

raised up as if sitting on the edge of the nest, drew its neck back and regurgitated food (fig. 44, upper), passing from one open mouth to another. Some of the twice-partly-digested food was put into each of the mouths, around and around and back and forth, about four to six times to each. Food was strung from one to the other in a very sloppy manner. After each feeding, the parent cleaned up the nest.

During the first eight days of brooding, the nest was kept absolutely clean, and, as far as I could determine, all the droppings were eaten. Every time, after the young were fed, the brooding bird would search around in the nest and pick up the droppings and eat them (fig. 44, lower). Twice, once on May 30, and once on June 1, a young bird was observed to elevate its posterior end toward the parent's bill and exude a dropping. The parent bird received it directly and ate it. On the ninth day droppings estimated to be those of about twelve hours accumulation were on the edges of the nest. They were judged to be droppings of the parent bird. During the next thirty-six hours, until the two young left the nest, no droppings were seen taken from the nest, and, judging from the accumulation on the edges, none was removed.

Berkeley, California, March 30, 1937.

THE WHITE-CHEEKED GOOSE IN CALIFORNIA

WITH THREE ILLUSTRATIONS

By JAMES MOFFITT

The A. O. U. Check-list (1931, p. 37) gives the range of the White-cheeked Goose (*Branta canadensis occidentalis*) as "The Queen Charlotte Islands, British Columbia, and along the coast of southeastern Alaska to the vicinity of Prince William Sound." This statement implies that the bird is non-migratory, a contention justly questioned by Alfred M. Bailey (Auk, vol. 44, 1927, p. 190) and definitely disproved at the time this goose was named by Baird (Pac. Railroad Reports, vol. 9, part 2, 1858, p. 766); for the type was collected at Port Townsend, Washington, which is south of the bird's breeding range. Jewett (Condor, vol. 34, 1932, p. 136) recorded winter-taken specimens of *occidentalis* from Netarts Bay, Salem, and Eugene, Oregon, and wrote of others shot at the mouth of the Rogue River, Oregon; this last locality is the southernmost recorded occurrence of the subspecies. The present paper will, for the first time, definitely extend this goose's known range into California, where it has recently been found to be a regular winter visitant.

Branta canadensis occidentalis has, it is true, in former years many times been recorded as occurring in California, but always erroneously. Swarth (Univ. Calif. Publ. Zool., vol. 12, 1913, p. 9) sums up these ascriptions with the conclusion that none was founded upon substantial evidence. He decided that only one race of large-sized *Branta canadensis* inhabited California, namely *B. c. canadensis*, the Common Canada Goose or Honker. Grinnell (Pac. Coast Avif. No. 11, 1915, p. 39) accepted Swarth's contentions, as have subsequent authors.

Swarth, in the same paper (*op. cit.*, p. 10), stated that if the White-cheeked Goose "occurs in this state at all it should be found along the extreme northern coast." This challenge to field observers seems to have remained unanswered for many years. With my interest in geese, which commenced in 1928, there grew a desire to investigate the matter. This, however, was not realized until early in 1932.

At that time I was working for the California State Division of Fish and Game, and I asked Captain of Patrol William Lippincott, then stationed at Eureka, if he knew of any large Canada geese wintering along the northwest coast. His reply that two sizeable flocks of "honkers," as he called them, fed along the coast and spent much of their time on the adjacent ocean sounded so much more like the habits of *occidentalis* than of *canadensis*, which is largely a fresh water bird in the West, that I determined to investigate the matter.

This was done the morning of January 18, 1932, when Captain Lippincott took me to Centerville Slough, south of the mouth of Eel River, 4 miles west of Ferndale, Humboldt County. Here he quickly showed me a flock of about 200 geese which were so wild that we could not approach close enough to permit of their subspecific identification, but it was evident that they were large members of the *Branta canadensis* group.

Later that morning we found a detached flock of eight geese, feeding in a grass field with eighteen Whistling Swans (*Cygnus columbianus*). I was able to crawl within 150 yards of the birds and with glasses satisfied myself that the geese were true white-cheeks, with dark, chocolate colored underparts. Other work prevented further goose investigations that day.

The next morning I returned to Centerville Slough at daylight to attempt to collect a specimen of the geese, to establish definitely their identity, but I found the birds so wild that none was secured. The same luck attended a second attempt the following day; but on January 21, I was fortunate enough to collect a young female, unmistakably referable to *occidentalis*. This specimen is one of the darkest individuals, ventrally, of many specimens of *occidentalis* which I have examined.

My next opportunity to visit the White-cheeked Geese of our northwest coast came early in 1933. Visiting the Eel River flock the morning of March 4, I found more geese than in 1932 and estimated that 225 birds were present. These were mostly of large size, but a few very small *Branta canadensis* were observed among them. That morning I took a young male specimen and the following day two more immature males and an adult female. All were clearly *Branta canadensis occidentalis*.

On March 5, 1933, I visited Lake Earl, 3 miles north of Crescent City, which is the other locality whence Lippincott reported the birds. There I met Mr. Ed McLaughlin, who was born and has lived most of his life at Lake Earl, and I learned from him that the geese are regular visitants there each winter, arriving about November 1 and departing in early April. No geese were seen in the short time spent here, but I was satisfied by Mr. McLaughlin's description that they were white-cheeks. He said that about 150 individuals comprised the wintering flock.

That fall I again visited Lake Earl, on October 27, where a group of 7 White-cheeked Geese, probably one family, was observed at close range. These were evidently the season's first arrivals, in advance of the main aggregation, for Mr. McLaughlin had noted no geese prior to this time.

The following day, October 28, 1933, I visited Centerville Slough, south of the mouth of the Eel River, Humboldt County, where a flock of 6 White-cheeked Geese was noted. These birds seemed to be established in the marsh and no doubt represented the advance guard of the wintering flock.

A desire to re-visit the White-cheeked Goose's California wintering grounds with time at my disposal to learn more about their habits was not realized until the spring of this year. My wife and I left San Francisco for Fortuna, Humboldt County, on February 28, 1937. At 5:30 p.m. we arrived at Centerville, which is on the beach $4\frac{1}{2}$ miles west, by road, from Ferndale and is now only a farmhouse, though it was

once the main stage depot, halfway between Eureka and Capetown (hence the name Centerville). Here we were disappointed not to be able to see a goose on the marsh to the north. The next afternoon when we returned and looked out on the marsh, we found approximately 300 geese feeding in a grassy place about a mile and a half north of the road.

The following two days were largely devoted to studying the habits of these birds. The geese are apparently restricted in range, as far as the country about the mouth of the Eel River is concerned, to the small strip of marsh land bordering the Pacific Ocean from Centerville north for $4\frac{1}{2}$ miles to the Eel River, and east not more than a mile from the ocean. Although we watched the birds closely these two days and during parts of three days later on, we never saw them alight outside this area, and local residents agree that they are so restricted in habitat. Twice we noted that a group of seven birds, another time twenty individuals, flew north of the Eel River, out of sight in this direction; but each time they returned to the marsh after 20 to 30 minutes absence.

The Centerville Marsh, which the geese inhabit (see fig 45), consists of natural grassland devoted to cattle grazing. It is separated from the Pacific Ocean by a sand

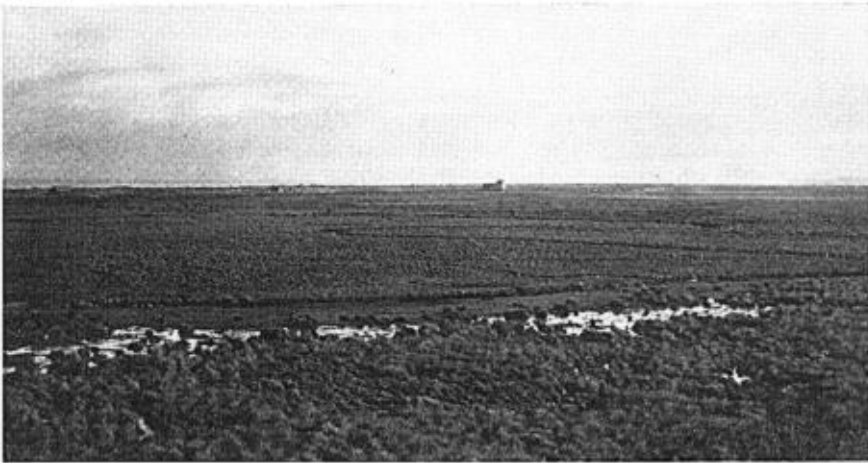


Fig. 45. Centerville Marsh looking northwest from road to its south. Note low vegetation, sand ridge, on which cabins to the left are built, and Pacific Ocean behind them. Goose roosting pond is to the right of the cattle barn in the center of the figure. Photo by author, March 5, 1933.

ridge 100 to 300 yards wide, so low that during heavy storms with high tide the ocean occasionally sweeps over it in places. The marsh is watered by Rush Creek, which flows in from the southeast to empty into Centerville Slough in the middle of the marsh, this running as a canal 100 to 200 feet wide through the long, north and south, axis of the marsh. A dam and flood gate have been built across the slough where it empties into Salt Slough, a backwater of the lower Eel River; hence the water in most of the marsh is quite fresh, being, at the time of our visit, only slightly brackish to the taste. Occasionally, when the ocean breaks over the sand ridge, the marsh must become saltier; but such contamination is quickly leached out of the soil by the heavy winter rains.

Vegetation, other than grass and clover, is sparse on the marsh, but there is an

abundant supply of these feeds. A few Sitka spruces (*Picea sitchensis*), salmon-berry (*Rubus spectabilis*) vines, and skunk cabbage (*Lysichiton kamtschaticense*), the latter in bloom at the time of our visit, border the road to the south of the marsh and attest to the boreal climate. Beach grass (*Ammophila arenaria*) has been planted on the sand ridge to prevent drifting. Here it affords the only cover, unless the tangle of stranded drift wood, logs and stumps, can be so termed. Some "three-square" (*Scirpus americanus*) grows along the margins of Centerville Slough and probably provides food for the geese, as does the pondweed (*Potamogeton*) which grows in the slough. Other than scattered clumps of rushes (*Juncus*) in swampy situations and some thistles on the higher ground, the marsh itself is clothed with short grasses.

This little grassy marsh, within hearing of the booming surf of the Pacific Ocean, is the preferred winter habitat of about 250 White-cheeked Geese. Here the birds prefer to stay, unless molested. Observational evidence indicated that at the time of our visit the geese were subsisting mainly on grass. The stomach of the specimen collected January 21, 1932, held only vegetable matter, leaves and stalks of pondweed (*Potamogeton*) of the leafy group (near *foliosus*). That of another, taken March 9, 1937, contained only finely ground roots and rootstocks of a wild grass. This stomach was but one-fourth full as the bird was shot at 6:25 a.m., before the morning feeding.

At night the birds invariably roost in the water, usually in a shallow pond of 3 to 4 acres extent in the center of the marsh, at the junction of Rush Creek and Centerville Slough. Here, like all upland North American geese, they rest and sleep standing in shallow water 3 to 4 inches deep, at the edge of the pond. It is interesting to note that in this respect *occidentalis* has not departed in behavior from its relatives of the Canada goose group; in spite of its considerably maritime predilections, it prefers to spend the night on *terra firma*, rather than on the water as do true brant. Several mornings when I had slipped out into the marsh under the cover of darkness, the white-cheeks were found roosting at the edge of this pond in the earliest light of dawn. Once, for no apparent reason, they left it for the meadow an hour before daylight; and another night, after molestation at their favorite roost, they spent near by on a smaller pond.

If not molested, the geese, of their own accord, usually leave the roosting pond shortly after daylight, as soon as flying visibility is good, and go directly to their favorite feeding ground. In the Centerville marsh this is of necessity close at hand. Normally, if not frightened, the birds leave in several groups. After some preliminary calling and discussion, a group, usually a small one, will rise and, without a sound, fly low to alight on the feeding ground. After a few minutes they are followed by a larger flock and by others, until all the birds are assembled in the feeding area. The habit of sending out a small "advance guard" on these flights to the feeding grounds I have noticed to be quite general among all North American geese, and it is oftentimes a useful one when a hunter is waylaying the birds. If the geese are disturbed at the night roost before normal departure, they all fly off at once in a disorganized, loudly calling flock and will then circle several times high above the feeding area before alighting. Experience has taught me that geese, especially of the Canada group, are not the noisy birds they are said to be. Normally, if undisturbed, they are quiet indeed. Several mornings I waited an hour before daylight near the white-cheeks' roosting pond on Centerville Slough and heard no note until the birds commenced calling preparatory to leaving to feed. Most undisturbed flights were made in silence, with perhaps a honk or two on the part of one bird every minute or so. Then, too, when feeding, the birds remained for the most part absolutely quiet. Members of the Canada goose group do not seem to have the low gabbling feeding call of Snow and

White-fronted geese, that produces a rumbling sound when coming from a large number of feeding birds.

The white-cheeks were feeding in an area in the center of the marsh at the time of our visit. Droppings observed in this place indicated that it had been used for several days prior to our arrival. The birds fed in this locality until March 8, when nearby shooting disturbed them, after which they would not even fly over it and moved their feeding ground about a mile north. Older droppings observed at several places in the marsh at the time of our arrival indicated the locations of previous feeding areas. One of these was at the extreme western edge of the marsh, bordering the sand ridge. It was evident from our observations that like other upland geese, the white-cheeks will use a feeding area for several days, until it is fed out or the birds are disturbed on it, before moving to another location.

After reaching the feeding grounds the white-cheeks graze avidly for a couple of hours. If undisturbed, preening and loafing is then in order with a mid-day visit to water and more loafing there until midafternoon. About two hours before dusk the birds return to their feeding area where they graze until nearly dark. In the last daylight the birds return silently to the roosting pond in small gatherings, much as they left in the morning. This, then, is the normal routine of our wintering White-cheeked Geese, and it agrees quite well with my experiences with other kinds of upland geese in California.

Few days, however, seem to be normal ones for the Eel River white-cheeks. Persons walking along the sand ridge or cattle riders in the meadows often disturb the birds, as did our own activities on numerous occasions. The geese are extremely wary and fly from distant approach. Usually they will alight elsewhere in the marsh after the first flushing, but if they are disturbed twice, they will immediately head for the ocean, passing over the sand ridge and out to sea. Here they fly low over the waves, and in the case of my earlier visits in 1932 and 1933 were seen to alight on the water a mile or more from land, rest there two or three hours and then return to the marsh.

At the time of our last visit, however, the birds did not alight on the ocean off the marsh, but once over the sea, they pursued a southerly course, down the coast, out of sight. This was the case every day we disturbed them, except on March 8, when a strong south wind was blowing which they apparently did not care to fly into. Accordingly, after going out to sea and south a mile, they turned, headed north and flew back to the marsh just south of the Eel River, where they alighted. When going to sea, the birds did not leave the marsh in one band, but departed in several groups, perhaps a mile or two apart; but each flock followed the direction of the first. These flights presented the best opportunities to count the geese; and, while censuses were attempted on all occasions, the birds flew in such compact groups, ever changing rank and seldom keeping to the characteristic "V" shaped wedge formation for more than a few moments, that in all our tries we were unable to secure a single exact count. The shorter flights about the marsh were made in similarly ragged flight formations.

It was not until March 6, when we met Mr. Frank Moranda, who lives at Center-ville, that we learned where the geese were going down the coast. It seems that the day of our arrival, February 28, Mr. Moranda walked down the beach from Center-ville to False Cape, four miles south. There, on the slope of the 600-foot bluff rising from the beach, directly back of False Cape Rock, he found the entire assemblage of White-cheeked Geese resting. They were occupying the crest and both sides of a bare, rocky ridge running up from the beach and were not more than 200 feet above it. Mr. Moranda approached the birds closely, putting them to flight, and then hid in some bushes while the geese several times circled over him, being loath to leave the

spot. This observation accounted for the absence of the birds from the Centerville Marsh, the afternoon of our arrival.

Upon receiving this information from Mr. Moranda at nine o'clock the morning of March 6, the geese having already left the marsh in the direction of False Cape, we proceeded there at once, eager to see them in such novel surroundings. A road runs to a ranch house within two miles of the cape, whence we went for further directions. The people here informed us that they had not seen the geese for some time, but that in winter they often noted them feeding on the ridge back of the cape.

I walked out to the top of the bluff which forms the cape. For a mile back of the bluff the ridge is quite level and covered with grass. Oil Creek to the north and a gulch to the south provide steep slopes on either side of the ridge. There are slides, grassy flats, and some brush on these slopes. At the cape proper, and for nearly a mile along the ocean frontage between the canyons, there are steep slopes and slides with ridges and benches, between the crumbling crest of the bluff and the narrow beach. It was on one of these ridges that Mr. Moranda had seen the birds, and a local sheep herder told me that he had recently encountered them on a slide near the top of the bluff. These slides are in some places bare or rocky, elsewhere brush covered, and in a few spots Sitka spruce and thick stands of alder cling to their precipitous slopes. Grass-covered benches, seemingly ideal goose feeding places, exist on many of the slides, which are separated from one another by erosion gullies and alternating ridges. According to local residents, the geese apparently never alight on False Cape Rock, probably because it is bare of vegetation; they always resort to the mainland.

I inspected these slides and the slopes of the bluff for geese, but could find none. There is much similar country to the north and south of False Cape, and Cape Mendocino proper, four and a half miles south, presents almost identical conditions, so it might have proved a long search to find the birds without recent clues to their whereabouts. The local rancher advised us that they apparently feed on other ridges too, for they use the False Cape bluff for some weeks at a time, then again may not be seen there for two months. When feeding on the bluff, he said they sometimes do so on the slides and benches at the cape or along the ones on the canyons to the north and south of the ridge. At other times they feed on the flat top of the ridge, ranging back from the bluff for a mile, and even occasionally visit a small pond on the top of the ridge. This ridge back of False Cape is part of what is known as Bear River Ridge, which runs inland north of Bear River for a distance of 12 miles or more and attains an elevation of 2475 feet.

We were at Centerville at 6:00 p.m. that same evening (March 6) when the geese returned to the marsh. First came a flock of about fifty, which alighted at once on the feeding area. It was followed, about half a mile behind, by a smaller group which circled the marsh several times before joining the first arrivals. After them, came flock after flock in close succession, about a quarter of a mile apart, which flew directly to alight with the birds on the ground. These flocks averaged fifty birds each and came to the marsh from the south, over the hills just back from the ocean. They did not fly high, and one flock passed about 150 yards directly over our heads as we watched from the road.

We secured a great deal of information about these birds' habits from Mr. Frank G. Williams of Ferndale, who controls the property they inhabit on Centerville Slough. It is to him that I am indebted for permission to collect specimens of the geese on several occasions, as well as for many other favors. Mr. Williams has hunted the birds in winter and observed them for fifty years. He knew before I collected specimens that they were white-cheeks as distinguished from Common Canada Geese, which

latter kind he said he has never noted in the region. Most of Mr. Williams' information was corroborated by our observations related above, but some additional points are worthy of including here as follows: The first arrivals appear about October 25, after which the numbers increase gradually until the maximum is attained about November 15. This number has remained nearly constant at about 225 to 250 birds, over fifty years' time, excepting that more birds were present last winter than usual. The number is maintained from mid-November until spring departure, about April 14, when all leave at the same time. The geese spend most of their time on the Centerville Marsh and the adjacent ocean, but they go to the Bear River hills in the daytime when disturbed on the marsh, returning to it every evening. At times, when visiting Bear River Ridge, the geese occasionally alight on Kingman Pond, on the summit of the Ridge, ten miles inland. In Mr. Williams' wide experience with the birds, he has never known them to go farther from the marsh than to parts of Bear River Ridge, twelve miles distant. He has killed a number of White-cheeked Geese in his hunting experience and has examined many more taken by other hunters and has never weighed a bird which exceeded 9 pounds. The heaviest specimen I collected, a fat male, weighed 8 pounds 11 ounces.

We spent March 4 and 5, 1937, at Lake Earl, Del Norte County, where the situations inhabited by the geese are similar to those at Centerville Slough. The surrounding country, however, is much more attractive scenically. Lake Earl is a body of fresh water nearly five miles long and averaging over a mile in width. It parallels the sand beach of the Pacific Ocean north of Point St. George, a mile and a quarter inland. A channel several hundred feet wide and a quarter mile long connects the lake with the much smaller Lake Talawa (two by one-half miles in extent) which is separated from the ocean by a sand ridge. As at Centerville, the ocean occasionally breaks over this ridge during storms and inundates Lake Talawa; but for the most part its waters are quite fresh.

Much of the land surrounding Lake Earl is clothed with thick growths of conifers, prominent among which are beach pine (*Pinus contorta*), Sitka spruce (*Picea sitchensis*) and grand fir (*Abies grandis*). There are, however, fine meadows along the lake shore, which run back between tongues of timber. Lake Talawa, on the other hand, is largely surrounded by open country. Some pines border it back of grass meadows to the south and east, while the sand ridge forms its western boundary. North of Lake Talawa for two miles, and reaching inland to Lake Earl, is an interesting area, the one which is most used by the geese. A marsh with grass, clover, sedge (*Carex obnupta*), silver-weed (*Potentilla anserina*), clumps of rushes (*Juncus*) and of "three-square" (*Scirpus americanus*) the outstanding plants, covers most of this country except for the many sand hills scattered throughout the area. Some of these hills are 50 feet high and run in ridges with the loveliest little valleys between them, each with its small pond, sometimes flanked by a few willows (*Salix delnortensis*). It was on one of these ponds that the white-cheeks were night-roosting at the time of our visit.

When we arrived at Lake Earl, the morning of March 4, we found the geese feeding on a large meadow just west of the lake. There were about 125 birds in all, 90 in one group and two detached gatherings of 25 and 10 birds respectively. We drove them to flight and they all milled around over Lake Earl for a short while, then split into three groups. One group of 38 birds headed southwest for Point St. George and was followed shortly by another of 32. The remaining geese started to follow against the strong south wind that was blowing, but after several attempts, turned to alight on a mud-bar at the north end of the lake.

Mr. McLaughlin said that the flocks which disappeared in the direction of Point

St. George were heading for Castle Rock where they usually go when disturbed on the marsh. This rock or islet lies over a half mile offshore, south of the southern part of Point St. George. As viewed from land, north of Crescent City, its 208-foot peak is precipitous, except to the northeast where a small grassy valley affords some nearly level ground (see fig 46). Mr. McLaughlin told us that he has seen the geese sitting



Fig. 46. Castle Rock (in center background) from mainland just north of Crescent City, Del Norte County, California. Photo by author, March 4, 1937.

on the rock, by observing with a strong glass from shore. It is well known among local hunters that the birds seek a haven on the islet when disturbed, and Mr. McLaughlin said that they also visit rocks off the Oregon coast, north of Brookings. In fact, he told us that there is an evident interchange of birds between the Lake Earl flock and another one wintering to the north along the Oregon coast, for sometimes in winter most of the local group will be absent for a few days, when more birds are to be noted about Brookings. For the most part, however, the flock makes its headquarters at Lake Earl. Its number has run from 125 to 150 birds in recent years, which is more than visited the locality thirty or forty years ago. For a short time this winter, during the very cold weather in January, 1937, nearly 500 geese were present. The birds commence to arrive in late October and leave about the first of April, just as the Eel River ones do.

The morning of March 5, 1937, I set out a few goose decoys and hid in a blind before daylight in the field near Lake Earl where the geese had been feeding the previous morning. After a long wait in a drizzle, at 7:15 a.m., or nearly an hour after day-break, 36 geese came low and silently from the direction of the roosting pond. They uttered only two honks and alighted without paying the slightest attention to my decoys, 200 yards to the west. There they quickly separated into two groups of equal size and commenced feeding avidly on growing grass.

I watched these birds from the blind for two hours, during which time they occasionally fed to within 125 yards of me and at no time were more than 200 yards distant. The two groups remained separate and about 50 yards apart. Only occasionally, at perhaps five-minute intervals, did a bird honk once or twice; otherwise they

were silent. In each group most of the birds fed with necks down all the while. The flocks were thus rather inconspicuous and at a distance resembled clods of earth more than birds. In each group, however, one bird was at all times alert and stood fully erect, on guard. In one flock this was usually a very large, cinnamon-breasted bird, judged to be an old gander. He was sometimes relieved for a few minutes while he fed, by a smaller bird thought to be a goose; but after grazing for a short interval he again assumed guard. Some of these geese were quite jealous of one another and often little skirmishes, with rushes at each other with half opened wings, resulted when two individuals approached each other closely in feeding. Often, perhaps to shake the accumulated rain drops off its wings, a bird would stretch to full height and beat its wings vigorously a few times, then settle back to feeding. Toward the latter part of my observations a number of the birds were apparently becoming replete, for many commenced to stand around and to preen.

After two hours watching, during which time the birds paid little attention to my decoys, both groups worked closer to them than previously and I shot into one band, killing an adult female goose. This specimen (no. 42529, California Academy of Sciences) has the Drab (colors from Ridgway, 1912) ventral plumage, tipped with Tawny-Olive, of typical *occidentalis*. The bird was lean and weighed exactly 7 pounds. Its stomach was two-thirds full and contained vegetable matter exclusively (no gravel), much of which was finely ground; stems and leaves of grasses constituted 85 per cent of the bulk by volume and leaves of a chickory, 15 per cent.

Another adult female of *occidentalis* was collected on the Centerville Marsh, March 9, 1937. This skin (no. 42530, C. A. S.) has the ground color of the ventral plumage Hair Brown and the feather tips Ivory Yellow, which latter, in mass effect, give a much lighter cast to the specimen's under surface. This goose was quite fat and weighed 7 pounds 7 ounces.

Without attempting at this time to go into the interesting variations in both size and color which exist in this subspecies, I will say that the largest examples of *occidentalis* apparently breed in the southern part of the form's range, from Vancouver Island north to Glacier Bay, Alaska. Smaller ones are known to nest on the islands in the Prince William Sound region of Alaska. The winter birds collected in California seem to be intermediate in size between the two and probably nest in the region from Glacier Bay to Prince William Sound, perhaps in the vicinity of Yakutat Bay, whence no breeding specimens are known to have been collected. The California winter specimens of *occidentalis* (eight in number), while uniform in size, represent but one of three sizes of geese noted among the wintering flocks of Humboldt and Del Norte counties. Most of the birds seen in the field were of the size represented by the specimens. Their voices were higher pitched than those of Common Canada Geese, being about intermediate in tone between this form's note and that of the Lesser Canada Goose (*Branta canadensis leucopareia*). There were present, however, on each visit to the flocks in winter, a smaller number of obviously larger geese with lower pitched voices. It was observed that these larger birds tended to flock separately, usually in groups of from 6 or 7 to 30 or 40 individuals. This was especially evident when the entire flock was disturbed. At such times the parties of larger birds separated out. The flocks noted previously as flying north of Eel River, and the two groups that went toward Castle Rock on March 4, 1937, were the large ones, while the greater number of geese which kept together were of the kind collected. The big birds formed about 20 per cent of the flocks' total numbers. It is unfortunate that no example of the big birds could be collected, but they probably represent individuals from the southern part of the subspecies' breeding range.

It has been remarked that a few very small geese of the *Branta canadensis* group were noted in the wintering flocks. While no specimen of the little birds was obtained, wings of a desiccated goose picked up on the Centerville Marsh, March 8, 1937, measuring 343 mm. in length, indicate that at least some of these are referable to the Cackling Goose (*Branta canadensis minima*). Only one small bird was seen among both the Centerville and Lake Earl flocks in March, 1937. More little ones, with high pitched, yelping voices, were found at Centerville in 1932 and 1933, about ten individuals each time. Local hunters claimed that the small geese are more plentiful in mid-winter.

A young male in my collection (no. 1655), taken at Lake Talawa and presented to me by Mr. McLaughlin, exhibits the maximum of cinnamon coloration seen in this subspecies and it is strikingly like the type of *occidentalis*, now in the U. S. National Museum, the ventral color of which I recorded as matching Ridgway's Tawny-Olive. The young female (no. 1418, coll. J. Moffitt) taken on Centerville Slough, January 21, 1932, is even darker, more ashy, ventrally. Figure 47 shows a comparison of this

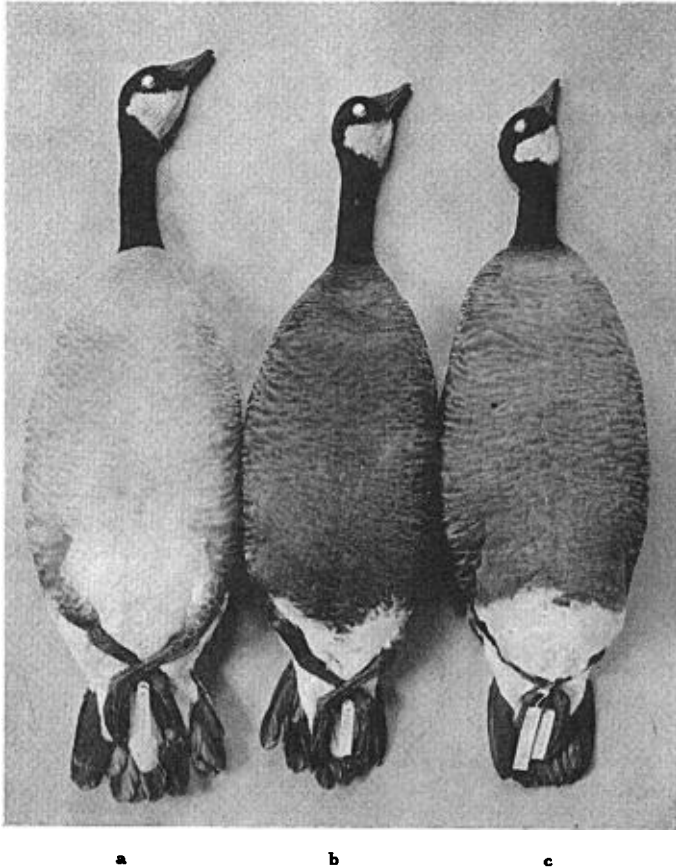


Fig. 47. Study skins of *Branta canadensis* from the author's collection. Reading from left to right: a. *canadensis* ♂ im., no. 1275, Yuba Co., Calif., Jan. 14, 1931; b. *occidentalis* ♀ im., no. 1418, Humboldt Co., Calif., Jan. 21, 1932; c. *occidentalis* ♀ ad., no. 1282, Prince of Wales Island, Alaska, April 2, 1920 (coll. by G. Willett).

bird's underparts with those of a specimen of *canadensis* and of a breeding example of *occidentalis* from Prince of Wales Island, southeastern Alaska. The photograph also indicates the superiority in size of *canadensis* over *occidentalis*.

As intimated previously, the present status of the two known California wintering flocks of White-cheeked Geese is to be regarded as satisfactory. Reports of residents indicate that during the past fifty years their numbers have increased slightly. Few of these geese are killed by hunters, and with shorter open seasons now in force this toll is anticipated to be even less than previously. The habit of resorting to the ocean or to ocean rocks for refuge, when they are disturbed, is a fortunate one for their welfare. There seems to be no danger that their favorite wintering grounds in California will be so changed by man as to adversely affect the geese.

In the foregoing account, I have attempted to emphasize how extremely local are the wintering white-cheeks in distribution. In further demonstration of this habit is the fact that members of the Centerville colony apparently do not visit Humboldt Bay, only five miles north of Eel River. At least none of a number of hunters interviewed knew the bird, nor was I able to find a specimen in several collections of birds in Eureka which I visited. Several examples of *leucopareia* and of *minima* from Humboldt Bay were found in local collections, but no specimens of large *Branta canadensis*.

With no desire to claim the following observation as a "record," for sight identifications of subspecies of *Branta canadensis* are always justly subject to question, I wish to mention some dark, large "Canada" geese noted at the mouth of Tomales Bay, Marin County, California, November 26, 1932. At eleven o'clock that morning about ten such birds, with moderately high pitched voices, flew high from the ocean to the north, over my blind, and continued directly southeast, down the bay. These were followed, about five minutes later, by four similar birds, one of which was much lower, not more than 120 yards over my head. In the clear light, the dark brownish ventral surface of this goose was plainly noted. Its size, manner of flight and voice were typical of *occidentalis*, which I truly believe it was. Then, too, I recall with regret a dark "Canada" goose of small size for *canadensis* which I shot in the middle of San Pablo Bay, about five miles southwest of Tubbs Island, Sonoma County, in the winter of 1919, and did not save as a skin. This recollection has always made me desirous of obtaining specimens from the gathering of large *Branta canadensis* wintering regularly on Tubbs Island and spending much of the daytime out on San Pablo Bay. The only specimen which I have seen from Tubbs Island, collected by and in possession of Mr. Nathan Moran of San Francisco, is, however, *B. c. canadensis*. Regardless of this, *occidentalis* is a bird which should be looked for in the San Francisco Bay region, where I feel confident it will eventually be collected.

SUMMARY.—The White-cheeked Goose is a regular winter visitant to the northwest coast of California where two flocks averaging 125 and 250 birds, respectively, winter regularly. The birds arrive in late October and remain until early April. They are extremely local in distribution, feeding and roosting in fresh water marshes near the seacoast, but they are maritime in habit to the extent that when disturbed they seek refuge on the ocean or upon offshore rocks. The status of the birds with regard to numbers seems to be perfectly satisfactory and they seem even to be increasing slightly.

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