

MORE COLORADO DUCKS.

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EVERYONE agrees that it is not only desirable, but urgent, to learn as fully and as soon as possible the number, and species distribution of water-fowl in the United States, and for that matter, in Canada also, as well as the factors which make for an increase or decrease of these valuable birds.

To further this end every ornithologist should search out and collect information bearing on these questions, from duck hunters, duck clubs, and through every other channel open to individuals. This work should be done *now* and ornithologists should make it their business to interview duck club officials and duck shooters concerning such facts.

Let us preach this idea now or else it will be too late. It seems probable that the present drain on our water-fowl population caused by shooting, duck diseases and the handicap to anatine perpetuation and increase, incidental to reclamation and other factors accompanying civilization is increasing, causing a slow and steady decrease in our water birds. This assumption may or may not be true; however this may be, it is obvious that a complete survey and census of our Ducks, Geese, and Swans should be made not only by individuals but also by various official bodies.

It is highly satisfactory to know that the U. S. Biological Survey is now engaged in such work. One must reiterate that everybody must get busy in this matter.

There must be hundreds, perhaps thousands, of shooting lists preserved in this country, lists made by duck shooters and duck clubs; such lists would be of immense value in their reflection of past conditions; they should be unearthed at the earliest possible moment for record and study.

It is a considerable satisfaction to me that, in a previous communication¹ I was able to record data, rescued from oblivion, relating to 26,000 ducks shot at a Colorado duck club during a

¹ Colorado Anatidae. Auk, January, 1924, p. 72.

period of nineteen years. It is a further gratification that I can now present additional statistics¹ covering more than 3,800 ducks shot in Colorado from 1913 to 1926. In these two sources we have available the data accruing from a record of 31,000 ducks, all taken in Colorado.

The combined statistics give opportunity to study effects not visible in either mass of data alone; in the first, 26,000 ducks were shot at one station by many gunners over a period of nineteen years, while in the second, 3,800 ducks were killed at several (5) different Colorado stations by one man only. These differences have bearings on the skill of shooters, their proclivities to select certain ducks, and the distribution of species at different stations.

The present paper permits the drawing of conclusions as to kinds of ducks found at five different places, a thing not possible in the first communication, and it furthermore allows of comparisons between the ducks of a mountain locality and those of the plains. Moreover it now becomes possible to survey the results of twenty-seven years duck shooting; it seems reasonable to believe that this length of time, and the relatively large number of ducks secured, ought to give one fairly correct basic conclusions as to species, their distribution, and their abundance, both as to location and in years.

Table No. 1 presents in condensed form all the data and information submitted for this present study. It is published in extenso, so that other students, if so minded, can draw their own conclusions from its contents, and in so doing possibly bring out relations not detected by myself. In this table the species are arranged according to their standing in abundance during the nine years of shooting, and there is also included a column giving the standing of the same species as published in my previous paper, and a second column giving the combined statistics of all the 31,000 ducks shot in twenty-seven years.

For the benefit of those not familiar with the topography of Colorado attention is invited to the fact that four of the stations contributing to the present list of 3,800 ducks, are located on the plains, and one in the mountains. The plains stations are at

¹ I am greatly indebted to the friend who shot these ducks for his pains in transcribing and tabulating his nine years duck shooting; I regret that his modesty prevents giving him full credit for his scientific interest in our duck population.

TABLE No. 1

	Berthoud			Derby	Hudson	San Luis			Platteville		Present Data		Kennicott		Combined			
	1913	1914	1915			1919	1922	1923	1924	1925	1926	Total	%†	*	Total	%†	Total	%†
*1 Green-wing Teal	288	351	176	108	42	110	48	92	139	1354	35.0	1	8508	31.5	9862	32.5	1	
2 Mallard	77	131	190	62	25	96	80	282	93	1036	28.0	2	4087	15.2	5123	16.5	2	
3 Pintail	6	21	0	33	9	61	41	38	62	271	7.0	5	1738	6.5	2009	6.5	5	
4 Blue-wing Teal	56	43	33	22	42	27	28	17	16	248	6.5	9	1338	5.0	1586	5.0	8	
5 Shoveller	0	5	2	19	0	26	19	25	71	167	4.5	7	1572	5.9	1739	5.75	7	
6 Gadwall	5	9	7	15	9	52	11	37	13	158	4.0	8	1419	5.3	1577	6.0	9	
7 Canvasback	2	20	0	6	22	13	44	44	5	156	4.0	10	715	2.6	871	3.0	10	
8 Widgeon	0	17	3	13	5	37	5	59	12	151	4.0	6	1689	6.3	1840	6.0	6	
9 Lesser Bluebill (Scaup)	1	13	1	67	6	7	18	28	10	151	4.0	11	665	2.5	816	2.75	11	
10 Redhead	4	12	5	24	5	12	11	4	5	82	2.0	4	1946	7.2	2028	6.5	4	
11 Golden-eye	3	10	0	4	0	0	0	0	0	17	±	12	327	1.2	344	1.0	12	
12 Bufflehead	0	0	0	0	0	0	0	0	1	1	±	13	185	0.7	186	0.6	13	
—	—	—	—	—	—	—	—	—	—	—	—	3	2614	9.7	2614	8.5	3	
—	—	—	—	—	—	—	—	—	—	—	—	—	133	0.4	133	±	—	
—	—	—	—	—	—	—	—	—	—	—	—	—	26936	—	30728	—	—	
—	442	632	417	373	165	441	305	625	427	3792	—	—	—	—	—	—	—	
—	11.5	16.5	11.0	10.0	4.0	11.0	8.5	16.5	12.0	—	—	—	—	—	—	—	—	
1	39.0			10.0	4.0	36.0			12.0	—	—	—	—	—	—	—	—	

† Approximately only.

* Standing in abundance.

Berthoud, Derby, Hudson and Platteville (near), and the mountain station is in the San Luis Valley. The four plains locations are all within twenty-five miles (air line) of the Rocky Mountain foothills, all having surroundings practically identical with those encompassing the Kennicott station. The San Luis station is in the valley of that name, on the upper reaches of the Rio Grande River, at an altitude of approximately 8,500 feet, and more or less enclosed by lofty mountains.

I am given to understand that the natural food of ducks varies very much at all these stations both as to locality and years. This is a cardinal factor regulating the abundance and the species distribution of our ducks. I have been unable to secure definite information relative to this point of food supply, but wish to call attention to its obvious importance, especially in a semi-arid region such as the western prairies.

It is possible that certain differences in abundance of some species on the various lakes embraced in the five localities under review, when compared with the numbers of the same species at the Kennicott station, may be due to the larger number of years of record at the latter place.

On detailed examination one fact, first of all, stands out most conspicuously, to-wit, however one arranges the data covering the 31,000 ducks now recorded, the Green-winged Teal and the Mallard retain their first and second places in the order of abundance of Colorado ducks. The Ruddy Duck has no position in the present list for none were killed by this hunter, hence the third place in the present list is taken by the next most common duck obtained by this shooter, viz., the Pintail. Nor are Mergansers to be found among the ducks listed in the present study, although hundreds of Ruddy Ducks and Mergansers were seen by my friend, who did not choose to shoot them. We have here a good example of selective shooting, a thing which can patently make a great deal of difference as to our conclusions relating to the frequency of various species.

The number of ducks collected each year by my friend shows a fairly even average. Such departures from the average as may appear probably are due to a different number of days shooting in the various years. On the other hand the shooting of these nine

years occurred in the same months of each year, eliminating the necessity, when drawing conclusions, of reconciling differences which might arise through comparing a month of one year with another month of a second year.

The combined statistics of these two sets of data make more secure the provisional abundance classification as previously calculated in the Kennicott Duck Club study and give one more confidence that the list published in that study can be taken as approximately correct for the past twenty-seven years.

The strikingly smaller number of Redheads shot by my informant during nine years is a surprise; he killed but eighty-two in that time while in nineteen years nearly two thousand were shot at the Kennicott Club. Perhaps this large difference may be accounted for, in part at least, by the fact that it would hardly be possible for one man to kill, in a given time, as many Redheads as could be secured by several men shooting during a similar period. When the numbers of Redheads recorded in the two sets of data are stated in percentages the disparity is not so great as it at first appears, for this species made up 7% of the Kennicott ducks, and 2% of the ducks listed in the present paper.

On the whole the Kennicott, and the present lists run fairly parallel when estimated by percentages.

It has been reported to me several times in past years that Redheads were not so plentiful in the mountains as on the plains; the present study gives me the first tangible evidence that this belief may be correct.

The fact that one shooter, collecting at several different locations, shot, of his total, 3.5% more Green-winged Teals and 12% more Mallards, than did several shooters at one Plains station, seems to demonstrate the irregularity of species distribution on the Plains. In the nine years shooting covered by the data of this paper, maximum shoots of two different species in a given year occurred but three times; the Golden-eye and the Green-winged Teal in 1914, the Bluebill (Scaup) and Redhead in 1919, and the Shoveller and Pintail in 1926. This suggests the idea that conditions leading to duck maxima do not correspond at different stations in the same year. It would seem that some factor or factors caused a simultaneous abundance of two different species at

a given station in 1914, of two other species in 1919, and of yet two other species in 1926; what these factors are is unknown to me, but it is quite evident that conditions, local or general, do not affect all species alike.

Data are available to compare in a given year the ducks shot at the Kennicott, and the other Plains stations only for the years 1913 and 1922; on the Kennicott Lake only thirty-five Blue-winged Teal were shot by all the shooters in those two years, while my informant secured ninety-eight during the same time. The Blue-winged Teal is one of our earliest fall arrivals, a fact which leads me to suspect that the shooting at the Kennicott station may have started later than at other stations or may have been less intense. However, I am unable to furnish any support in favor of either of these ideas. On the other hand more Shovellers and Canvasbacks were killed during these two years at the Kennicott Club than at the other four Plains stations. I have no explanation for these differences.

The data now at my command show very clearly that Colorado ducks are distributed extremely irregularly over the State both in time and place.

By percentages the following species were more abundant at the Kennicott station, viz., Shoveller, Gadwall, Widgeon, Redhead, Golden-eye, and Butterball, while the Green-winged Teal, Mallard, Blue-winged Teal, Pintail, Canvasback and Bluebill (Scaup) were more common at the four other Plains locations.

Obviously three years of shooting at the San Luis Valley location are too few to give large value to any conclusions which might be drawn from the ducks killed during those years, yet in the absence of any other data one may be permitted to draw some tentative conclusions, and point out an interesting fact or two. The large number of Mallards secured in the San Luis Valley is an outstanding surprise; this species is almost 100% more abundant there than is its nearest competitor, the Green-winged Teal, which stands second and the Pintail third in abundance of the San Luis ducks. These positions are quite at variance with the positions of the same species in the list made from the total 31,000 ducks. Three species, viz., the Canvasback, Widgeon, and Gadwall are about equally common in the San Luis Valley,

each representing about 6.5% of all the ducks killed by my informant. The relatively large number of Canvasbacks shot at the San Luis station is of more than passing interest, as it may sustain the contention of some duck hunters that this duck is more common in the "hills" than on the plains; the very low number of Red-heads shot in this valley is another surprise, for but twenty-seven were secured in three years. It would be of importance to determine if this difference between these two species means that one migrates in greater numbers along the mountain range, and the other follows more closely the eastern edge of the foothills. The large number of Canvasbacks seen in the San Luis Valley in 1923, 1924 and 1925 has been attributed by some hunters to an unusually large supply of suitable food present in those years. I am unable to verify this explanation.

The irregularities of duck distribution over Colorado is further shown by the fact that almost double (in per cent) the number of Green-wing Teal were shot at Berthoud, as at the Kennicott station. Of the ducks shot at the San Luis Valley location, 33% were Mallards, which is more than double (by per cent) those shot at the Kennicott station. The Pintail was more common (by per cent) in the San Luis Valley than at any Plains station except Platteville (Milton Duck Club). Estimated on a percentage basis the following species were more common in the mountains than on the Plains, viz., Mallard, Pintail, Gadwall, Canvasback, and Bluebill (Scaup).

Sometime ago I read somewhere that more than a million ducks had been killed in one year in Minnesota alone. Whether this be true or not it is deplorable that all State Game Commissioners are not empowered to compel all licensed gun clubs to keep accurate records of the duck species, their numbers, and dates of shoots. If this could be achieved the data accumulated would make the present statistics on a mere 31,000 ducks pale into dimmest insignificance.

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