

ing somewhat past the end of the base of the dorsal, the inner margin a little less than one third the outer, their length $5\frac{2}{3}$ in total.

Color, plain light gray, white below; edge of pectorals and caudal narrowly dusky.

A young male specimen of this species (27,366), two feet in length, was obtained by us in San Diego Bay, California. It is said to be not uncommon along the coast of Lower California and it is known at San Diego as "Bay Shark." The jaws of an adult example taken on the coast of Lower California were also procured.

It is evidently closely related to *C. lamia*, but the smaller dorsal and pectorals and the more backward position of the dorsal seem to distinguish it sufficiently. The fins seem to be less falcate than in *C. lamia*. * In the Proc. U. S. Nat. Mus. 1881, p. 32, this species is mentioned by us under the name of *Eulamia lamia*.

CRITICAL REMARKS ON THE TREE-CREEPERS (CERTHIA) OF EUROPE AND NORTH AMERICA.

By ROBERT RIDGWAY.

The question of whether the American tree-creeper is separable from the European as a distinct race or species has long been a mooted point, and one in regard to which there is great difference of opinion among writers. Several eminent authorities, both in Europe and America, consider the European and North American birds of this genus as identical, or not separable even as races; but not a few authors, who base their conclusions on ample material, and are not influenced by ultra-conservative views regarding geographical variations, agree in recognizing two European races or species (according to the individual views of the author), one being the true *C. familiaris* Linn. of northern Europe, the other of more southern range, and variously designated as *C. costae* Bailly or *C. trachydactyla* Brehm;* and in considering the common American bird as distinct from both the European forms, though some of them have referred it to *C. costae*.

The North American creeper was first separated, as *C. americana* (by which name it has been known by American ornithologists up to a comparatively recent date), by Bonaparte in 1838; but having been already named many years previously (by Bartram, in 1791, as *C. rufa*, and Barton, in 1799, as *C. fusca*), Bonaparte's name cannot be used. The Mexican creeper was also separated in 1834, by Gloger, as *C. mexicana*. Thus two European and two American races or species of *Certhia* have been recognized by many ornithologists of standing. Others, however, pro-

* It is unnecessary for me to discuss here the question of which of these names should be adopted; therefore, without inquiring particularly into the case, I adopt provisionally the former.

ness an inability to distinguish between specimens from the two continents, and therefore insist upon their identity, although some of the best authorities rank *C. mexicana* as a distinct *species*.

For the purpose of carefully reviewing the subject in all its bearings, I have brought together a considerable number of specimens, and after a very deliberate comparison of this material (embracing many skins not included in the following tables of measurements), and an equally careful consideration of all that has been written on the subject, I am forced to the conclusion that the *C. mexicana* itself cannot stand even as a race, or else it becomes necessary to recognize a larger number of races than have usually been claimed for the species. In other words, it is simply a question of whether geographical variations of form and colors are to be completely ignored as a factor in the genesis of species, or whether they should receive due consideration in connection with this important subject. Believing the latter view to be the more scientific one, and since they are each "associated with definite geographical areas," I find the following races susceptible of definition.

A.—Primary coverts distinctly tipped with whitish.

1. familiaris Linn. (based upon Scandinavian specimens).

Of this form I have three examples before me from Bergen, Norway (coll. L. Stejneger). These agree in having the lower parts of a brilliant silvery white, never seen in American specimens, though this pure white color is somewhat obscured by a grayish tinge undoubtedly caused by contact with carbonaceous substance upon burnt trees. The crissum is very faintly tinged with buff; the lores are either wholly white or else merely tinged with dusky in front of the eye; the dark ground color of the upper parts is much tinged with yellowish tawny (which prevails on the rump), and the maxilla is either very dark brown or black. These specimens measure as follows:

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
296 L. S.	Bergen, Norway.....	♂ ad.....	2 60	2.75	.62	.30	.40	.72	.45
391 L. S.	.....do.....	.....do.....	2 60	2.60	.60	.28	.35	.70	.40
224 L. S.	.....do.....	.....do.....	2 50	2.50	.60	.30	.38	.60	.35
	Average.....	.....	2 57	2.62	.61	.29	.38	.67	.40

2. ? costæ Bailly (described from Savoy).

I have five examples from central Europe, which may be readily distinguished from the Scandinavian specimens described above. The

lower parts are of a yellowish rather than silvery white, the crissum and flanks are more decidedly tinged with buff, the lores are distinctly dusky, and the upper parts are decidedly more tawny. Two of the five specimens have the maxilla a clear light-brown color, *which I have never seen in an American specimen.* The measurements are as follows:

Catalogue number.	Locality.	Sex and age.	Wing.	Tail.	Tarsus.	Hind toe.	Hind claw.	Culmen from extreme base.	Bill from nostril.
23416	Hungary	♂ ad	2.60	2.50	.60	.30	.40	.70	.45
56747	Saxony	do	2.65	2.80	.60	.30	.38	.70	.42
56751	Silesia	do	2.65	.....	.....	.30	.32	.62	.55
18947	France	do	2.60	2.70	.63	.32	.40	.60	.52
17006	France (?)	do	2.50	2.50	.60	.35	.40	.....	.....
	Average .....	.....	2.60	2.62	.61	.31	.38	.75	.48

3. brittanica Subsp. nov.

Two examples from England differ from all continental specimens which I have seen very nearly as much as *C. mexicana* does from the ordinary North American bird; and since it would appear from descriptions that these specimens represent the normal style of coloration of specimens from the British Islands, I see no alternative but to characterize the British specimens as a race always distinguishable from the two continental forms. These British examples are very much browner above than those from the continent (closely resembling, in this respect, Californian specimens hereinafter described as *occidentalis*), the rump is more deeply tawny, and the lower parts appear to be of a much duller white, though this may be owing to a soiling of the plumage. These are the specimens which in *History of North American Birds* (i, pp. 124, 125) were supposed to be the true *C. familiaris*, thus leading to the erroneous views of their relationships therein given. The measurements are as follows, the tail being in both examples much worn at the tip, and therefore not included:

Catalogue number.	Locality.	Sex and age.	Wing.	Tail.	Tarsus.	Hind toe.	Hind claw.	Culmen from extreme base.	Bill from nostril.
18760	England	♂ ad	2.50	.....	.62	.30	.38	.70	.45
18761	do	♂ ad	2.50	.....	.60	.30	.35	.70	.40
	Average .....	.....	2.50	.....	.61	.30	.36½	.70	42½

4. rufa Bartr. (Pennsylvania.)

Creepers from eastern North America have almost invariably a decidedly shorter bill and hind claw than European specimens, while

other measurements are on the average quite different. In coloration, they most resemble *C. costæ*, but as a rule have the the crissum more decidedly buff, and the rump brighter tawny, while the maxilla is never light brown, as often occurs in the South-European form. The following measurements are from fully adult birds, in perfect plumage:

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
82701.....	Massachusetts	♂ ad.....	2.65	2.90	.60	.30	.30	.65	.38
827.....	Carlisle, Pa.	♂ ad.....	2.60	2.75	.60	.32	.32	.65	.40
H. W. H.	District of Columbia	♂ ad.....	2.70	(2.60)	.60	.30	.32	.70	.40
82707.....	Wabash County, Ill	♂ ad.....	2.60	(2.60)	.60	.30	.35	.70	.42
82706.....	do	♂ ad.....	2.70	2.75	.60	.30	.30	.70	.47
	Average of males		2.65	2.72	.60	.30	.32	.68	.41
577 H. W. H.	Watertown, Mass	♀ ad.....	2.50	2.70	.55	.28	.30	.65	.40
63288.....	do	♀ ad.....	2.50	2.50	.55	.30	.32	.65	.40
578 H. W. H.	Concord, Mass	♀ ad.....	2.40	2.50	.58	.28	.30	.65	.40
11724.....	Pennsylvania	♀ ad.....	2.55	2.50	.58	.28	.28	.65	.40
82705.....	District of Columbia	♀ ad.....	2.50	2.50	.55	.30	.32	.65	.35
82704.....	do	♀ ad.....	2.60	(2.55)	.58	.27	.30	.67	.38
H. W. H.	do	♀ ad.....	2.50	2.60	.60	.30	.32	.60	.35
82708.....	Wabash County, Ill	♀ ad.....	2.45	2.50	.60	.30	.32	.68	.40
	Average of females		2.42	2.54	.57	.29	.31	.65	.38
	Average of both sexes of <i>C. rufa</i>		2.53	2.63	.58	.29	.31	.66	.39

5. *montana* Subsp. nov.

Middle Province of North America; (north to Kadia k, Alaska) breeding south to New Mexico and Arizona, in wooded mountains.

While I have been able to examine a smaller series of this form than any other except *familiaris* proper and *brittanica*, the six examples inspected show such well-marked peculiarities of form and coloration as to leave no doubt of the propriety of separating the Rocky Mountain bird as a geographical race. The general tone of coloration is decidedly grayer above than in any other form of the species, the flanks are decidedly grayish, the crissum more pronounced buff than in either of the three European races, and the tawny of the rump in more abrupt contrast with the grayish of the back. The most decided differences, however, are in proportions: thus, while the wing averages shorter than in either *familiaris* or *costæ*, the tail is decidedly longer; the bill also averages much longer than in *familiaris* or *costæ*, but is altogether more slender, both the vertical height and the transverse thickness being much less. As is the case with *all* the American races, the hallux and hind claw—the latter especially—are almost constantly shorter than in the European forms.

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
68793	Colorado	♂ ad.....	2.60	.60	.30	.35	.77	.50	
66704	Arizona	♂ ad.....	2.65	2.75	.60	.28	.30	.82	
79550	do.....	♂ ad.....	2.55	2.70	.....	.....	.....	.80	
	Average of males .....	.....	2.60	2.72	.60	.29	.32	.80	.51
53443	Nevada	♀ ad.....	2.50	2.65	.58	.30	.30	.70	.42
13114	New Mexico	♀ ad.....	2.55	2.75	.60	.30	.35	.70	.40
	Average of females.....	.....	2.52	2.70	.59	.30	.32	.70	.41
7154	New Mexico	— ad.....	2.55	2.65	.60	.28	.30	.82	.52
	Average of both sexes .....	.....	2.56	2.69	.60	.29	.32	.77	.48

6. occidentalis Subsp. nov.

Pacific coast of North America, breeding from mountains of southern California to British Columbia.

Next to *mexicana*, this is the darkest colored of all the races of this species. In extremely slender bill it agrees with *montana*, but, apparently, has a shorter tail (although this apparent difference may be due to an insufficient number of specimens compared—one specimen having the tail .15 of an inch longer than the longest-tailed specimen of *montana*), but the colors are strikingly different. Instead of being grayer than *rufa*, *occidentalis* is much browner, extreme examples having the light patches of the remiges a bright ochreous-buff and the general cast of the upper parts a decidedly rusty brown, such specimens coming chiefly from the coast of Washington Territory and British Columbia. The rump is a bright *rusty* fulvous, and the crissum always a deep ochreous-buff. Of the European races, this most resembles *britannica* in the color of the upper parts, some specimens being very similar indeed; but the crissum is constantly much more deeply buff. In the darker-colored examples there is some resemblance to *mexicana*, in fact some of them have been labeled as such; but the rump is much less chestnut, the primary coverts are always tipped with whitish, and the lower parts more whitish. Specimens measure as follows:

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
11810	Hinahmoo, Wash.....	♂ ad.....	2.50	2.60	.60	.32	.35	.70	.50
17433	Siniabmoo, Wash.....	♂ ad.....	2.50	2.70	.55	.30	.32	.68	.43
13743	Fort Tejon, Cal.....	♂ ad.....	2.50	.....	.58	.30	.30	.75	.45
16175	Fort Crook, Cal.....	♂ ad.....	2.50	2.60	.60	.28	.35	.80	.50
82709	Nicasio, Cal.....	♂ ad.....	2.50	2.50	.65	.33	.32	.80	.50
71950	Kern River, Cal.....	♂ ad.....	2.50	2.62	.60	.32	.32	.70	.47
	Average of adult males.....	.....	2.50	2.60	.60	.31	.33	.74	.47

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
22002	Fort Crook, Cal	♀ ad.....	2.50	.58	.30	.32	.70	.42	
82710	Nicasio, Cal	♀ ad.....	2.40	.58	.30	.30	.70	.42	
	Average of adult females.....		2.45	.58	.30	.31	.70	.42	
45951	British Columbia	— ad.....	2.35	.60	.30	.30	.75	.45	
9520	Puget Sound	— ad.....	2.75	.60	.32	.32	.68	.43	
7125	Fort Steilacoom, Wash	— ad.....	2.45	.60	.32	.35	.72	.40	
76656	California	— ad.....	2.75	.60	.30	.32	.72	.45	
76687	do	— ad.....	2.35	.55	.30	.30	.67	.42	
73900	Calaveras County, Cal.....	— ad.....	2.60	.60	.30	.32	.76	.52	
73899	do	— ad.....	2.60	.60	.30	.32	.80	.50	
	Average sex undetermined.....		2.55	.59	.31	.32	.73	.45	
	Average of both sexes		2.50	.59	.31	.32	.72	.45	

b.—Primary coverts without whitish tips.

7. *mexicana* Gloger.

Guatemala and southern Mexico.

This form differs conspicuously from all the others in the total absence of light tips to the primary coverts. The lower parts are also decidedly grayish, with only the throat and chin white, the rump a bright chestnut-rusty, and the ground-color of the anterior upper parts a blackish-brown, with the lighter streaks of a rather grayish tone. In slender bill and other features of form it scarcely differs from the more northern races, *montana* and *occidentalis*, and is by no means smaller, thus affording another of the very numerous "exceptions" to the supposed law of smaller size to the southward of resident species.* The three specimens which I have been able to examine measure as follows:

Catalogue number.	Locality.	Sex and age.	Wing from carpal joint.	Tail to basal end of feathers.	Tarsal joint.	Hind toe.	Hind claw.	Culmen to extreme base.	Bill from nostril.
13588	Mexico.....	— ad.....	2.60	.65	.58	.30	.32	.70	.46
8176	do	— ad.....	2.55	.60	.60	.30	.30	.73	.48
69835	V. de Fuego, Guatemala.....	— ad.....	2.60	.60	.35	.35	.70	.42	
			2.58	.65	.50	.32	.32	.71	.44

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* In perhaps a majority of cases where I have recently tested the matter by measurements of large series of many Passeres I have been unable to verify this supposed law of latitudinal variation in size.