

fields, and abundant water. The nearest alternative source of water, except for the All American Canal, is 15 miles away.

The Coues' Flycatcher was in the company of migrant Western Wood Pewees and Olive-sided Flycatchers. It was easily distinguishable from the latter by its conspicuous yellow-orange mandible. The specimen (Los Angeles County Museum no. 60645) had a fully ossified skull, was moderately fat, and weighed 24.6 g. The only other specimen record from California is that of Cardiff and Cardiff (Condor, 55:217, 1953), obtained near the south end of the Salton Sea on 4 October 1952.

Phillips, Marshall, and Monson (Birds of Arizona, Univ. Arizona Press, 1964) describe Coues' Flycatcher as a "Common summer resident in the Transition Zone of southeastern and central Arizona. . . . On migration found in adjacent Upper Sonoran Zone." There are no records given for western Arizona or the Colorado River Valley.—G. SHUMWAY SUFFEL, 1105 North Holliston Avenue, Pasadena, California 91104, 5 August 1966.

**Coastal California Record of a Tree Sparrow.**—Grinnell and Miller (Pacific Coast Avifauna, 27:512, 1944) list the Tree Sparrow (*Spizella arborea*) as a rare winter visitant to California, found chiefly in the northeastern plateau region. They recorded a specimen from Riverside, Riverside County, on 7 February 1888 and one from Pacific Grove, Monterey County, on 13 October 1916. Another specimen was reported by Stager (Condor, 48:280-281, 1946) taken aboard ship on 14 May 1946, 50 miles south of the Golden Gate and 30 miles offshore. Because of the paucity of coastal reports for this species in California, indeed anywhere in the state west of the Sierra Nevada, a recent record is of interest. A Tree Sparrow was mist-netted and banded by the author at Point Reyes, Marin County, on 11 October 1965. The skull of the bird, when examined by the method described by Baird (EBBA News, 27:162-163, 1964), appeared to be incompletely ossified, and it is assumed that the bird was likely hatched during the 1965 breeding season. Color photographs of this bird, obtained through the courtesy of Barbara Margolis, are on file at the Museum of Vertebrate Zoology, University of California (Berkeley).—WILLET T. VAN VELZEN, Point Reyes Bird Observatory, Inverness, California, 20 July 1966.

**Behavioral Interactions of Birds and White-tailed Deer.**—A knowledge of interspecific associations between birds and wildlife is useful in understanding the niche of each species in the ecosystem. Rice and Mockford (Wilson Bulletin, 66:273, 1954), Riney (Condor, 53:178-185, 1951), Rice (Auk, 80:196-197, 1963), and Benson (Auk, 81:436, 1964) have mentioned several instances of birds benefiting by their association with ungulates. While studying behavior of white-tailed deer (*Odocoileus virginianus*) on the Rob and Bessie Welder Wildlife Refuge, San Patricio County, Texas, during 1961 and 1962, several observations were made of behavioral interactions between birds and deer. Following is a summary of observed encounters between these animals.

**Deer and turkeys.** The many encounters observed between deer and Wild Turkeys (*Meleagris gallopavo*) indicate that they tolerate each other peaceably even in close proximity. Intermingled feeding groups of deer and turkeys were seen frequently. The most obvious relationship was that of each species responding to the danger signals of the other. Frequently, strutting gobblers were alerted by the alarm snort of deer. On each occasion the gobblers immediately ceased strutting and moved into nearby brush, while a few began to give the clucking sound that is characteristic of frightened turkeys. On other occasions deer stopped feeding and looked in the direction of turkeys that were giving this sign of alarm.

**Deer and vultures.** Both Black Vultures (*Coragyps atratus*) and Turkey Vultures (*Cathartes aura*) are common on the Welder Refuge. Most of the many close encounters between deer and vultures were mutually passive. However, two groups of deer (a doe and fawn one time, and three does the other) appeared to be discouraged from drinking at a water tank by the presence of a single Turkey Vulture on a nearby fence post. Each group circled the water several times but did not go in to drink. Yet, on another occasion a doe passed within three feet of a Turkey Vulture on a pole and neither looked at the other.

On the evening of 19 July, a small fawn was captured and ear-tagged with plastic ribbons. At 0830 the next morning it was seen alive and moving, but appeared to be weak. At 1015 two Turkey Vultures alighted near it. Whether it was dead then is unknown, but I am of the opinion that it was not. At 1020 three Black Vultures arrived, and all five began eating the fawn. Five minutes later eight more vultures (three Turkey Vultures and five Black Vultures) arrived and joined in the feeding. All but two of the vultures had left by 1035, and the remaining two left a few minutes later. During this time an adult doe continually circled the vultures and occasionally came within 15 yards of them, but she never approached them aggressively. After the last vulture left, she approached to within 10 feet of the site, looked and sniffed intensely, then left the area. This doe may or may not have been the dam of the fawn.

During the study period I saw vultures feeding on dead deer, both adults and fawns, at least 20 times, but I never saw deer make aggressive moves toward them.

*Deer and eagles.* Bald Eagles (*Haliaeetus leucocephalus*) and Golden Eagles (*Aquila chrysaetos*) are seen infrequently on the area in winter. The only encounter observed between an eagle and deer occurred when three adult does and two fawns grazed directly under a Bald Eagle perched on a utility pole. Two of the does glanced casually at the eagle, but the eagle did not seem to look at the deer. It should be noted that eagles are rarely seen in summer when fawns are born.

*Deer and hawks.* Several species of hawks are present year-round on the Welder Refuge, but apparently they seldom have behavior-influencing encounters with deer. Young fawns were frequently observed within 20 yards of Red-tailed Hawks (*Buteo jamaicensis*), but the deer and the hawk usually ignored each other. In December, two does and a yearling buck were feeding together when an adult Red-tailed Hawk alighted in the grass within 10 feet of them. The buck and one doe did not stop eating; the other doe glanced casually at the hawk and then resumed feeding.

*Deer and Cattle Egrets.* Cattle Egrets (*Bubulcus ibis*) are winter visitors on the area and are usually seen following cattle. On only four occasions were they seen near deer, but then not following them.

*Deer and Laughing Gulls.* Laughing Gulls (*Larus atricilla*) are common visitors in the area during June and July. At any time of day it was possible to see six or seven in the air as they frequently dived and called. The cry of a Laughing Gull resembles the bleat of a fawn, and many does reacted similarly to calls from both gulls and fawns. Upon hearing the cry of a gull, does usually raised their heads and ran short distances in several directions, seemingly unable to locate the source of the sound. Approximately 75 per cent of the fawns are dropped during June and July, the same months in which Laughing Gulls are plentiful.

*Deer and flycatchers.* On one occasion, an Ash-throated Flycatcher (*Myiarchus cinerascens*) was observed sitting on the antlers of an adult buck, where it remained for at least six minutes before flying when the buck moved. It was not possible to determine whether the flycatcher was using the antlers as a lookout perch to spot insects stirred up by the deer or as a resting site, as stated by Sawyer (Audubon Magazine, 61:212-213, 1959).

*Deer and Roadrunners.* On four occasions a Roadrunner (*Geococcyx californianus*) was seen following groups of deer that were feeding through low vegetation. The roadrunners appeared to be catching and eating insects that were stirred up by the deer.

*Deer and other birds.* Deer were frequently seen close to geese, ducks, and Sandhill Cranes. In all instances the animals seemed to ignore each other.

Relations among deer and most birds seem to be neutral or somewhat beneficial to each species. Roadrunners, turkeys, and vultures all benefit by the presence of deer. Turkeys may be warned of danger by deer, and, likewise, deer may be warned by the clucking of turkeys. Vultures benefit by the food supplied by the death of deer, and, although deer may benefit by the vultures removing dead deer, there is an associated aspect to be considered. Vultures may kill fawns that are too young or too weak to escape. Does probably do not fight off vultures that are killing a fawn, which may or may not be detrimental to the deer herd, depending upon whether the only fawns killed are those that are weak or sick.—EDWIN D. MICHAEL, *Biology Department, Stephen F. Austin State College, Nacogdoches, Texas, 26 August 1966.*