not available.

Two banded Mallard x American Black Duck hybrids were recovered in Texas. One was recovered in the Coastal Prairie and the other in the Post Oak Savannah and Blackland Prairie. As of



Figure 1. Examples of American Black Duck (left) and Mottled Duck (right) wings submitted to the Cooperative Waterfowl Parts Collection Survey during the 2008–2009 hunting season.

2009, there have been 25,814 Mallard x American Black Duck hybrids banded.

Hunters submitted 15,073 American Black Duck wings to the PCS during the 1970–71 through 2008–09 hunting seasons. Of those, 35 were submitted from Texas (Table 2) and these submissions accounted for 45% of American Black Duck wings submitted to the Central Flyway Wingbee. The number of wings submitted from Texas during each decade ranged from 2 (1970s, 2000s) to 18 (1980s). American Black Duck wings were submitted from 18 different counties (Fig. 2), with the most (9) coming from Jefferson Co.

DISCUSSION

Although far fewer than 1% of American Black Duck band recoveries or PCS wings came from Texas, we provide evidence this species occurs more frequently in Texas than suggested by TBRC records. The TBRC recognizes eight records since

1950. However, there have been 15 banded American Black Ducks encountered in Texas since 1950 and 35 American Black Ducks wings submitted through the PCS from Texas since the 1969–1970 hunting season. Eight additional band recoveries occurred in Texas during this period, but they involved American Black Ducks banded outside of their breeding range.

Data from band recoveries and PCS wings each have advantages over sighting records. Both are based on systematic observations by biologists of birds in the hand or wings in the hand. Banding crews typically have multiple individuals handling ducks, and difficult decisions concerning species identification are deferred to the most experienced banding crew members. Likewise, PCS wings are always examined by multiple personnel. Although both datasets rely on public cooperation, neither requires those cooperators to be able to identify birds. Both methods attempt to obtain representative

Table 1. Date and location data for banded American Black Ducks harvested in Texas through 2009. "Core range" indicates the duck was in the primary breeding range (Longcore et al. 2000) of the American Black Duck. Some banded ducks harvested by hunters never get reported to the Bird Banding Lab; records below represent only ducks reported.

Band Number	Banding Date	Banding Location	Core Range	Recovery Date	Recovery Region ¹
0000-04597	09-1920	Ontario	Yes	11-1920	Post Oak Sa./Blackland Pr. ²
0002-28454	10-1922	Ontario	Yes	01-1923	Coastal Prairies
0002-97273	10-1923	Ontario	Yes	10-1923	Post Oak Sa./Blackland Pr.
0002-97813	09-1924	Ontario	Yes	11-1924	Coastal Prairies
0004-57556	10-1926	Ontario	Yes	12-1926	Coastal Prairies
0026-91144	09-1930	Wisconsin	Yes	01-1931	Rolling Plains
0026-94007	08-1931	Ontario	Yes	01-1933	Coastal Prairies
0026-94265	09-1934	Michigan	Yes	12-1934	Coastal Prairies
0046-31770	04-1936	Michigan	Yes	1937	Coastal Prairies
0346-38298	09-1938	Michigan	Yes	12-1938	Pineywoods
0397-25176	09-1939	Michigan	Yes	11-1939	Coastal Prairies
0387-03693	08-1938	South Dakota	No	12-1939	Pineywoods
0397-25107	09-1939	Michigan	Yes	12-1939	Coastal Prairies
0387-14587	10-1939	South Dakota	No	02-1940	Post Oak Sa./Blackland Pr.
0396-00675	11-1938	Louisiana	No	11-1940	Rolling Plains
0407-30931	11-1942	Illinois	Yes	01-1944	Texas ³
0397-29245	05-1941	Michigan	Yes	12-1945	Coastal Prairies
0375-19811	10-1945	Indiana	Yes	12-1947	Pineywoods
0457-07646	11-1947	Illinois	Yes	12-1947	Coastal Prairies
0477-40767	11-1948	Illinois	Yes	01-1949	Texas ²
0457-07663	11-1948	Illinois	Yes	12-1951	Coastal Prairies
0557-39139	01-1955	Oklahoma	No	02-1955	Post Oak Sa./Blackland Pr.
0557-39141	02-1955	Oklahoma	No	11-1955	Post Oak Sa./Blackland Pr.
0416-28382	10-1941	New York	Yes	01-1956	Coastal Prairies
0416-28482	10-1941	New York	Yes	01-1957	Coastal Prairies
0577-04500	02-1956	Oklahoma	No	01-1958	Post Oak Sa./Blackland Pr.
0827-91576	01-1967	Arkansas	No	03-1968	Texas
0777-83843	03-1966	Texas	No	12-1968	Post Oak Sa./Blackland Pr.
0727-41341	01-1966	Oklahoma	No	12-1968	Post Oak Sa./Blackland Pr.
0657-44122	07-1966	Wisconsin	Yes	11-1970	Rolling Plains
0897-41956	08-1974	New York	Yes	01-1976	Edwards Plateau
0947-25862	09-1969	Wisconsin	Yes	12-1980	Coastal Prairies
1167-11815	10-1979	Newfoundland	Yes	01-1982	Pineywoods
1457-02394	10-1985	Minnesota	Yes	12-1985	Coastal Prairies
1377-68444	09-1984	Montana	No	11-1989	Rolling Plains
1237-33717	01-1985	New Jersey	Yes	01-1995	Post Oak Sa./Blackland Pr.
2307-59370	07-1990	New Brunswick	Yes	12-1995	Coastal Prairies
2417-05590	08-1996	Saskatchewan	No	12-1999	Post Oak Sa./Blackland Pr.
2327-02221	08-1982	Maryland	Yes	12-2000	Edwards Plateau
1537-12839	09-1997	New Brunswick	Yes	12-2000	Post Oak Sa./Blackland Pr.
0957-79257	02-1979	Ohio	Yes	01-2001	High Plains
2397-55742	08-1997	Ontario	Yes	12-2003	Post Oak Sa./Blackland Pr.
1337-68497	02-1984	New York	Yes	01-2004	High Plains

¹The Bird Banding Laboratory tracks recovery information by 10-minute (longitude by latitude) block; we used a spatial database to approximate which ecological region (Lyndon B. Johnson School of Public Affairs 1978) each band recovery was from.

²Post Oak Sa./Blackland Pr. = Post Oak Savannah and Blackland Prairies.

³Recovery location reported only as Texas.

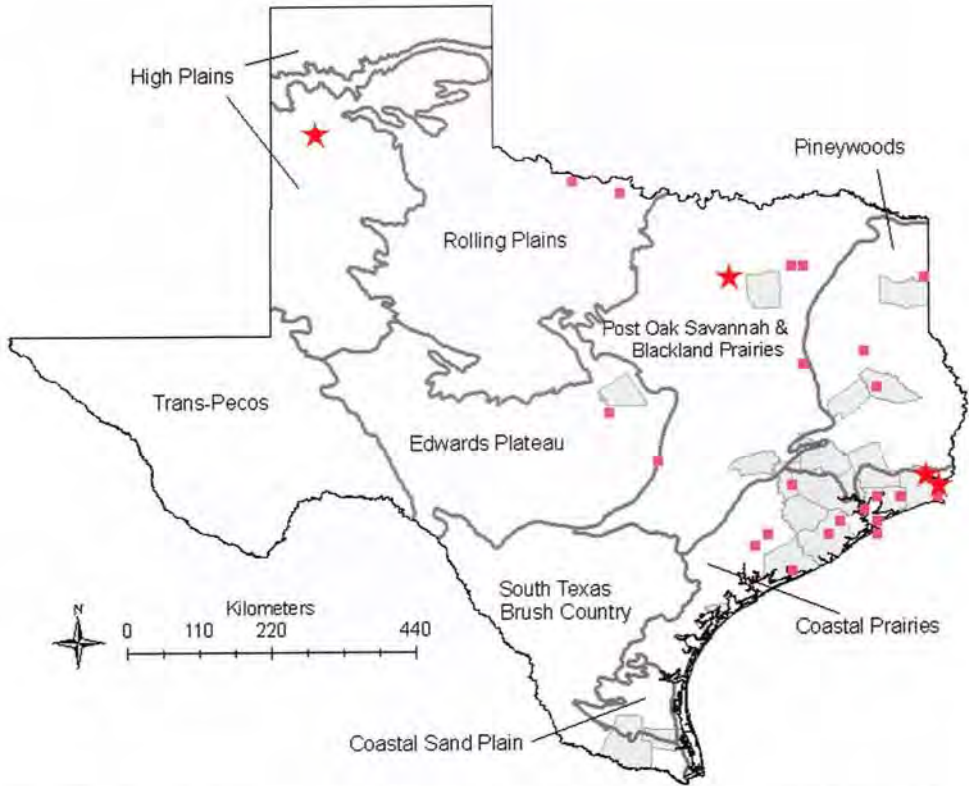


Figure 2. American Black Duck records in Texas based on band recoveries (pink square = 1; red star = 2) and Cooperative Waterfowl Parts Collection Survey records (shaded counties). Parts Collection Survey information is based on wings submitted by a random sample of hunters that agree to participate in a U.S. Fish and Wildlife Service survey. Some counties have multiple records (refer to Table 2).

Table 2. Texas counties corresponding to harvest location of American Black Ducks submitted to the Cooperative Waterfowl Parts Collection Survey (PCS) during the 1970–71 hunting season through the 2008–09 hunting season.

Hunting Year	Number of Wings from Texas	Texas Counties Represented in PCS (number of wings)
1972–73	1	Jefferson (1)
1974–75	1	Chambers (1)
1980–81	4	Harris (1), Jefferson (3)
1981–82	3	Jefferson (2), Trinity (1)
1983–84	1	Kaufman (1)
1986–87	2	Brazoria (2)
1988–89	3	Aransas (1), Chambers (1), Hidalgo (1)
1989–90	5	Angelina (1), Lampasas (2), Trinity (1), Willacy (1)
1990–91	4	Brazoria (1), Chambers (1), Fort Bend (1), Liberty (1)
1991–92	2	Jefferson (1), Montgomery (1)
1992–93	2	Chambers (1), Waller (1)
1993–94	1	Brazoria (1)
1994–95	3	Brazoria (1), Jefferson (2)
1997–98	1	Matagorda (1)
2002–03	1	Washington (1)
2008–09	1	Harrison (1)

samples of waterfowl populations, and the PCS is based on an explicit sampling frame.

The American Black Duck population averaged 477,715 from 1990 to 2009. In 2009, the breeding American Black Duck population was estimated to be between 414,600 and 522,100 (Zimpfer et al. 2009). Considering that a very small percentage of the American Black Duck population is banded at any one time and an even smaller proportion is recovered annually, it is improbable banded ducks we report represent all American Black Ducks occurring in Texas.

For our purposes, quality of banding data depends on (1) ability of banders to accurately identify species being banded, (2) accurate record keeping (e.g., species codes and location information), and (3) accurate reporting of location where the band was encountered (most likely harvested) by the individual reporting a band. We believe error is rare, and likely involves sexing and aging errors rather than species errors. Even so, we excluded records of American Black Ducks banded outside the primary breeding range to minimize the possibility of bander error. Unfortunately, as with many long-term datasets, there is no way of knowing what quality controls were in place for record keeping over the entire time series (80+ years). We suspect the state in which the band was encountered can be assumed correct, provided it was accurately reported to the BBL. Nonetheless, the most likely source of error in a data set is location information associated with reporting a band encounter. Although the BBL requests information associated with an actual encounter band (e.g., where duck was harvested), there is a possibility the individual reporting information mistakenly reported their home location, instead encounter location. For example, a Texas resident hunting out of state may returned home and report encounter location as his/her hometown. Another potential source of error is mis-read band numbers; however, the BBL attempts to follow up on suspect records.

Data from the PCS also supported our assertion American Black Ducks are more common in Texas than accepted sighting records indicate. Even within a shorter time series, this dataset contained wings of 35 American Black Ducks allegedly harvested in Texas. Although the PCS does not rely on the hunter's ability to identify birds by species, it does rely upon hunters to accurately report state and county of harvest. We cannot exclude the possibility a hunter might report inaccurate information, but they are provided instructions on both harvest state

and harvest county. When the hunter does not indicate state of harvest, it is assumed the bird was harvested in the hunter's state of residence. Even with the possibility of some potential mistakes with respect to harvest location, the relatively large number of American Black Duck wings submitted to the PCS from Texas provides support for their presence.

Although American Black Ducks wintering in eastern North America are strongly associated with coastal habitats (Morton et al. 1989, Gordon et al. 1998, Longcore et al. 2000), it is interesting 50% of band recoveries and PCS records came from the Coastal Prairies. This is the primary range of Mottled Ducks in Texas (Stutzenbaker 1988). This likely means many American Black Ducks harvested in this region go undetected by hunters due to similarities between the two species. Furthermore, if a hunter is not well connected to the birding community, even harvested American Black Ducks properly identified by a hunter may never be documented. Increased communication between birders and hunters might increase American Black Ducks reported to the TBRC. As suggested by Pulich (1988), hunters should save birds they believe may be American Black Ducks for proper identification. Effort should also be made to follow up on potential sightings by birders. Because of the chance of misidentification and possibility of encountering Mallard x American Black Duck hybrids, potential American Black Duck sightings on the coast and throughout the state should still be scrutinized.

The value of PCS wings for documenting ducks potentially rare to Texas or other Central Flyway states could be improved by archiving wings in a museum collection or in a photographic database. Because of the sheer number of wings handled by wingbees, archiving even rare wings in a collection could be logistically difficult. However, a system of archiving high quality photographs of "rare wings" and their corresponding envelopes could likely be developed with minimal effort. A similar database already exists in the Texas Photographic Records File housed at Texas A&M University, College Station.

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