

Mr. Walter Faxon has pointed out another change in our avifauna due to the same cause,— the killing of the trees by moths. Mr. William Brewster¹ writing in 1906 gives for this locality but a single summer record of the Hairy Woodpecker (*Dryobates villosus villosus*). At the present time, however, this bird is a not uncommon summer resident in Lexington, Mass., a town included in the Cambridge Region. Indeed during the past summer (1913) a pair bred near the clearing where the Brown Creepers built their five nests.

THE FALLACY OF THE TENDENCY TOWARDS ULTRA-MINUTE DISTINCTIONS.

BY J. D. FIGGINS.

ALTHOUGH conservative ornithologists deplore and have repeatedly protested against the seeming unfortunate tendency towards the creation of endless subspecies upon differences too slight for identification by physical comparison, an examination of recent literature would indicate that but little had been accomplished.

In certain genera many identifications are quite impossible unless the student be willing to accept purely geographical evidence of an extremely doubtful character. Indeed there are now numerous forms unrecognizable by even their sponsors, except through a knowledge of the locality from which such specimens were taken; and were the subject of less importance one's regret would be limited by his sense of humor.

While a geographical interval, together with physical differences, or variations sufficiently pronounced to be apparent to the average student would seem reasonable ground for separation, conservative ornithologists doubt the wisdom of some of the late ultramminute distinctions. A continuance of this "Futuristic" school of ornithology will obviously lead to geography as a text-book of more

¹ Birds of the Cambridge Region, 1906, p. 210.

importance than the present-day literature on birds; and it will be necessary to study the subject through the use of charts resembling contour maps or weather report bulletins.

That slight physical differences, even with a geographical interval, are insufficient grounds for separation seems conclusively proven through the examination of a series of Gambel's Quail (*Lophortyx gambeli*) from western Colorado.

With a view of accounting for the presence of these birds in Colorado and possibly arriving at some conclusion regarding the causes of the changes hereafter described, a short history and description of the region is perhaps not amiss.

Accepting the various authorities as correct in believing the California Quail (*Lophortyx c. californica*) had been introduced in the neighborhood of Grand Junction, a search was made for specimens, and while the literature agrees that the experiment had proven highly successful, no evidence of the presence of these birds was found. Quail were abundant, however; but specimens taken at Olathe, Montrose Co. were obviously more nearly referable to *gambeli*, though the differences in measurements and coloration seemed to point to the possibility of a subspecies. Additional specimens were then taken at Cedaredge, Delta Co., and Grand Junction, Mesa Co., and in view of the seeming total absence of *californica*, it is reasonable to suppose *gambeli* and not *californica* was introduced there.

While this may be regarded as sufficient evidence to correct the error in identification, of more importance is the significance of the changes that have taken place during the period of introduction, and which seems to have an important and direct bearing on the question of separations based on minute distinctions.

Having failed to establish the Bobwhite in western Colorado, the gentlemen interested in the introduction then secured nearly one thousand quail from California, which they liberated 'at or near Montrose, Montrose Co.'¹

¹ Contrary to the literature and general belief, investigation proves conclusively the original lot of birds were liberated at Montrose and not Grand Junction. Evidence of this is found in the official records of Montrose Co. with the date, 1885, and the names of the gentlemen financing the undertaking. Unfortunately the record does not give the exact locality from which the birds were taken, and extensive correspondence has not revealed additional information.

These birds, unlike the Bobwhite, immediately sought the bench lands: where they were undisturbed by irrigation and repeated harvesting of alfalfa,—elements that had proven disastrous to the latter. Finding excellent cover there and rearing two broods a season, their increase was phenomenal; and through natural processes and stocking additional sections, the birds were soon abundant throughout the entire region. Broadly speaking, the Gambel's Quail may now be considered as occupying all suitable localities within the drainage areas of the Uncomphgre and Gunnison rivers and the lower valley of the Grand river within the state.

This region is of a sedimentary nature, deeply eroded by glacial action and ancient water courses, and is characterized by broad valleys laterally terminating in morainal benches or high mesas. While orchards and agricultural activities are much in evidence, the broken country is undisturbed, and there the quail find excellent cover in the thick growth of "chico" and sage.

Since the precipitation is but 8.31 inches the region may be considered as arid: with temperatures ranging from -16° to $+104^{\circ}$ at Grand Junction to probably -35° nearer the main range of mountains. The altitude varies from 5,500 ft. at the Utah-Colo- rado boundary to 6,000 ft. at Somerset, Gunnison Co.

A doubtful record of Gambel's Quail is credited to Colorado (see Cooke's 'Birds of Colorado') but the distance given by Selater, (see Selater's 'A History of the Birds of Colorado') as he agrees, would evidently assign the locality to New Mexico. That this record is referable to the introduced birds is extremely unlikely; and equally so is the possibility of their presence in the western part of the state due to migrations from the south; for although they are known to occur at considerable altitude, a mountain range of large extent separates the two regions,—averaging more than 10,000 ft.¹

With a view of affording comparison of specimens from the two localities, both California and Colorado birds are described below.

¹ Three months continuous systematic collecting along the southern boundary of Colorado from the Utah line to the Rio Grande river failed to reveal the slightest trace of Gambel's Quail except a single specimen taken by H. H. Sheldon at Elco, La Platta Co., in June of this year, and five specimens at Cortez, Montezuma Co. The former capture is probably due to the introduction of these quail at Huntington, New Mexico, and the latter to recent introductions at Cortez.

DESCRIPTION OF *Lophortyx gambeli*
FROM CALIFORNIA.

Adult Male.

Occiput; light rufus posteriorly, dark chestnut anteriorly.
 Band of white across forehead and extending to nape.
 Throat; dull brownish black.
 Crest; sooty brown.
 Forehead; varying from brownish black streaked with gray to equal markings of gray and black.
 Band of white around black of throat, extending to eye.
 Chest; creamy gray, quills dusky gray.
 Back of neck; gray, quills dusky gray.
 Back, rump, scapulars and tertials; brownish gray, quills distinct reddish brown.
 Inner edge of tertials; buff to creamy white.
 Tail; dark blue-gray, tinged on edge and tip with brownish.
 Upper tail coverts; same as rump, but mottled with grayish white.
 Primaries, secondaries and spurious primaries; grayish brown, outer web lighter, quills brown.
 Sides; rich chestnut streaked with white.
 Flanks; buff, broadly streaked with chestnut and gray.
 Upper belly; creamy white to deep buff.
 Belly; brownish black, lateral and posterior feathers mottled with buff and chestnut.
 Lower belly; buff to ochre with brown markings.
 Under tail coverts; light to deep buff with bar of grayish brown along quills.
 Feet; flesh brown.
 Bill; dark brown to brownish black.

DESCRIPTION OF *Lophortyx gambeli*
FROM COLORADO.

Adult Male.

Occiput; uniform brown.
 Band of white across forehead and extending to nape.
 Throat; glossy black.
 Crest; sooty black.
 Forehead; equally streaked with gray white and black.
 Band of white around black of throat and extending to eye.
 Chest; pure blue-gray, quills dusky gray.
 Back of neck; pure blue-gray, quills dusky gray and terminating in a tip of dark brown.
 Back, rump, scapulars and tertials; gray, tinged with olive.
 Inner edge of tertials; white to creamy white.
 Tail; dark blue-gray, quills brownish black.
 Primaries and spurious primaries; brownish gray, lighter on outer edge, quills dark brownish gray.
 Sides; dark purplish brown, streaked with white.
 Flanks; buffy cream, broadly streaked with brown.
 Upper belly; very pale buff.
 Belly; uniform slaty black.
 Lower belly; very pale buff.
 Under tail coverts; creamy buff with bar of brownish gray along quills.
 Feet; flesh brown.
 Bill; brown to vandyke brown.
 Iris; brown.

Adult Female.

Occiput; reddish brown.
 Crest; dusky black.
 Forehead; whitish, streaked with gray.
 Throat; light buff, streaked with brown and gray.
 Chest; buffy gray, median line and tips of feathers brown.
 Inner edge of tertials; buff to creamy white.
 Back, rump, scapulars and tertials; grayish brown, quills brown.
 Tail; dark gray, strongly tinged and edged with brown.
 Sides; light chestnut, streaked with white.
 Flanks; dark buff to cream, streaked with brown.
 Belly and breast; dark buff to creamy white, strongly streaked and tipped with brown.
 Under tail coverts; same as belly, but broadly streaked with brown.
 Feet; brown.
 Bill; brown.

Adult Female.

Occiput; brownish gray.
 Crest; dark slate.
 Forehead; gray, streaked with black.
 Throat; buffy gray streaked with dark gray.
 Upper chest; gray, quills indistinct.
 Back of neck; gray, median line and tips of feathers dusky gray.
 Back, rump, scapulars and tertials; gray, tinged with white to creamy.
 Inner edge of tertials; white to creamy white.
 Tail; dark blue-gray, quills brownish black.
 Sides; chestnut brown streaked with white.
 Belly and breast; light creamy buff to grayish buff, sparsely tipped and streaked with dark gray and brown.
 Under tail coverts; same as belly, but streaked with dark gray.
 Bill; grayish brown.
 Feet; light flesh brown.

From the above descriptions many differences will be noted; but those of major importance, are, the difference in the colors of the occiput, wings, rump, tail and the black of the throat and belly. Another item of equal importance is the uniform persistence in the characters in Colorado specimens and the variation in birds from California.¹ Much of the latter difference is no doubt due to season; but there is a marked similarity when localities are considered.

Upon a closer analysis of the colors it is readily seen that the California specimens are invariably modified by reds and browns,

¹ Through the kindness of Mr. Joseph Grinnell I have been enabled to examine a series of more than fifty specimens of Gambel's Quail from California which throws much light upon the subject. These birds were taken at various points in the southern section of the state and the variations in some instances are far more pronounced than many of the recent separations. Indeed were one inclined to accept the modern methods of creating subspecies there would be little difficulty in making two, and perhaps three or four distinctions.

while this peculiarity is absent in Colorado birds. Briefly, then, the result of introduction has been a tendency towards eliminating the reds and browns, the development of olive to replace those colors and in increasing the purity of the blacks and grays.

Since the comparatively short period of introduction has resulted in such marked changes in coloration, it is but natural to expect possible differences in measurements. That they are so pronounced however, is a matter of surprise. In offering these it is understood that the tables of lengths are of little value when taken from dried skins; but they are included. While the length measurements of Colorado specimens are incomplete, those given are from birds in the flesh and will be of value when opportunity permits like measurements of California specimens.

*Measurements of Lophortyx gambeli from California.*¹

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tar- sus.	Mid. toe.	Nail.
♂	Mecca Riverside Co. Cal.	April 4	8.85	4.37	4.30	1.10	1.35	.28
♂	Colo. River	" 19	10.22	4.30	4.50	1.25	1.50	.37
♂	New River,	" 15	9.43	4.45	4.25	1.20	1.37	.32
♂	Pinyon Flat,	June 21	9.00	4.20	4.05	1.12	1.37	.33
♂	Carrizo Creek	Aug. 23	9.95	4.45	4.37	1.12	1.36	.37
♂	" "	" 26	10.05	4.38	4.37	1.10	1.45	.30
♂	New River, Cal. Desert	Nov. 26	10.00	4.70	4.75	1.25	1.52	.33
♂	" " " "	" "	9.62	4.25	4.12	1.12	1.45	.45
♂	" " " "	" 25	9.45	4.45	4.37	1.14	1.45	.38
♂	" " " "	" "	9.55	4.50	4.48	1.30	1.51	.37
♂	" " " "	" "	9.28	4.50	4.52	1.15	1.50	.37
♂	Below Needles, Colo. River	Feb. 21	8.00	4.37	4.12	1.15	1.45	.37
♂	" " " "	" "	8.78	4.50	4.15	1.25	1.52	.39
♂	" " " "	" "	8.45	4.60	4.18	1.15	1.45	.28
♂	Mecca Riverside Co. Cal.	Mch. 30	9.38	4.55	4.45	1.12	1.28	.37
♂	Riverside Mt. Colo. River	" 19	9.75	4.50	4.25	1.16	1.43	.32
♂	" " " "	" 21	9.30	4.55	4.37	1.13	1.38	.38
♂	" " " "	" "	9.50	4.51	4.25	1.12	1.44	.46
♂	" " " "	" 16	9.25	4.62	4.45	1.15	1.45	.39
♂	" " " "	" "	9.15	4.50	4.25	1.12	1.28	.30
♂	Blythe, Colo. River Cal.	" 22	9.05	4.38	4.25	1.17	1.38	.38
♂	Pecachos " " "	April 10	9.75	4.55	4.51	1.15	1.33	.29
♂	Mecca, Riverside Co. "	" 5	9.62	4.49	4.27	1.13	1.37	.37

¹ All measurements in inches.

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tar- sus.	Mid. toe.	Nail.
♂	Salt Creek, Imp. Valley	April 26	9.25	4.39	4.25	1.13	1.26	.32
♂	Coyote Well, Imperial Co.	Mch. 27	8.50	4.38	4.20	1.20	1.43	.34
♂	Below Needles, Colo. River	Feb. 22	9.00	4.53	4.12	1.10	1.45	.38
♂	Pilot Knob, San Diego, Co.	Mch. 10	9.50	4.62	4.63	1.09	1.38	.38
♂	New River, Salton Lake	April 15	9.45	4.25	4.25	1.13	1.36	.30
♂	Near Imperial	May 11	9.02	4.30	4.87	1.14	1.36	.34
♂	" " " "	" "	9.25	4.55	4.25	1.15	1.32	.33
♀	Below Needles, Colo. River	Feb. 21	8.30	4.52	4.13	1.13	1.28	.39
♀	" " " "	" "	8.20	4.51	4.01	1.15	1.45	.38
♀	" " " "	" "		4.49		1.13	1.38	.45
♀	Pilot Knob, San Diego, Co.	Mch. 10	9.00	4.38	4.23	1.15	1.32	.37
♀	Riverside Mt. Colo. River	" 16	9.37	4.50	4.20	1.13	1.38	.37
♀	Mecca, Riverside Co.	" 10	10.00	4.38	4.25	1.12	1.38	.38
♀	" " " "	" 18	10.30	4.64	4.52	1.15	1.45	.46
♀	" " " "	" 19	9.80	4.34	4.20	1.14	1.40	.38
♀	Riverside Mt. Colo. River	" 21	8.25	4.27	4.20	1.15	1.38	.31
♀	Blythe, Colo. River	" 23	8.75	4.37	4.00	1.07	1.33	.30
♀	San Jacinto Mt.	June 12	8.30	4.28	4.05	1.12	1.28	.28
♀	East of Pecakos, Colo. River	April 19	9.78	4.39	4.20	1.12	1.39	.29
♀	New River, Colo. Desert	Nov. 25	9.95	4.30	4.38	1.12	1.38	.38
♀	" " " "	" 25	8.95	4.45	4.15	1.13	1.37	.40
♀	" " " "	" 26	9.20	4.60	4.25	1.14	1.45	.37
♀	" " " "	" 28	9.55	4.58	4.38	1.15	1.45	.38
Average Male			9.36½	4.45	4.31	1.15	1.40	.35½
Minimum.			8.00	4.20	3.87	1.09	1.26	.28
Maximum.			10.22	4.70	4.75	1.30	1.50	.46
Average Female.			8.98	4.50	4.21	1.13	1.38	.33½
Minimum.			8.20	4.27	4.00	1.07	1.28	.30
Maximum.			10.00	4.60	4.52	1.15	1.45	.46

Measurements of Lophortyx gambeli from Colorado.

♂	Cedaredge, Delta Co.	Jan. 31	4.42	3.90	1.15	1.48	.38	
♂	" " " "	" "	4.62	4.00	1.20	1.50	.38	
♂	" " " "	" "	4.50	3.75	1.15	1.40	.37	
♂	" " " "	" "	4.50	3.65	1.13	1.38	.37	
♂	" " " "	" "	4.55	4.08	1.15	1.37	.37	
♂	Olathe, Montrose Co.	Dec. 20	10.83	4.65	3.72	1.11	1.45	.38
♂	" " " "	" "	11.27	4.48	3.70	1.10	1.40	.36
♂	" " " "	" "	11.29	4.50	3.64	1.08	1.35	.34
♂	" " " "	" "	11.70	4.59	3.54	1.05	1.40	.38
♂	" " " "	" "	11.36	4.73	3.53	1.08	1.31	.31
♂	Grand Junction	Feb. 26	11.00	4.55	4.20	1.25	1.37	.34
♂	" " " "	" "	11.25	4.56	3.95	1.19	1.42	.35

Sex.	Locality.	Date.	Length.	Wing.	Tail.	Tar- sus.	Mid. toe.	Nail.	
♀	Olathe Delta Co.	Sept. 24		4.55	3.70	1.06	1.37	.33	
♀	" " "	Dec. 20	10.29	4.23	3.09	1.05	1.30	.33	
♀	" " "	" "	10.52	4.38	3.28	1.07	1.45	.35	
♀	" " "	" "	10.50	4.66	3.57	1.06	1.32	.35	
♀	Cedaredge,	Jan. 31		4.37	3.75	1.00	1.35	.35	
♀	" "	" "		4.37	3.65	1.05	1.27	.34	
♀	" "	" "		4.48	3.65	1.10	1.34	.36	
♀	" "	" "		4.55	3.80	1.12	1.30	.35	
♀	Grand Junction	Feb. 26	11.50	4.50	4.10	1.14	1.36	.32	
♀	" "	" "	10.85	4.61	4.03	1.15	1.38	.38	
♀	" "	" "	11.00	4.70	3.92	1.12	1.39	.32	
Average Male.				11.26	4.35½	3.80½	1.20	1.40	.36½
Minimum.				10.83	4.40	3.54	1.05	1.31	.31
Maximum.				11.70	4.70	4.20	1.25	1.50	.38
Average Female.				10.78	4.50	3.69½	1.08	1.35	.34½
Minimum.				10.29	4.23	3.09	1.00	1.27	.32
Maximum.				11.50	4.70	4.10	1.15	1.45	.38

Comparative average of California and Colorado Specimens.

Males from California	4.45	4.31	1.15	1.40	.35½
" " Colorado	4.35½	3.80½	1.20	1.40	.36½
Females from California	4.50	4.21	1.13	1.38	.33½
" " Colorado	4.49	3.69½	1.08	1.35	.34½
Comparative differences in Males	.09½	.50½	.05	.00	.01
" " " Females	.01	.51½	.05	.03	.01½

Note. Since the length measurements of California specimens are without value through being taken from dried skins, comparison is omitted.

In considering the causes of the changes that have taken place in Gambel's Quail since its introduction into Colorado, perhaps the most important are food, climate and environment. The wide range of the species in California imposes like conditions and hence the differences in the birds there, as noted above. The question, therefore arises, what constitutes a subspecies? A great number of the recent subdivisions are based on far less evidence and reason than is apparent in this example of introduced birds. If the extremists are justified in their activities are not the Colorado birds entitled to subdivision? If not, why not? Is it not time to return to sanity?