

101. Descriptions of two new birds from southeastern Siam. Proc. Biol. Soc. Washington, 46: 155-156, October 26, 1933.
102. Some additions to the bird fauna of Siam. Journ. Siam Soc. Nat. Hist., Suppl., 9, no. 2: 153-159, 1933.
103. One new genus and three new races of birds from the Malay region. Proc. Biol. Soc. Washington, 47: 115-118, June 13, 1934.
104. A new Flycatcher from southeastern Siam. Proc. Biol. Soc. Washington, 47: 155-156, July 23, 1934.
105. On the color of the iris in the western Cuban Grackle. Auk, 52: 193, April, 1935.
106. Two new forms of birds from southeastern Siam. Proc. Biol. Soc. Washington, 48: 53-54, May 3, 1935.
107. Three new forms of birds from the Philippine Islands and Siam. Proc. Biol. Soc. Washington, 48: 147-148, October 31, 1935.
108. A new Babbler from southeastern Siam. Proc. Biol. Soc. Washington, 49: 25, March 9, 1936.
109. A new Flower-pecker from Palawan Island, Philippines. Proc. Biol. Soc. Washington, 49: 113-114, August 22, 1936.
110. Three new birds from the Malaysian Subregion. Proc. Biol. Soc. Washington, 50: 61-62, April 21, 1937.
111. Three new birds from Banka and Borneo. Proc. Biol. Soc. Washington, 51: 95-96, May 19, 1938.
112. Birds from Siam and the Malay Peninsula in the United States National Museum collected by Dr. Hugh M. Smith and William L. Abbott. U. S. Nat. Mus., Bull. 172: i-iv, 1-581, December, 1938.
113. A genus and three new forms of birds from Borneo. Journ. Washington Acad. Sci., 29: 39-41, January 15, 1939.
114. Five new forms of birds from southern Annam. Proc. Biol. Soc. Washington, 53: 47-49, April 19, 1940.
115. Three new forms of birds from South Annam. Proc. Biol. Soc. Washington, 53: 79-80, June 28, 1940.
116. Six new forms of birds from Indo-China. Proc. Biol. Soc. Washington, 53: 131-134, November 8, 1940.

*Smithsonian Institution*  
*Washington, D. C.*

---

## THE STATUS OF THE CALIFORNIA GULL

BY ALLAN BROOKS

*Plate 2*

MANY authorities are now reducing the status of the California Gull, *Larus californicus* Lawrence, to a subspecies of the Herring Gull, *Larus argentatus* Port.; even Dwight in his monumental work, "The Gulls of the World," regards it as closely related to the Herring Gull. The present writer has long been waiting for some one who is familiar with the California Gull in life to refute this contention. It may be that someone has, but if so it has not come to my notice.

The present paper is a summary of the reasons for considering it to be a very definite and distinct species with affinities as close to *delawarensis* and other species of the green-footed gulls as to the *argentatus* group. The distinctions are based upon: (1) voice; (2) color of the soft parts; and (3) the age at which it matures.

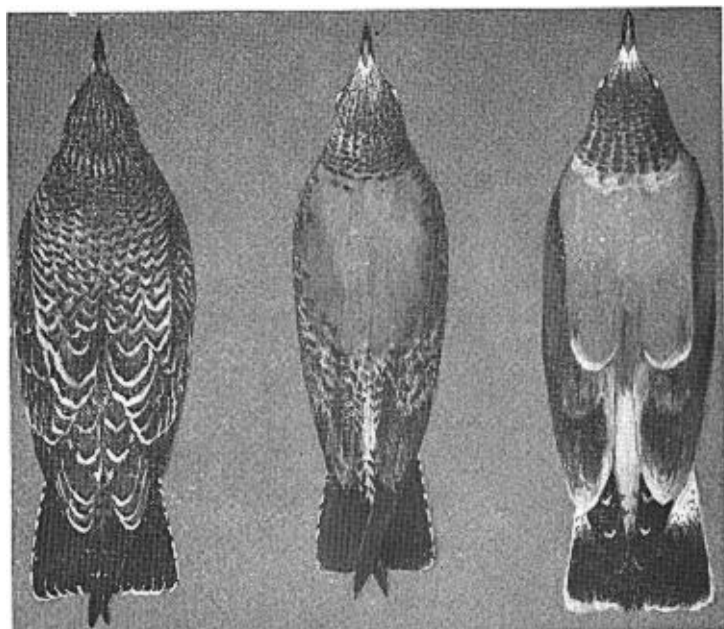
VOICE.—All the large gulls of the *hyperboreus*, *glaucescens*, *argentatus*, *fuscus*, *occidentalis*, *dominicanus* type that I have met in life have calls that are for the most part musical. The smaller gulls, *delawarensis*, *canus*, etc., have guttural and quacking calls, *heermanni* the hoarsest of them all. The voice of *californicus* is intermediate, much hoarser and less musical than that of *argentatus*. The arrival of the California Gulls in the spring in British Columbia is at once attested by their harsher voices among those of the wintering Herring Gulls.

SOFT PARTS.—The green or yellow feet of the California Gull are recognized as a field mark to distinguish adults in life from those of the Herring Gull group, but far more significant is the color of the gape and mouth. All the large gulls have these parts pallid flesh color, almost white; in *californicus* the adults have them deep orange as in *delawarensis* and *canus*. In the breeding season the color of the gape and tongue deepens to vermilion orange, the rest of the mouth paler orange; the eyelids are deep red. The general color of the bill in adults is as in *argentatus*, attaining even a deeper orange yellow than in that species and with the same scarlet blotch on the angle of the mandible, but a black transverse bar somewhat like that of *delawarensis* is always retained as well.

Judging by the color of the feet, gape, mouth and eyelids, *californicus* follows *delawarensis*; the bill color is closer to that of *argentatus* with one character of *delawarensis*.

MOLTS.—Dr. Dwight classes the California Gull with the Herring Gulls in having a three-year cycle before attaining adult plumage. With all deference to so great an authority I must regard this as an error in the case of the bulk of individuals of *californicus*. This conclusion is reached from the study of the birds in life over a long period as well as upon the skin material I have examined.

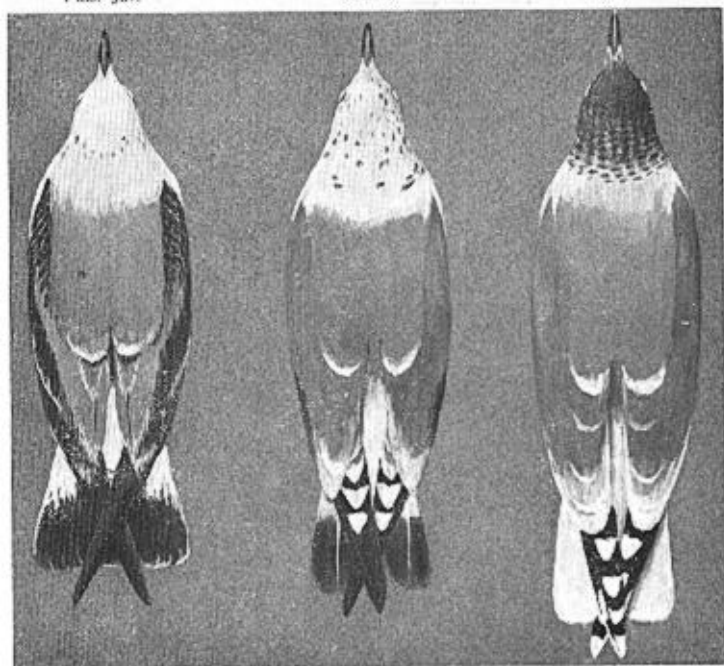
The tameness of the gulls of the Pacific coast has to be seen to be realized; on piers, coasting steamers and at fish-packing establishments the birds can be examined at a distance of a few feet. This familiarity permits a recognition of plumages that cannot be attained by the examination of skins in however complete a series. The normal sequence of plumages in the California Gull is as follows:



1  
1 mo. Juv.

2  
10 mes.

3  
1 yr. 2 mos.



4  
1 yr. 11 mos.

5  
2 yrs. 1 mo.

6  
2 yrs. 4 mos. Adult

*First or juvenal.* This is one of the darkest of gulls in juvenal plumage, the upper surface has a regular pattern, dark brown with edgings and notches of whitish; the lower surface clouded and banded with dusky so as to be almost uniform; the tail is blackish brown with an outer margin of whitish indentations, the rectrices marbled with pale gray on the inner webs at their bases; the bill is dark brown becoming black towards tip. Reference specimen—No. 1 on Plate 2; No. 1497 Brooks collection, ♀ juv., Okanagan, B. C., August 5, 1926.

By September there is a renewal of the dorsal feathers giving a drab gray (not blue) appearance; the bill becomes flesh with the terminal third abruptly black.

*First spring.* The drab gray back is replaced by blue-gray feathers only slightly duller than the mantle of the adult; the head and breast turn whiter but the primaries and rectrices are retained; the secondaries and tertials are usually very abraded, and the latter are reduced to filaments as the season progresses; the feet are turning from flesh to bluish. Reference specimen—No. 2 on plate; No. 1495 Brooks collection, ♀, Buena Vista Lake, California, April 26, 1923.

*Second autumn.* By early September of the second autumn the first complete molt brings dark brown remiges; the primaries may or may not have obscure white markings; the tail is blackish brown with a white base of varying width; mantle almost solidly gull gray; head and lower surface clouded with fuscous; bill and feet are turning green. Reference specimen—No. 3 on plate; No. 1494 Brooks collection, ♂, Comox, B. C., September 2, 1928.

*Second spring.* The following spring sees this plumage retained in a worn condition; the only change is that the head is entirely or mostly white. Reference specimen—No. 4 on plate; No. 3026 Brooks collection, ♀, Okanagan, B. C., June 6, 1932.

*Second complete molt.* This occurs in July and August when the bird is a little over two years old; the first adult plumage is now assumed. I have three specimens which plainly illustrate this change, one of which is figure No. 5 on the plate. The worn (old) primaries are quite without markings, the new, inner ones coming in have the full white apical spots and mirrors on the inner webs as in the fully adult bird; tail consists of five old rectrices only, that are clearly those of the second complete plumage. Reference specimen—No. 5 on plate; No. 1492 Brooks collection, ♀ Comox, B. C., August 26, 1927.

*First adult plumage.* In September the first adult plumage is complete in normal birds, the head heavily clouded, the primaries with their complete pattern, and the tail all white. Iris dark brown;

eyelid dull dark red; bill grayish yellow, aureoline on tip of upper mandible, blotch orange vermilion, bar blackish; gape and tongue deep orange, mouth paler; feet greenish yellow. Reference specimen—No. 6 on plate; No. 8082 Brooks collection, ♂, Okanagan, November 5, 1935.

Older adults have the head less heavily marked in the fall. The first nuptial plumage (not of Dwight's nomenclature) is acquired by a head molt when the head becomes pure white in February. The colors of the soft parts are the same as in the fall except that they become intensified, the bill being intense deep orange ochre, deeper even than a Herring Gull's in spring.

Dwight, to give the California Gull a three-year cycle to adult, has interposed another plumage between Nos. 5 and 6. This he designates as the third-year plumage, characterized by brown markings on the primary coverts, alula and tail and with reduced white markings on the primaries. There is no doubt that such birds occur but they are probably backward individuals and do not represent the normal sequence which is plainly illustrated by such individuals as No. 5 showing the adult pattern of primaries coming in while some of the unmarked primaries and typical second-year rectrices still persist.

The plumages of gulls cannot be reckoned by the standards of molts of other birds as there is as much more individual variation. Replacements of feathers, especially of the mantle, seem to follow no regular plan. In the larger gulls the pinkish-buff feathers of the juvenal plumage will often appear singly or in small groups in the mantle of spring birds—freshly molted feathers exactly like those of the plumage of nine months previously. The normal sequence can only be estimated by the examination of a large amount of material and there will always be a few individuals in which the age is difficult to place. In my series of *californicus* is one immature bird which is an exact parallel to the second complete plumage of *argentatus*; this is a bird in molt, the tail only half grown, taken on August 14; the whole dorsal plumage is of the 'watered' brown type so typical of second-year *argentatus*, but the tail is of the ordinary second-year type of *californicus*; there is not a single blue-gray feather in the mantle. Were it not for the pale blue feet, flesh-colored bill with abrupt black tip and the white bases to the rectrices, this bird would be regarded as a small second-year *argentatus*. I have never seen a similar bird among the hundreds of *californicus* examined. Are such birds the result of late broods or insufficient food? This is suggested by two young California Gulls collected at Morro Bay, California,

August 28, 1923. Both are exactly alike and are almost certainly of the same brood. They are quite unlike normal juvenals of this species, being much whiter, and suggest juvenal Ring-billed Gulls save that the tails are those of normal *californicus* in first plumage. The significant feature about these birds is that most of the feathers of the dorsal plumage are crossed by the transverse lines that are known as 'hunger marks' by falconers when these show in young hawks. One of these birds is figured on Plate XI of Dr. Dwight's book.

To regard the brown second-year *californicus* with 'watered' markings on the dorsal plumage, previously referred to, as a regular plumage between the juvenal and the first blue-backed plumage could be considered only if there was evidence that the blue back acquired by the juvenal in the first spring is discarded at the subsequent fall molt for the watered drab back and total absence of gull-blue plumage. There is no trace of evidence to support this. Of course, in the Herring Gulls and others of the three-year cycle this brown second-year plumage, with the dorsal plumage having a watered effect, is general and regular. It is the omission of this plumage that makes the two-year cycle in *californicus*.

No family of birds is so badly in need of correlated research in field and study as the gulls, especially in America. None of the standard text books will enable a student to identify anything but adult birds with any degree of accuracy. The key used by Ridgway in U. S. National Museum Bulletin 50 for the identification of young birds is based upon measurements alone. Collections classified under this system will present extraordinary associations. In one of the largest and most carefully worked museums in America there may be found, in one tray of immature *delawarensis*, two specimens of *californicus* and three of *brachyrhynchus*, all in their typical juvenal plumages and all labeled *delawarensis*.

When can we expect a text book on North American birds that will accord to the larger birds, especially the large water birds, the same consideration that is given to the smaller species. Something along the same lines as the 'Handbook of British Birds' now being published is what is urgently required.

#### EXPLANATION OF PLATE 2

- No. 1. Typical juvenal.—1 month old. 1497, ♀. Okanagan, B. C., Aug. 5, 1926.
- No. 2. First spring.—10 months old. 1495, ♀, Buena Vista L. Calif., April 25, 1923.
- No. 3. Second fall.—1 year 2 months old. 1494, ♂, Comox, B. C., Sept. 2, 1928.

No. 4. Second spring.—2 years 1 month old. 3026, ♀, Okanagan, B. C., June 6, 1932.

No. 5. Third fall.—2 years 4 months old. 1492 Comox, B. C., Aug. 26, 1927.

No. 6. Adult. 8082, ♂, Okanagan, B. C., Nov. 5, 1935.

(Age is computed on the basis of all birds being born about July 1.)

*Okanagan Landing*  
*British Columbia*

---

## SEX RATIOS OF DUCKS IN MINNESOTA, 1938-1940<sup>1</sup>

BY ARNOLD B. ERICKSON

### INTRODUCTION

IN the United States it was not until about 1918, that field naturalists and bird banders began to realize that the sex ratios of certain species of ducks, especially diving ducks (Nyrocinæ) were very disproportionate, the males outnumbering the females, at certain times, by eight or ten to one. In the British Islands, however, a number of ornithologists, as early as 1882, recognized the fact that very unequal sex ratios prevailed among certain species of ducks at certain times of the year and in certain localities. Payne-Gallwey (1882) comments on the large excess of male Common Pochards (*Nyroca ferina*) and female Greater Scaup Ducks (*Nyroca marila*). Boase (1926) published a paper on sex ratios of fourteen species of ducks based on observations made on the Tay Estuary between 1910-25. He found that in the Common Pochard and the Tufted Duck (*Nyroca fuligula*) the excess ran to males, but that in the Scaup Duck there was more often a preponderance of females and young. Robinson (1913) found in the Scaup Duck in the Orkney Islands a ratio of five males to one female, in the Pochard fifty to one, and in the Velvet Scoter (*Melanitta fusca*) twenty or thirty to one. Females, he found, were more numerous than males in the Eider (*Somateria mollissima*), Red-breasted Merganser (*Mergus serrator*), Goosander (*Mergus merganser*), and Tufted Duck. Millais (1913) also comments on sex ratios of diving ducks.

In 1925, Phillips called attention to some of the published information on sex ratios and made original observations on the ratios of the Greater Scaup and the Buffle-head (*Charitonetta albeola*). In 1932, Lincoln published the first account of sex ratios of banded ducks in the United States in which he showed that the males did outnumber-

<sup>1</sup> Paper No. 1875, Scientific Journal Series Article, Minnesota Agricultural Experiment Station, St. Paul.