lationships with man after the manner of the Eastern Robin to which it is so closely related.

The English Sparrow was introduced some forty years ago and has increased enormously. The Brewer Blackbird is probably another late addition to the breeding birds of the county, as it was listed as rare some years ago and is now abundant. The nesting of the Barn Swallow does not seem to have been noted before and it is likely that it is increasing in numbers as is also the Cliff Swallow. The nesting of the Pigeon Guillemot is of especial interest. This seems to be a case of a species returning to the nesting place of its ancestors after years of absence from the ancestral homesite.

It is our opinion that many of the species of birds mentioned in this list are increasing in the county. This is largely due to the protection given them in Golden Gate Park. The custom of the park management, however, of shooting the male mallards during the winter is to be deplored. Such shooting drives away the more timid waterfowl and thus keeps many of the rare species out of the park. There are already three times as many female mallards as male mallards in the park, as any one can see for himself by counting them. Given adequate protection, the number of birds in the park ought to go on increasing for years.

The Lake Merced region is a natural bird refuge, and it would be the part of wisdom to make it such in fact. If the waterfowl and other species of birds found there were given adequate protection the bird life of the region would in a few years be such as to surpass the expectations of the most sanguine—an unending source of pride, pleasure, and profit to all right thinking people of this generation and to all the generations that are to come.

San Francisco, California, December 20, 1916.

GEOGRAPHICAL VARIATION IN *SPHYRAPICUS THYROIDEUS*

By H. S. SWARTH

(Contribution from the Museum of Vertebrate Zoology of the University of California)

THE acquisition during recent years by the Museum of Vertebrate Zoology of fairly representative series of Williamson Sapsuckers from various parts of California led to the careful examination of these birds to determine whether more than one recognizable race might be included among them. A preliminary survey of the Museum series disclosed the need of additional material from certain points, and the necessary specimens were borrowed from the collection of John E. Thayer, from the Museum of Comparative Zoology, through Mr. Outram Bangs, and from the collection of the Geological Survey of Canada, through Mr. P. A. Taverner. There are in the Museum of Vertebrate Zoology, including the Grinnell, Morcom and Swarth collections, ninety-nine specimens of this species. Altogether 123 skins were examined.

Critical study of specimens from various parts of the Pacific Coast, from British Columbia to southern California, always with due regard to seasonal and other variations, shows no tangible differences in either sex, existing between birds from different latitudes, contrary to a first impression that the northern individuals were of appreciably larger size.

Comparison of Pacific Coast with Rocky Mountain birds, however, brings forth one character, at least, serving to distinguish between the two aggregations. Relative size of bill seems to be absolutely diagnostic, the Pacific Coast bird having the bill both longer and heavier than in the Rocky Mountain race. It is no new discovery that there are differences between these two forms, for Ridgway (Birds N. and Mid. Am., VI, 1914, p. 287, footnote) gives measurements of series of both, and Mearns (Auk, VII, 1890, p. 252) discourses at length on differences of color and pattern that seemed to him more or less apparent. Neither author, however, deems the distinctions noted of sufficient importance to warrant division of the species nomenclaturally.

The variation in bill measurement, nevertheless, is exactly comparable to what is encountered in the recognized races of the White-headed Woodpecker, *Xenopicus albolarvatus albolarvatus* and *X. a. gravirostris*, the extent of difference being about the same in each case. In this connection comparison can be made between the measurements given by Ridgway (Birds N. and Mid. Am., VI, 1914, p. 265, footnote), for the races of *Xenopicus*, with those of *Sphyrapicus thyroideus* (loc. cit.). The differences are as worthy of recognition in one case as in the other. It is my suggestion here that the Rocky Mountain race of the Williamson Sapsucker be separately recognized on the basis of its lesser bill measurements as compared with those of *Sphyrapicus thyroideus thyroideus* of the Pacific Coast.

As regards a name for this form, there is already one that seems to be clearly available for use. A specimen from Mexico was designated by Malherbe (Journ. für Orn., 1854, p. 171) as *Picus nataliae*, and an example from any part of Mexico (save possibly from the mountains of northern Lower California) would assuredly be of the Rocky Mountain subspecies. Also in the measurements as given by Malherbe, length of bill ("du bec, du front 20 millimeters") places his bird unequivocally with this race.

It is reasonably certain that in the Rocky Mountain region the species does not breed south of the Mogollon Divide, though it does occur as a common winter visitant in southern Arizona and over a large part of the Mexican plateau. These winter visitants, as shown by numerous specimens at hand, are migrants from the Rocky Mountain region to the northward, and not from the Pacific Coast region. So the name *nataliae*, as given by Malherbe to a Mexican specimen, can safely be used for the Rocky Mountain subspecies, which may therefore stand as *Sphyrapicus thyroideus nataliae* (Malherbe).

Plumage variations in this species as noted in the series here assembled deserve some comment. In a paper on Arizona mountain birds, Mearns (Auk, VII, 1890, p. 252) carefully describes certain features of the species in which there seemed to be variation with locality. In the present connection I have made detailed comparison of Rocky Mountain and Pacific Coast series in regard to each of the color characters mentioned by Mearns, and failed to find even as constant or apparent difference as he did. In just one particular does there seem to be an appreciable color character. Comparing adult males from the two regions, the Rocky Mountain series as a whole certainly has the oblong abdominal patch of a trifle darker shade of greenish yellow.

In this species taken as a whole, the amount of the differences dependent on age and sex, and the extent of these as compared with similar conditions among the other forms of the genus, are of rather exceptional interest. In the early history of the bird the male and female were for years regarded as representing

distinct species, and this circumstance but serves to emphasize the wide difference in appearance in the sexes; while the fact that in a species with such marked sexual distinctions the juvenal plumages of male and female, respectively, exhibit essentially the same differences, renders it unique among the woodpeckers of North America, at least. In fact there are very few birds of any order that fall within this category.

The female *thyroideus* exhibits the widest departure from the mode of pattern and coloration as seen in the genus *Sphyrapicus* at the present time. It is unique in all the phases of specific, age, or sex variation within the genus in the total absence of red coloration and of white upon the wing coverts. This, however, does not mean that the female of *thyroideus* exemplifies the farthest advance, the greatest departure, from the ancestral coloration in the genus. On the contrary, the fact that it is in the juvenal plumages of the several other forms of *Sphyrapicus*, all with greater or less development of barring upon the body, that there is found the closest resemblance to the female *thyroideus*, suggests the possibility of the latter being in rather a primitive stage. The observed development of the black breast patch supports this idea. In the juvenal plumage there is no indication of this marking. In the adult birds (meaning by this all that have passed beyond the juvenal stage, it being usually impossible to distinguish between fall immatures and adults), there are one or two at hand in which the barring on the breast is no heavier and no more confluent than on other parts of the body, in most specimens there is more or less indication of a black patch, and in a lesser number of individuals this marking is largely developed and of a glossy black color. In one skin from the Warner Mountains, California (no. 14197, Mus. Vert. Zool.), the extension of the black area is so great, and the yellow of the belly so intense, that, aside from the absence of red on the throat, this specimen, as far as the under parts are concerned, is hardly to be distinguished from a male bird.

Variation in the male *thyroideus* appears principally in the amount of white spotting on the outer webs of the primaries, amount of concealed white in the interscapular region and the character of the markings on the flanks, in all of which there is no correlation of appearance with locality. Some young birds show more white dorsally than any adults, the streakings being but partly concealed and covering the whole back, but on the other hand there are some with the upper parts of as "solid" black as any adults. In some juvenal males the head, and even the breast, is heavily mottled with whitish. In the adults there is frequently enough white streaking dorsally to show through upon the slightest disarrangement of the feathers. In the juvenal male the flanks seem to be invariably barred; in the adult, though the effect is usually of streakings or elongated V-shaped markings, occasional individuals have as definitely barred flanks as any of the females.

Specimens examined:

Sphyrapicus thyroideus thyroideus

California. Riverside County: San Jacinto Mountains, 5. San Bernardino County: San Bernardino Mountains, 13. Los Angeles County: Mount Wilson, 3 (winter); Pasadena, 1 (winter); Los Angeles, 1 (winter). Ventura County: Head of Piru Creek, 1 (winter). Tulare County: localities in Sierra Nevada, 17. Fresno County: Horse Corral Meadow, Sierra Nevada, 5. Inyo County: Cottonwood Lakes, 2. Yosemite National Park, 16. Mono County: Walker Lake, 1. Eldorado County: Hope Valley, 1; Gilmore Lake, 1; Mount Tallac, 1; Meyers, 1.

Placer County: Summit, 1. Nevada County: Independence Lake, 8. Siskiyou County: Mount Shasta, 1; Siskiyou Mountains, 1. Modoc County: Warner Mountains, 10.

Oregon. Fort Klamath, 3 (winter).

British Columbia. Midway, 3.

Sphyrapicus thyroideus nataliae

Colorado. Gold Hill, 2. Colorado Springs, 1. Pagosa, 2. Mill City, 1. Cebolla, 1. Elk Creek, 1. "Colorado", 4.

New Mexico. Santa Fe, 1. Ancho, 2 (winter). Willis, 1 (winter).

Arizona. Fort Whipple, 1 (winter). Huachuca Mountains, 8 (winter).

Mexico. Bolanos, Jalisco, 1 (winter).

Berkeley, California, February 7, 1917.

AN ABNORMAL EGG OF *FULICA AMERICANA*

By ALEXANDER WETMORE

WITH ONE PHOTO

ABNORMAL birds' eggs are of more or less common occurrence and have been of interest to the collector because of their oddity, but seldom has there been anything known concerning them that might explain their peculiarities.

On May 29, 1916, while passing through an area known as the Old River Channel, in the delta of Bear River, Utah, a commotion in the aquatic growth at one side attracted attention. Going over, I found an adult Coot caught under water and nearly drowned in long strands of the potato moss (*Potamogeton pectinatus*). On taking it up I found that it had only one foot, and this explained its inability to escape. The bird soon recovered and was tied and placed under some rushes in the bow of the boat along with other captives. This happened about nine o'clock in the morning. At noon the bird was given opportunity to drink, and about four in the afternoon it was placed in a pen where it had access to the river. The following morning I found to my surprise that the bird had laid an egg that was strikingly abnormal in color. Though I have examined many hundreds of Coots' eggs, I have never seen any at all resembling it.

The ground color of this egg is between pale smoke gray and light mineral gray[1], with the larger end washed with avellaneous. Small spots of bone brown that stand out rather prominently, larger and more abundant about the large end, are scattered over the surface. About the larger end are many blurred confused spots of purplish gray. These markings are found over the rest of the surface and vary in places to light purplish gray. The texture of the shell under a hand lens is seen to be similar to that of other Coots' eggs.

This egg is abnormal, then, in having a greenish gray ground with a concentration of heavier markings about the larger end. It has absolutely no resemblance to ordinary Coots' eggs, and no one who has examined it has recognized it. In general it resembles somewhat certain shore-birds' eggs, while it has a sug-

[1]Ridgway, Color Standards and Nomenclature, 1912.