

record of leucostictes for late June in the Deep Creek Mountains of extreme western Utah and makes it seem probable that the form involved there was likewise *atrata*.—ALDEN H. MILLER, *Museum of Vertebrate Zoology, Berkeley, California, July 14, 1955.*

Nesting of the Western Tanager in the Santa Cruz Mountains, California.—The Western Tanager (*Piranga ludoviciana*) was listed as an uncommon and irregular summer resident in the Santa Cruz area of California by McGregor (Pac. Coast Avif. No. 2, 1901:16) but no nests were known to him. Although singing males and young birds have been reported subsequently (see, for example, Allen, Gull, 11(6), 1929:2), no nests were recorded until recently.

On May 19, 1951, Mrs. M. E. Shore found a nest under construction seven miles south of Los Gatos in the Santa Cruz Mountains. The present writer discovered a nest containing large nestlings on Stevens Creek, 12 miles west-southwest of San Jose on June 7, 1951. The nest was placed on a horizontal branch, 15 feet from the ground in a coast live oak (*Quercus agrifolia*). The nestlings were being fed by both parents on June 7 and 8. On June 9 the nest was empty and there was no evidence of either young or adults in the vicinity. At this same locality a nest was found on May 17, 1952, placed on a coast live oak branch, 30 feet from the ground. The behavior of the birds indicated that incubation was in progress.

Miss Emily D. Smith found a nest under construction two miles northwest of Los Gatos on June 17, 1951. On July 14 nestlings were being fed in this nest which also was placed on a horizontal coast live oak branch. On June 8, 1952, the writer was shown a tanager nest on the property of Miss Gladys Record in Los Gatos. The nest, which contained eggs or possibly small young, was in a coast live oak.

At the present time the status of the Western Tanager in the Santa Cruz Mountains seems to be that of a fairly common summer resident. It nests rarely in the Diablo Range (Mount Hamilton) on the east side of the Santa Clara Valley and in Marin County, but certainly not as abundantly as in the Santa Cruz Range.—CHARLES G. SIBLEY, *Department of Conservation, Cornell University, Ithaca, New York, March 7, 1955.*

Additional Records of "Tule Geese" from Solano County, California.—Ever since Swarth and Bryant (Univ. Calif. Publ. Zool., 17, 1917:209-22) established the systematic status of the so-called "Tule Goose" (*Anser albifrons gambelli*) as a race of the White-fronted Goose, it has remained a rather obscure entity. It apparently has a limited distribution on both its wintering and breeding grounds. The characters which distinguish this race from *A. a. albifrons* as well as its distinctive habits have been adequately described by Swarth and Bryant, Bailey (Condor, 30, 1928:164-165), Moffitt (Condor, 28, 1926:241-243; 40, 1938:76-84) and Kortright (The Ducks, Geese and Swans of North America, 1942). These authors cite wintering records from only the Butte and Sutter basins in the Sacramento Valley and from the Suisun marshes of California. The breeding grounds of *gambelli* were not located until 1941 when breeding birds were found on the Perry River in the Canadian Arctic (Gavin, Wilson Bull., 59, 1947:195-203).

On December 21, 1954, I collected two *gambelli* from a flock of eight that was inhabiting a small area on the southern part of Banty Island in the marshes of the lower Napa River, Solano County, California. Two more were taken on December 24 and the remaining four were seen again on December 26 and January 2, 1955, at the same locality. This island is a part of the public hunting area owned by the Leslie Salt Company. Within the past year the company had constructed a peripheral levee around the island that held the water in its numerous small sloughs at approximately high-tide level. This situation may have contributed to the establishment of the particular sort of habitat favored by these geese, since in twenty-five years' experience hunting this area, none of this race had been previously observed. The sloughs were bordered by a dense complex of *Scirpus*, *Typha*, and *Spartina*, with interstitial areas supporting growths of *Salicornia* and *Grindelia*.

As in the observations reported by the authors cited, this flock of *gambelli* remained separate from the several flocks of *A. a. albifrons* feeding on sprouting grain fields in the vicinity. In so far as was observed, the "Tule Geese" were feeding primarily on the tubers and rhizomes of *Scirpus* which

they pulled up from the mud beneath water that was as much as one and one-half feet in depth. At one spot almost all the rushes over an area of approximately one hundred and fifty square feet had been uprooted.

The proventriculi and gizzards from the two specimens collected on December 24 were kindly analyzed by Mr. Howard Leach of the Department of Fish and Game Food Habits Laboratory as follows: (1) 20 *Scirpus robustus* (tuber and rhizome fragments), 25.0 cc.; forb (leafage), trace. (2) 5 *Scirpus robustus* (tuber and rhizome fragments), 9.0 cc.; insects (fragments), trace.

All four specimens were males, three adult and one immature. The three adults weighed 6 lbs. 14 ozs., 6 lbs. 8 ozs., and 5 lbs. 8 ozs. None possessed any reserves of fat. Two of the skins were placed in the Museum of Vertebrate Zoology, Berkeley, and one each in the teaching collections of the Departments of Zoology of the University of California at Berkeley and Davis.

I wish to express appreciation to Dr. Alden H. Miller for identification of these specimens.—
WILLIAM M. LONGHURST, *Hopland Field Station, University of California, Hopland, California, April 1, 1955.*

Influence of Winter High Tides on Two Populations of Salt Marsh Song Sparrows.—

In a recent paper Sibley (Condor, 57, 1955:241-242) gave observations on occurrence and behavior of birds and mammals of the salt marshes near Alviso, Santa Clara County, California, during the diurnal high tides that occur there annually from November to January. Concerning Song Sparrows (*Melospiza melodia*) his data are of critical interest to students of population dynamics and evolution. He relates that in walking into the marsh on a levee he met a flock of about 100 small land birds concentrated on it. Approximately 75 per cent of this flock was Song Sparrows; this is about 75 individuals, the number that could be drawn from about 35 to 40 acres of salt marsh in the breeding season (Johnston, Audubon Field Notes, 6, 1952:316-317). Apparently these birds had moved out of their winter territories to congregate on high ground and escape the tidewater.

My observations of color-banded Song Sparrows on the San Pablo salt marsh, Richmond, Contra Costa County, California, during similar high tides are different. I was in the field five days in 1950 and 1951 when tides of 6.9 to 7.4 feet inundated the marsh. San Pablo salt marsh is relatively undisturbed and there are no major man-made ecologic features extant, such as levees, dikes, and drainage cuts. But, during the winter high tides much floating debris is brought onto the marsh by the tidewater; some of this is substantial planks and timbers. It is on such debris and in the emergent vegetation (mainly *Grindelia cuneifolia*) that Song Sparrows of San Pablo marsh move to escape high tidewater. Such movement is almost always accomplished within the winter territory, or domicile. I recorded one instance of a banded Song Sparrow out of its winter territory by some 150 yards. As I watched this bird another Song Sparrow flew at it aggressively and there ensued a typical melospizine squabble that ended with the banded individual returning approximately to his domicile. This was the only bird I saw that had moved more than 10 to 20 yards during a high tide.

Adult Song Sparrows on San Pablo marsh remain for life in or extremely near the territory they take up in the fall of their first year of life (Johnston, MS); presumably the Song Sparrows of the southern San Francisco Bay marshes are likewise restricted in movement, although there is no evidence of this beyond the fact of a fairly high degree of differentiation from other populations of Song Sparrows in the uplands surrounding the bay marshes. Therefore, the concentrations mentioned by Sibley imply movements that are probably departures from the usual behavior of Song Sparrows, influenced in large part by the existence of the man-made levee.

There are two possible effects of large-scale movements caused by the high tides that occur ten or twelve times each winter. First, the movement made by the birds necessary to reach high ground at the levee may influence the typically sedentary nature of Song Sparrows on the Alviso marshes. Thus, population structure may be affected by accelerated exchange of individuals from remote parts of the population. Panmixia would be favored and the small, intrapopulation breeding aggregates (Miller, Evolution, 1, 1947:186-190) would tend to disappear. Second, there is little doubt that the age structure of the population is changed by increased losses to predators during the high tides. Along the same levee that contained the high number of Song Sparrows, in a distance of two miles, Sibley counted ten Short-eared Owls (*Asio flammeus*) hunting the rich prey source. There is no evidence of a differential survival due to age in the Song Sparrows, but such a hunting pressure on a concentrated