

their own mathematical method of computation the main issue will not be affected thereby. After all, it is the issue or tenor of the article that is the chief desideratum.

I am pleased to know that the article has received such careful consideration by those interested in the question and feel indebted to them for analysing its contents and I welcome any form of criticism thereon whether constructive or destructive in its incident.

ARTHUR H. E. MATTINGLEY, "Koonawarra," 13 Turner St., South Camberwell, Victoria, Australia, January 10, 1928.

#### PUBLICATIONS REVIEWED

TAVERNER'S STUDY OF RED-TAILED HAWKS.<sup>1</sup>—As the result of protracted study of the several forms of *Buteo borealis* in a portion of the habitat of that species, Mr. Taverner has produced an excellent summary of the range of variation and the sort of variation that obtains among the several more northern of the currently recognized subspecies. His descriptive accounts of subspecies and individual birds, together with the helpful colored plates, form an important contribution toward an understanding of this difficult species and one that will be consulted many times by future students of the group. With ready acceptance of most of his descriptive matter and of most of his general statements, one may still, however, differ from him in conclusions reached. To summarize briefly, his study includes the subspecies *borealis*, *calurus*, *harlani*, *krideri*, and *alascensis*. His conclusions are that these names really cover but two forms, an eastern race, *borealis* (including *krideri*), and a western race to which he applies the name *harlani* (including *calurus* and *alascensis*). The facts he adduces, to my mind, may be interpreted to point just as clearly in other directions.

We are each of us, I suppose, influenced throughout our work by certain trends of thought that cause us to attack similar problems in similar ways, instinctively applying to new questions theories and formulae that we have tested out in the past—to our own satisfaction at least.

Mr. Taverner, in previous publications, has abundantly demonstrated his disinclination (I do not say refusal) to accept subspecies save on grounds that many of us believe to warrant full specific recognition. I, on my part, have become increasingly inclined to recognize by name geographic forms of different degrees of variability and of different kinds of variability. And I feel very keenly the desirability of using clear-cut subspecific names in cases where important facts can thereby be driven home, as is emphatically the case in some aspects of this *Buteo borealis* tangle.

In the first place, I can see no adequate ground for a primary division that lumps *krideri* with *borealis*, and *harlani* with *calurus*. It would be more reasonable, to my notion, to draw a relationship-expressing line which leaves *borealis*, *krideri*, and *harlani* on one side, *calurus* on the other—at least as expressing conditions at the northern limit of the range of the species *borealis*, to which region Taverner has restricted himself. Parenthetically, I may here express my acquiescence in the dropping of *alascensis*, as indistinguishable from *calurus*.

As it happens, the form *harlani* illustrates most of the points that I wish to make. It happens also that I have made some study of this bird, and have had some experience with it in life (see Swarth, Univ. Calif. Publ. Zool., vol 30, 1926, pp. 105-111).

Taverner in his conclusions regarding *harlani* and *krideri*, "views *harlani* . . . as a local chromatic form of *calurus*, whereas *krideri* represents a dichromatism limited to the western representative of *borealis*, but transmitted to *calurus* at the northern extension of the latter's range." Do this and similar statements explain anything? They leave me, personally, in a haze of confusion, from which I turn desperately to what appear to me to be certain basic facts. Some of these are as follows: In northwestern British Columbia (specifically in the Atlin region, where most of my observations on *harlani* were made) and in the adjoining interior of Alaska and Yukon Territory, all of the Red-tails there breeding are of one race. Young from any one nest may eventually pair with young from any other nest. Regardless of details of appearance they are all the same, and to use different names for different individuals can result in nothing but confusion. In the nearby coastal

<sup>1</sup> A STUDY OF BUTEO BOREALIS, THE RED-TAILED HAWK, AND ITS VARIETIES IN CANADA. By P. A. TAVERNER. Victoria Memorial Museum, Museum Bulletin no. 48, Biological Series, no. 13, November 11, 1927, pp. 1-20, 3 colored plates, 1 fig. (map).

region of Alaska (the Sitkan region) the Red-tails are again all of one race, but very different from the interior bird. It satisfies me to apply the name *harlani* to the interior form, *calurus* to that of the coast.

If there was any one fact that became strongly impressed upon me in the course of several years' field work in the northwest, it was the faunal distinctness of coast and interior. The coast range marking the boundary between Alaska and British Columbia is as decided a faunal barrier as may be found in North America. Of birds, there are very few species found in both regions. Nearly all from the interior are related to eastern species or to Rocky Mountain forms; those on the coast are related to Pacific slope species from farther south. Migration from the interior tends most decidedly to the southeast, east of the Rockies, and over long distances; migration from the coast is of slight extent and keeps west of the coast ranges. The Red-tails of each region follow these rules.

Taverner asserts the existence of *calurus* within the habitat of *harlani*, and cites as an example a breeding bird in the Provincial Museum, Victoria (no. 2664), that was collected near Atlin. I have studied this bird myself and strongly object to his conclusion. He has formulated a definition of *harlani* with which this bird does not agree, therefore he calls it *calurus*, but it is absolutely unlike anything that can be found in the southwest, the habitat of typical *calurus*. It is essentially like other Atlin birds except in certain details of tail markings (which do not occur in *calurus*, either), and as Taverner himself says of *harlani* that in this respect "no two seem ever to be exactly alike," I do not see why his definition of the subspecies should not be widened a little to allow for this variant.

Published sight identifications of *calurus* within the habitat of *harlani* must be interpreted with regard to the observer's previous knowledge of the birds, and a few years back there were very few who had any knowledge whatever of *harlani*, and, up to 1924, no one who knew that its breeding ground was in the north. Of course it was natural for dark colored hawks to be recorded as *calurus* in sections where *harlani* was later found breeding.

The Red-tail of the northwestern interior (*harlani*) has good characters of

body color and tail markings. It is variable, of course, and varies in the direction of related forms—in other words it is a subspecies, not a clearly defined species. It has a well defined breeding range, a sharply defined migration route, and its winter home is capable of fairly satisfactory definition. These facts, together with its relation to the different but equally well-marked Red-tail (*calurus*) of the Alaskan coast, would be virtually lost if both were lumped under one name. Taverner, himself, to convey his arguments finds it necessary to use the different names. Should his suggestion be followed, and the northern Red-tails be placed in two sections, an eastern and a western race, we should still be obliged to go on using the names *calurus*, *harlani*, and *krideri*—only then we would put them in quotation marks!

There are other arguments that might be dwelt upon, but one or two minor points will suffice to close this aspect of the case. Taverner, speaking of *harlani*, says (p. 9): "It is probably a small race numerically with a narrow migrational route, and of local residential distribution." Its summer range, as mapped by him (probably with fair accuracy) is of greater extent than the habitats of a number of species and subspecies now in our Check-list, and it may be added that a list of such more restricted ranges would include that of the California Condor, even as it was when the bird was first discovered.

Taverner's comments upon *calurus*, as well as his colored plates, are based mostly on specimens from the Canadian prairies or elsewhere pretty far north in the interior. These birds might well show intergradation toward *harlani*, or be otherwise different from the Red-tail of the southwest, to which the name *calurus* is generally applied. Taverner's figure of a Red-tail from the Queen Charlotte Islands (plate II, fig. 8) represents fairly well a common type of body color throughout the Pacific Coast region, a type that occurs north to the Alaska coast. His figured examples of *calurus* from the interior of Alaska I would not recognize as such.

As regards *calurus* in the southwest, it may be said that black banding upon a chestnut tail is not a subspecific character. It occurs in a minority of cases. The statement that in the dark phase the "juvenile form is not certainly known"

is a misapprehension. Such specimens exist in western collections.

The comprehensive study that is still to be made of variation in the species *Buteo borealis* will include consideration of the several described subspecies at the southern extreme of range, and in such a study Taverner's treatment of conditions at the northern extreme will be useful and will merit respectful consideration. I feel strongly, though, that his nomenclatural treatment of the case is mistaken and should not be followed.—H. S. SWARTH, *California Academy of Sciences, San Francisco, February 25, 1928.*

### MINUTES OF COOPER CLUB MEETINGS

#### SOUTHERN DIVISION

**JANUARY.**—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Southwest Museum, Los Angeles, California, on January 31, 1928, at 8 p. m., with President Appleton presiding. The minutes of the December meeting of the Southern Division were read and approved. The minutes of the December meeting of the Northern Division were read.

The following applications for membership were read: Ralph C. Teall, 2326 Warring St., Berkeley, Calif., and Gustav Swanson, 3305 47th Ave., South, Minneapolis, Minn., both proposed by W. Lee Chambers; Charles C. Williams, 862 N. Hill Street, Pasadena, Calif., Robert W. Moore, 1611 Marengo Ave., South Pasadena, Calif., and Earl Kingston Lindley, 1194 Boston Ave., Pasadena, Calif., all proposed by Robert T. Moore; Robert H. Birkhead, 1115 Kilson Drive, Santa Ana, Calif., proposed by D. S. Halladay; and Mrs. Jessie Hoyt Hatch, Imperial, Calif., proposed by Harold Michener.

President Appleton called for a report of the nominating committee. Since none of the committee was present, the Secretary gave its report which was the nomination of officers for the year 1928 as follows: W. Lee Chambers, president; Harry Harris, vice-president; and Harold Michener, secretary. These officers were then elected.

The Secretary read two letters from Mr. A. G. Vestal, Secretary of the Pacific Division, American Association for the Advancement of Science, and one letter

from Hilda W. Grinnell, Secretary of the Northern Division of the Cooper Club, all in regard to the meeting of the Pacific Division, which is to be held at Pomona College, Claremont, California, on June 13 to 16, inclusive, this year. The Northern Division, at the request of the Southern Division, had arranged to have its delegates represent also the Southern Division at a meeting of the Affiliations Committee of the Pacific Division, which was held in San Francisco on January 28. The delegates were Dr. Evermann and Mr. Joseph Mailliard. At the motion of Mr. Appleton, seconded by Mr. Reis, the Chairman was instructed to appoint a committee to recommend the action which should be taken by the Southern Division in regard to the participation of the Cooper Club in the meeting of the Pacific Division at Pomona in June. President Chambers announced that he would appoint the committee later.

On motion of Mrs. Ellis, seconded by Mr. Pierce, the Chairman was instructed to appoint a committee to present a resolution expressing the grief of the Southern Division over the loss of Mr. Wyman. Dr. Louis B. Bishop and Mr. Harry Harris were appointed and presented the following resolutions, which were unanimously adopted.

In the death of Luther E. Wyman the Cooper Ornithological Club has lost one of its most able and loyal members, whose passing has left a serious breach in our ranks. Because of his constant devotion to the Club's interests, as well as his ever ready willingness to give in unlimited measure of his time and energy to Club affairs, he had long ago become one of the organization's mainstays. The place he had won for himself in the hearts of his fellow members and in the esteem of his colleagues will long be cherished, and his loss will be felt most keenly by those who knew best his fine qualities as a man and his quiet ability as a scientific worker. The memories he has left with us are marred by no trait or incident to detract from our affection and respect for him. In view of these facts it is

**RESOLVED**, that the Southern Division of the Cooper Ornithological Club here record its deep feeling of sorrow for the loss of our valued friend and associate, and its sympathy for his bereaved and lonely widow. It is further

**RESOLVED**, that the Secretary transmit to Mrs. Wyman a copy of these resolutions.

(Signed) LOUIS B. BISHOP  
HARRY HARRIS

President Chambers requested the Secretary to read an obituary of Mr. Wyman which had been written by Dr. Bishop who was prevented by sickness from attending the meeting. The information given in this brief biography was appreciated by all, though it emphasized the keen sense of loss felt for this wholly lovable comrade.