

Being situated here at a watering place, we Santa Barbarans are perhaps in a position to realize clearly what recent zoonomers have evidently overlooked; viz., that this third class has arisen in human society, and that it has received its designation. Hereabouts we have two or three scores of families, each of which owns two homes, one in Santa Barbara, and the other in Chicago or New York or Boston, as the case may be. These spend habitually from three to six of the winter months with us, and we call them *winter residents*. Similarly a few families resident in Pasadena or Bakersfield, or Fresno, or elsewhere in the heated interior, maintain separate establishments on the coast, to which they resort for two or three months in summer, and we call such *summer residents*. Winter visitors we have also, of course, shoals of them, spending a week or two at the Potter, or a month with friends in Montecito,—here today and gone tomorrow; Santa Barbara this year and Ceylon the next.

It is a travesty on current usage to call the Gambel Sparrow, which spends five or six months with us, a "winter visitant", and to place him thereby in the same category with the Pacific Fulmar and Baird Cormorant and Glaucous Gull, which are occasionally seen in winter; or with the Blue-fronted Jay, which pays us strict visits. And it is grossly inappropriate to call any breeding bird a "visitant" in its breeding home. Imperfect our human terms may be, but let us minimize their imperfection rather than parade our griefs and invite the scorn of those who speak a living language. The terms "summer resident" and "winter resident" are, in my opinion, much more accurate than the proposed substitutes, and they assuredly do conform to current usage.

Santa Barbara, California, January 8, 1914.

A CHANGE IN FAUNA

By FAYRE KENAGY

THE CHANGES in faunas so rapidly developing in certain regions in the west, have a peculiar interest for me. They take place with especial rapidity on irrigation projects, as the result of altered conditions, and desert surroundings are often completely changed in two or three years. The locality I have been especially interested in is the Minidoka project, in southern Idaho, containing about eighty thousand acres and bisected by the Snake River. This last feature makes it doubly interesting, as affording contrast between the changes in the uplands and those along the stream. As there is so great a difference between the two I will mention each separately.

I came to this region in 1907, before the water was turned into the canals, and have resided here permanently since. Thus I have had an excellent opportunity to note the changes which have taken place. The country was originally sandy, and heavily covered with sage-brush. There were fewer than fifteen summer residents, the river belt excluded, nearly all of them typical of a dry region. Sage Grouse, Sage Thrasher, Burrowing Owl, Rough-legged Hawk, Prairie Falcon, Dusky Horned Lark, and Sage Sparrow were by far the most common. As the farmers cleared their land, the Grouse, Sage Thrasher, and Sage Sparrow were deprived of their natural haunts. The Grouse became rare; the Sparrow and Thrasher are now found on the edges of the project, and on state land that has remained uncleared. But this is not the case

with all the original inhabitants. The hawks, being wandering in their habits, are still found here, and are even more abundant than formerly.

The Brewer Sparrow, originally nesting in dense-leaved sage-brush, is now more common than formerly, and builds its nests in fence corners or weed patches. Last summer I observed something interesting about this bird. When it built in sage-brush, the eggs were dark blue, almost as dark as a Cat-bird's, but were normal in size and markings. The last nest I found was in an alfalfa field in a slight depression. The nest was constructed the same as previously, but the eggs were normal in color as well as in size and markings. I am very much interested to learn if the whole species will make this change, or whether it was merely a variation restricted to the individual bird.

As soon as grain and alfalfa were raised, many new birds became common, such as the Grasshopper Sparrow, Lark Sparrow, White-rumped Shrike, and the Mountain and Merrill Song Sparrows. Field mice, meanwhile, had become a pest, and in 1910 there was a great influx of Short-eared Owls. They remained throughout 1911, but are now only fairly common, since the mice have been very much thinned out.

After two years of irrigation, the loose sandy soil became saturated with what was called "sub-water". Low places became wet meadows or even ponds, the low land filled with growths of willows and weeds, and the ponds with cat-tails. Now was there, indeed, a host of new arrivals. Tule Wrens, coots, ducks, bitterns, black-birds, rails and killdeer are now very abundant, whereas formerly there were none. The water birds, or water-loving birds, are now more plentiful than the others. During migrations there are vast numbers that visit us for a month or more. These migratory birds have always passed over the project, or, if they stopped at all, did so along the river only.

Trees are scarcely large enough for birds to build in yet, but the orchards and hedges are frequented by robins, grosbeaks, orioles, and warblers. I once saw a Red-breasted Nuthatch, and wondered how it could get along in a sage-brush region. The Burrowing Owl, badger, and kangaroo rat were forced to find high ground when the sub-water came up. Horned toads and lizards retreated when the land was tilled. Rabbits are a pest only to the farmers who live near large areas of uncleared land. The Pinyon Jay inhabits the foothill region several miles away, and makes occasional visits. The Sparrow Hawk is becoming common, coming from an old settled area thirty miles away.

The river belt has changed but little. The willows have been the home of robins, warblers, and sparrows; while swallows, kingfishers, and flickers nest in the banks. There are many water birds that breed on the brushy islands in the stream. There are no new waterbirds found there, but many birds such as the Lark Sparrow, Grasshopper Sparrow, and Kingbird, have come from the inland territory.

The Valley Partridge (introduced from California) and Belted Kingfisher have spread over the highlands of the project. The same is true of many kinds of ducks and the Limicolae.

At the dam there are other conditions prevailing. Here a large colony of Cliff Swallows nests under the eaves of the power plant, over the roaring water. In the heaps of rocks excavated from the canals there are several pairs of Rock Wrens, of interest because this is the only place hereabouts where they are found. Of course this is local, as the changes in the whole pro-

TABLE SHOWING CHANGE IN STATUS OF BIRDS ON THE MINIDOKA PROJECT, IDAHO

	1907	1908	1909	1910	1911	1912	1913
<i>Dafila acuta</i>	tolerably common	tolerably common	common	common	common	abundant	abundant
<i>Plegadis guarauna</i>			rare	tolerably common	tolerably common	common	common
<i>Fulica americana</i>			rare	common	abundant	abundant	abundant
<i>Gallinago delicata</i>			rare	rare	common	abundant	abundant
<i>Actitis macularius</i>				tolerably common	abundant	abundant	abundant
<i>Centrocercus urophasianus</i>	tolerably common	rare	rare	rare	rare		
<i>Asio flammeus</i>				abundant	abundant	rare	rare
<i>Speotyto cunicularia hypogaea</i>	tolerably common	tolerably common	tolerably common	rare	rare	rare	rare
<i>Selasphorus platycercus</i>			tolerably common	common	rare	rare	rare
<i>Tyrannus tyrannus</i>					rare	rare	rare
<i>Tyrannus vociferans</i>				rare	tolerably common	tolerably common	tolerably common
<i>Otocoris alpestris merrilli</i>	tolerably common	abundant	abundant	abundant	abundant	common	common
<i>Chondestes grammacus strigatus</i>			rare	tolerably common	abundant	abundant	abundant
<i>Amphispiza nevadensis nevadensis</i> ...	abundant	abundant	common	tolerably common	rare	rare	
<i>Hirundo erythrogastra</i>					rare	rare	rare
<i>Dendroica auduboni</i>					rare	tolerably common	tolerably common
<i>Piranga ludoviciana</i>			rare	rare	rare	rare	tolerably common
<i>Oreoscoptes montanus</i>	abundant	abundant	common	tolerably common	rare	rare	rare
<i>Planesticus migratorius propinquus</i> ...			rare	rare	tolerably common	common	common

ject are on a comparatively limited area. It is an oasis in the desert, for desert conditions still exist on all sides.

Since the opening of the region the number of bird species has risen from fifteen to one hundred and thirty. A few of the most interesting changes are tabulated below.

Boulder, Colorado, February 25, 1914.

THE RACES OF *BRANTA CANADENSIS*

Suggested by Swarth's "Study of a Collection of Geese"*

By ALLAN BROOKS

NO GROUP of North American birds so badly needed revision as the geese of the *canadensis* type, and Mr. Swarth has put not only all ornithologists, but also the discriminating sportsman, under a deep debt of gratitude for his excellent and carefully studied paper, which is practically in the nature of a monograph of the group.

American ornithologists have always been rather prone to carefully study all small birds, and let the larger species severely alone. No better instance of this is needed than the case of these geese. Sportsmen were unable to correctly identify the geese they shot by the aid of any of the available works, nor could their ornithological friends help them much, as all the given diagnoses were at fault.

Could anything be more impossible than the breeding range of *Branta c. occidentalis* as given in the latest A. O. U. *Check-List*? This sub-species is there quoted as breeding in northeastern California and on the coast of western Alaska—localities some fifteen hundred miles apart—though it was known that the whole intervening country was occupied by typical *canadensis*.

Many good ornithologists had worked the northern California and Oregon regions, but it was not until the last year or two that it was definitely ascertained that all records of *occidentalis* as a breeding bird were wrong, and that *canadensis* and only *canadensis* was the resident species. The wonder is that any credence could be given to the theory of an isolated breeding colony of *occidentalis*.

Mr. Swarth has been unable to find any reliable evidence of this sub-species in California, even as a migrant.

In his treatise he first of all proves the fallibility of all the distinctions as based on pattern and color, and indicates that the most reliable distinctions between *canadensis*, *hutchinsi*, and *minima* lie in the measurements of the culmen and in the comparative lengths of tarsus and middle toe. The very adequate and ingenious system of symbolical measurement charts given by Mr. Swarth are a distinct feature of his work. From these it would seem that most reliance can be placed on measurements of the culmen to separate the three subspecies, i. e., *canadensis*, *hutchinsi*, and *minima*. In his table the two former do not coalesce at all in this respect, and the slight overlapping of the last two might

*A Study of a Collection of Geese of the *Branta canadensis* Group from the San Joaquin Valley, California. By Harry S. Swarth. Univ. Calif. Publ. Zool., vol. 12, 1913, pp. 1-24, 2 pls., 8 text figs.