

### The White-crowned Sparrow.

(*Zonotrichia leucophrys*).

THIS bird has interested me greatly since I first saw it in the Cape St. Lucas region in the winter of 1881. I had previously seen it during the breeding season in the high Sierras in summer, not much below 7000 feet altitude, whereas in the Cape region it stayed in tropical vegetation near sea level, never above 1,000 feet altitude, in a temperature that was seldom below 70°—in March and April often much higher than that.

If heat, abundance of vegetation, insect and vegetable food bear close relation to bird nesting, why should it stay here six or seven months without breeding and then go north to breed, where the temperature is often as low as 30°. Its nests are mostly built on the cold, damp ground in sub-alpine meadows where the nights are nearly always chilly and the mornings frosty. It selects the coldest, chilliest part of its summer home in which to breed. Does this species require a cold climate to breed in? Do its young require the particular insect or other food of these mountain meadows? Do they find better protection here than elsewhere?

If safety is desired why do not these birds breed in the Cape region where birds have so few enemies that they have little use for protective coloration and none whatever for recognition coloring, neither here nor elsewhere. Can it postpone the time of nesting at will, until everything is propitious, regardless of the temperature of the preceding month or two? There were many of these birds on the borders of the large meadow at Blood's, Alpine Co., altitude 7,200 feet, on July 9, 1880. They were unmated, but five or six days later when the leaves on the willows in the meadow were large enough to give them seclu-

sion, they occupied the meadow and commenced to build their nests. This was about a month later than usual.

There had been a very heavy snowfall in April which was very late in melting, but I think the temperature of May and June was nearly normal. At Big Trees, 2,500 feet lower, birds nested in 1880 about the average time. This species probably reared its young in these meadows from time immemorial, though it was not known to do so until 1876 or 1877. It appears to be attached to its inclement summer home, where it remains from six to seven weeks longer than is necessary, as the young of the year are able to migrate from August 1 to 15.

This year it remained about as late as usual, though severe summer frosts had *destroyed the seed and berry crop* at 7,000 feet altitude. It usually feeds upon seeds of plants here, and, wondering what it was subsisting upon, I shot three on Sept. 19 and found nothing in their stomachs but beetles and a house fly that one of them had eaten. While migrating in central California, it clings to the high mountains, occasionally appearing on the coast in the southern part of the state and southward.

It is abundant in the mountains of California in summer and in southern Lower California in winter, none remaining to winter as far north as San Diego. A female which I shot in the city of San Diego May 5, 1885, had small ovaries. She had probably recently come from the warm climate near Cape St. Lucas, as the individuals which spend the winter in the Cape region breed mostly if not entirely in the Sierras of California and western Nevada. I am aware that *Z. leucophrys* is not the only species that breeds in a cold climate and spends the winter in the tropics, and I should explain that my questions concerning it are intended to be suggestive mainly and to emphasize the facts I have mentioned.

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