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AN UNUSUALLY LARGE NUMBER OF EGGS LAID BY A BREEDING RED-COCKADED WOODPECKER FEMALE

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The Red-cockaded Woodpecker (*Picoides borealis*) is a cooperatively breeding species that typically uses a single cavity for nesting (Ligon 1970, Walters et al. 1988). A single tree, or aggregation of cavity trees, termed the cluster, is inhabited by a group of woodpeckers that includes a single breeding pair and up to several helpers, which are typically male offspring of previous breeding seasons (Ligon 1970, Lennartz et al. 1987). Each group of Red-cockaded Woodpeckers usually produces one nest per breeding season, but will

Table 1. Numbers of articles cited in the typescript and published version of *The Bird Life of Texas* for the years 1820 through 1899.

Years	Number of Articles Cited in Typescript	Number of Articles Cited in Monograph	Difference
1820-1829	1	1	0
1830-1839	4	3	1
1840-1849	12	4	8
1850-1859	54	19	35
1860-1869	30	7	23
1870-1879	229	38	191
1880-1889	593	122	471
I 890-I 899	550	56	394
TOTALS	1,473 (100%)	250 (17%)	1,223 (83%)

Table 2. Numbers of citations from selected periodicals in the typescript and published version of *The Bird Life of Texas* for the years 1820 through 1899.

Name of Periodical	Citations in Transcript	Citations in Monograph	Difference
American Naturalist	16	4	12
American Field	368	1	367
Bay State Oologist	1	1	0
Chicago Field	65	0	65
The Curlew	8	0	8
Field and Forest	1	1	0
Forest and Stream	296	8	288
Gefiederte Welt	34	0	34
Geological & Scientific Bulletin	2	7	0
Hoosier Naturalist	6	2	4
The Naturalist	6	3	3
Naturalist and Fancier	2	0	2
Nidologist	15	4	11
Oregon Naturalist	4	1	3
The Osprey	7	0	7
Random Notes Natural History	1	0	1
Science News	8	4	4
Sunny South Oologist	14	5	9
Young Naturalist	4	1	3
Zoologische Garten	8	2	6
TOTALS	866 (100%)	39 (5%)	827 (95%)

often nest again during the same breeding season if the first nest fails. Double clutching and double brooding (where both nests are successful) are known to occur in Red-cockaded Woodpeckers in the southern and northern portion of the species' range (LaBranche et al. 1994, Franzreb 1997, Phillips et al. 1998).

We studied Red-cockaded Woodpecker nesting behavior on the Angelina National Forest (31°N15'N, 94°N15'W) in eastern Texas during the 1998 breeding season. During routine checks of eggs and nestlings in cavities, we discovered that a group (a color-banded breeding pair) on the northern portion of the forest made multiple nesting attempts. The pair attempted to nest three times, each unsuccessful. The pair initially occupied a cluster on the northern portion of the Angelina National Forest. As of 1 May 1998 the pair had completed a clutch of five eggs in tree 503-A. By 4 May, all eggs were gone. By 19 May they had laid a second clutch of four eggs in the same cavity, but by 27 May three of these eggs were broken and one remained intact through 9 June 1998. On 11 June 1998, several southern flying squirrels (*Glaucomys volans*) were in the cavity and all eggs were broken. Following the loss of their second 1998 nest, the pair moved 600 m to a new cluster site to the NNW, and made a third nesting attempt. By 18 June they had three eggs in cavity tree 983-A. The three eggs were still present by 25 June, but had totally disappeared by 1 July 1998 suggesting the possibility of rat snake (*Elaphe obsoleta*) predation. Thus, during three nesting attempts in 1998, the breeding female laid a total of 12 eggs. During the 1999 breeding season this same female laid a total of seven eggs in two different nest trees (Conner et al. 2001). Red-cockaded Woodpeckers generally lay 2 to 5 eggs per clutch (Bent 1939, Ligon 1970). Jackson (1994) does not give a maximum number of eggs known to be laid by a breeding female during one nesting season.

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PELICANS AND HERONS NIGHT-FISHING UNDER PIER LIGHTS AT CORPUS CHRISTI, TEXAS

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Although some nonbreeding groups of American White Pelicans (*Pelecanus erythrorhynchos*) can be found in the Texas Laguna Madre all summer, and a few small breeding populations occur in South Texas and Mexico (Chapman 1988), the species is most common in winter. Even in winter, it is uncommon in the open waters of Corpus Christi Bay, but most birds feed and rest in small bays, inlets, and estuaries as well as larger freshwater lakes along the Texas Gulf Coast. During year-round observations of Corpus Christi Bay and adjacent areas during 1994-1999, populations of American White Pelicans increased dramatically when northern migrants arrived in late September/early October (e. g., Sept. 30, 1996 & 1998, Oct. 14, 1995) and declined abruptly in late March or early April (e. g., Mar. 31, 1996 and Apr. 1 in 1997, 1998, and 1999). Open-water use of Corpus Christi Bay increased, especially in January, when large schools of fish attracted flocks of hundreds to thousands of Double-crested Cormorants (*Phalacrocorax auritus*) during daylight. The cormorants formed long lines or semicircles on the surface and swam or flew forward between dives for food in a well-described pattern (Bartholomew 1942). During these highly mobile "feeding-frenzies", up to 250 American White Pelicans swam or flew forward and attempted to rob cormorants of their catch (see summary of literature in Evans and Knopf 1993). Other individuals also scooped up fish from near the surface. Brown Pelicans (*Pelecanus occidentalis*) occasionally joined these groups but tended to stay at the edge of the feeding flock. Due to their smaller size and greater agility, they seemed especially aggressive in pursuing individual cormorants. Large flocks of Laughing Gulls (*Larus atricilla*) commonly tried to rob both the pelicans and the cormorants of fish, but with little success.

However, a more unusual routine of American White Pelicans was practiced by groups nightly along shoreline areas of Corpus Christi Bay where they foraged for fish attracted to pier lights. These pelicans flew in at dusk to areas near the ends of piers that extended 275 to 366 m into the water. Three to four birds typically arrived together and cautiously swam to the platform as lights began to come on; they were joined by others after dark. During the most severe storm conditions with winds over 30 kph and waves over 0.75 m in height, fewer or no birds came. In 1995-1998, numbers using three adjacent lighted piers varied between 7 and 43 nightly. In the winter of 1998-1999, when only one pier was lighted due to storm damage on the others, maximum birds numbered only 14. A few individuals often were still present at daylight, suggesting that some fed all night. Water depths in the feeding area ranged from 0.7 to 1.6 m. The prey seemed to be Atlantic needlefish (*Strongylurus marina*) (Hoese and Moore 1977) of about 20 to 3.5 cm that surfaced periodically under the lights. On two occasions, American White Pelicans were joined at night by young Brown Pelicans (*Pelecanus occidentalis*) which seemed inept at this scoop-feeding technique-although Brown Pelicans sometimes feed in this manner during the day in Florida (Dinsmore 1974; personal observations).

Nocturnal feeding of American White Pelicans without artificial lighting has been reported during breeding seasons in Utah (Low et al. 1950) and Manitoba (McMahon and Evans 1992), and the Australian White Pelican (*Pelecanus conspicillatus*) reportedly feeds at dusk and during the dark on moonlit nights (Johnsgard 1993:368).

Two adult Great Blue Herons (*Ardea herodias*) and up to seven adult and immature Black-crowned Night-Herons (*Nycticorax nycticorax*) also attempted to catch fish attracted to lights. They did not land and swim, but rather flew down from their perch on the pier platform to hover over the water when they spotted a fish. Both species dangled their feet above the water for balance, and braved high winds and large waves that even white pelicans did not tol-

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