

ON THE AFFINITIES OF CERTAIN *POLIOPTILÆ*,  
WITH A DESCRIPTION OF A NEW SPECIES.

BY WILLIAM BREWSTER.

Is a collection of Arizona birds, elsewhere considered in the present number of the Bulletin, is a small series of Gnatcatchers, which brings to light some very interesting developments affecting the relationship of certain members of the genus *Polioptila*. As the matter seems of sufficient importance to merit special treatment, I present it separately in the following paper:

*Polioptila plumbea*, Baird, et *melanura* Lawr.

It has been somewhere suggested that *P. plumbea* might after all be only a geographical race of *P. carulea*, but the specific distinctness of the former from *P. melanura* seems never to have been questioned.\* The fact that their distribution was the same has effectually precluded any suspicions of varietal affinity, and the real secret, singularly enough, has eluded the few ornithologists who have paid any attention to the subject.

But thanks to the exertions of Mr. Stephens, who it seems has for some time suspected their identity, I now have before me a perfect connecting series between the two supposed species.

A brief consideration of five of the specimens, all of which were taken near Tucson during the spring of 1880, will present the case as fully as is desirable.

The first (No. 4980, author's collection) ♂, March 3, is typical of the state known as *P. plumbea*, the black on the head being restricted to a short stripe on each side of the crown, which, beginning nearly above the anterior margin of the eye, extends backward to a short distance behind it, and is bounded below by a superciliary line of ashy-white.

In the second (No. 4982) ♂, March 4, the black stripe broadens, encroaching on the superciliary line, and meeting its fellow across the top of the head between the eyes, in a narrow but decided band of black, but leaving the anterior portion of the forehead ashy.

The third (No. 4983) ♂, March 5, has the whole crown essentially black, but traces of the superciliary line remain, and in addition to an ill-defined frontal-band of ashy, there are occasional feathers of that color scattered among the darker ones.

\* Cooper hinted such a suspicion (Birds of Cal., I, p. 38) but his suggestion has been generally ignored.

The fourth (No. 4981) ♂, March 3, presents the same general extension of this black area, but its boundaries are everywhere well defined, and the frontal-band is almost entirely obliterated, while the black is quite uniform and nowhere mixed with ashy. Singularly enough, in view of its generally more mature condition, this specimen has a light superciliary stripe, nearly as broad and quite as well defined as in No. 4980, while the lores are clear ashy-white.

The fifth and last (No. 4984) ♂, Feb. 21, is typical *melanura*, with the forehead, crown, and occiput, clear, shining black, the superciliary line entirely wanting, and the lores only just touched with ashy.

The above evidence apparently goes to show that *plumbea* is simply the immature stage of *melanura*. At least this is the natural inference, and in view of the fact already stated, that both birds are known to occupy the same area, I do not see that any other is legitimate.

The tail markings of the above-described specimens are quite uniform, but I reserve further consideration of this supposed character for another and more apropos connection. At just what age the black cap is perfected I am at present unable to state, but there are good reasons for supposing that the immature condition is prolonged through the second season. None of the present birds seem to be in a moulting condition; even the parti-colored ones having the plumage remarkably fresh and clean.

The specific identity of the Black-capped and Plumbeous Gnatcatchers being conceded, it only remains to determine what name the species shall bear. This part of the problem is fortunately involved in no obscurity, *plumbea*, Baird, 1854, plainly antedating *melanura*, Lawrence, 1856. It is to be regretted that we can make up for the loss of the more appropriate specific title only by retaining its English version, which has hitherto passed current for the adult stage only. The species may then stand as follows.

***Pوليوptila plumbea*, Baird.** BLACK-CAPPED GNATCATCHER.

*Pوليوptila plumbea*, Bd., Pr. Phila. Acad., 1854, 118; B. N. A., 1858, 382; Atlas, 1860, pl. 33, f. 1; Ives's Rep. pt. v, 1861, 6; Rev. Am. B., 1864, 74.—HENRY, Pr. Phila. Acad., 1859, 107.—COUES, Ibis, 1865, 538; Proc. Phila. Acad., 1866, 66; Key, 1872, 79.—COOPER, Am. Nat. III, 1869, 474, 479; B. Cal., I, 1870, 37, fig.—HENSH., List B. Ariz., 1875, 155.

*Culicivora atricapilla*, LAWRENCE, An. N. Y. Lyc., V., Sept. 1851, 124 (not of Swainson).—BD., Stansbury's Rep., 1852, 328.—CASSIN, Illust., I, 1854, pl. xxvii.

*Culicivora mexicana*, CASSIN, Illust., I, 1854, 164, a.

*Poliioptila melanura*, LAWR., Ann. N. Y. Lyc., VI, 1856, 168.—BD., Pr. Phila. Acad., 1859, 304, (Cape Saint Lucas); Rev. A. B., 1864, 68.—DRESSER, Ibis, 1865, 485 (Texas).—COUES, Pr. Phila. Acad., 1866, 66, (Arizona).—HENSH., List B. Ariz., 1875, 155.

Lead-colored Flycatcher, COOP., l. c.

Lead-colored Gnatcatcher; Arizona Gnatcatcher, B. B. & R., l. c.

Black-capped Gnatcatcher of authors generally.

HABITAT.—Southern region of Texas and Arizona; westward to Fort Mohave and Fort Yuma. Cape Saint Lucas?\*

***Poliioptila californica*, sp. nov. CALIFORNIA BLACK-CAPPED GNATCATCHER.**

*Culicivora atricapilla*, HEERM., Journ. Phil. Acad., II, 1853, 262 (Fort Yuma and San Diego, Cal.).

*Poliioptila melanura*, BAIRD, B. N. A. 1858, 382.—BAIRD, Rev. Am. Bds., 1864, 68.—HEERM., P. R. R. R., X, 1859, 39 (South'n Cal.). COOP., Am. Nat., III, 1869, 184, 474-479; B. Cal., I, 1870, 37, fig.—COUES, Key, 1872, 79, fig. 20.—B. B. and R., N. A. B., I, 1874, 81, pl. 6, fig. 7.

*Poliioptila plumbea*? It is probable that some of the California citations are based on this new species but I have not been able to verify any of them.

CH. SP. Similis *P. plumbeæ*; sed colore in toto, præsertim subtus, multo nigriori; tectricibus caudæ inferioribus ac abdomine fulvis; limbo albo in reetricibus restrictiori; rostro tarsisque longioribus ac gracilioribus.

♂ (No. 1489, author's collection) Riverside, San Bernardino Co., California. March 28, 1878. Coll. F. Stephens. Whole top of head from bill to occiput, deep, shining black. Wings dusky-brown; the primaries edged with grayish-white, the secondaries and tertials, with light brown. Rest of upper surface plumbeous-ashy. Tail glossy-black; the external half of the outer webs of the outer pair of rectrices, dull brownish-white; the white passing narrowly across the end of the feather and at its extremity nearly touching the shaft, but basally, diverging more and more until at the tail coverts it is confined to a scarcely appreciable edging; no light color on any of the other rectrices. Throat and upper parts of breast, with sides of head, neck, and body, dull but decided ash, with a faint wash of brownish-fulvous on the tips of the feathers. Along the central portions of the body beneath this wash becomes clear fulvous, which is deepest in tint on the abdomen, crissum, and under tail-coverts. Lining of wings very pale pearl-gray.

\* I have not seen any specimens from this locality but Prof. Baird tells us ("Notes on a collection of Birds made by John Xantus at Cape St. Lucas, Lower California") that "the single specimen of this species sent in by Mr. Xantus has the tail feathers more broadly edged and tipped with white, and the gray of the back lighter and clearer than in specimens in the Smithsonian collection from the Gila region." This would indicate that true *plumbea* is the species found there, a fact which is strictly in accord with the marked affinity of the fauna to that of the Gila region in Arizona.

*Dimensions.* Length, 4.50; extent, 6.10; wing, 1.84; tail, 1.80; tarsus, .73; bill, (culmen), .50; from nostril, .30.

♀ (No. 7192, National Museum) Fort Yuma. Similar to the ♂ but with the crown deep plumbeous; the abdomen and crissum pale *chestnut*; the external webs of second pair of rectrices margined with white.

Young ♂\* (No. 2149, Coll. of R. Ridgway) Saticoy, Cala., Nov. 24, 1872. Coll. J. G. Cooper. Similar to the ♀ but with the plumbeous of the crown clearer; the brownish wash beneath confined to the abdomen and crissum. the white of tail restricted to outer pair of rectrices and a narrow tipping on the second pair.

Four specimens examined.

Upon comparing the California bird with *P. plumbea* as represented by my Arizona specimens, the following differences appear. The ash of the upper parts is decidedly plumbeous instead of bluish; the throat, breast and sides dull ashy instead of ashy-white; the abdomen, crissum and under tail-coverts fulvous, in some specimens pale chestnut; the light edging of the tail feathers confined to the outer pair of rectrices (with sometimes a slight tipping on the second pair) and on these restricted to the extreme tips and a narrow margin along the outer web; the lining of the wings pearl-ash instead of white and the secondaries and tertiaries edged with light brown. There is no pure white anywhere on the bird, and the general aspect beneath is nearly as dark as in the Cat-bird.

The proportions also apparently differ. The bill and tarsi are longer and more slender than those of *P. plumbea* but the wings and tail, especially the latter, are generally shorter than in the specimens of *plumbea* which my collection embraces.

These differences, which characterize all stages alike, are so decided and constant that I believe them to be of specific value. In view of the general law that Pacific coast birds tend to darker coloring than their affines from the interior it is of course not impossible that a gradual transition will eventually be found to exist between these closely allied Gnatcatchers. Cooper, however, found both species in winter at Fort Mohave, where each preserved its distinctive characters,† and my Fort Yuma specimen of *cali-*

\* It would be indeed remarkable if this species has no immature stage corresponding to that of *P. plumbea*. But putting aside some doubtful California citations, there is nothing to show that any such specimens have ever been taken. Mr. Stephens writes me that he has examined numerous California examples, but among them has found no spring males without the full black cap.

† Birds of Cal., I, 1870, 37.

*fornica* is quite as typical as are those from Riverside and San Diego. I have accordingly taken what, under the present conditions of the case, seems to be the more likely alternative.

The above described form, although known to ornithologists for more than a quarter of a century, and during that time more or less numerously represented in collections, has either passed unnoticed or been unwittingly used to aggravate the confusion respecting the points elucidated under the head of *P. plumbea*. All the early descriptions unmistakably relate to the more eastern species. Baird's *plumbea* was based on an Arizona specimen; the originals of Cassin's plate and description of "*Culicivora mexicana*" were apparently from Ringgold Barracks, Texas; and Lawrence's type specimen of *P. melanura* came from the same locality. The first, and probably only distinctive description of the California bird, occurs in Birds N. Am., 1858, 382, where Prof. Baird, under the head of *Polioptila melanura*, calls attention to some of the differences already detailed. Both of his specimens, which are before me, are typical of the California form, but Lawrence's name *melanura* is scarcely eligible for the new species, in view of its long application to *P. plumbea*.

In this connection I wish to express my obligation to Mr. Ridgway for the valuable assistance which he has given me. Indeed, his share in the discovery is by no means a small one. The Arizona series was forwarded to him for comparison with the Smithsonian specimens and during his examination the difference between the former and the California birds first came out. This difference, to be sure, had already been noted in my study of the material embraced in my own collection, but as my only California specimen was in rather poor condition, it is very doubtful if I should have attached the proper importance to the peculiarities which it presented. Nor is this the only instance which has come under my notice, where the fruits of Mr. Ridgway's well known critical talents have been generously placed at the disposal of others.

#### ***Polioptila nigriceps*. BAIRD.**

During my study of the North American *Polioptila*, I had occasion to look up the three forms of this genus which are peculiar to Mexico and Central America. All of these are white beneath and otherwise closely related to *P. plumbea*: hence I was not greatly

surprised to find that this supposed distinctness, *inter se*, apparently rests upon pretty much the same general grounds as has that of *P. plumbea* and *P. melanura*. The latest information regarding them appeared in Godman and Salvin's "Biologia Centrali-Americana," Part II, November, 1879, where their differential characters are set forth as follows:

*Polioptila nigriceps*. "*P. cærulea* similis, sed pileo toto cum loris et superciliis nitenti-nigris."

*Polioptila bilineata*. "*P. nigricipiti* affinis, sed loris et superciliis albis, striga postoculari tantum nigra, capiti nigro conjuncta."

*Polioptila albiloris*. "*P. nigricipiti* affinis, sed loris (nec superciliis) albis distinguenda."

If, by the above, we are to understand that *P. nigriceps* differs from *P. cærulea* only in having "the whole pileum, with the lores and upper eyelids, shining black" it is of course separable from *P. plumbea* by the different coloring of the tail feathers, which would be like those of *P. cærulea*. But in view of the age-variations which occur in *P. plumbea*, we are certainly warranted in entertaining a suspicion that *bilineata* and *albiloris* are only the immature stages of *P. nigriceps*.

The condition known as *P. bilineata* is almost exactly reproduced, relatively, by my specimen No. 4981, which has the lores and upper eyelids ashy-white; while that called *albiloris* is very nearly duplicated by No. 4983 in which the lores remain ashy-white while the black of the crown encroaches on the white of the eyelids.

The English ornithologists are evidently in some perplexity regarding these allied forms, for in some general remarks which follow the specific matter they observe: "Having thus given some account of the three forms of black-headed *Polioptila* found in Central America (*P. nigriceps* with the lores wholly black, *P. albiloris* with the lores white, and *P. bilineata* with both lores and superciliaries white) it remains to consider the position of certain specimens which seem to have intermediate characters connecting two or all of these forms together. These birds were obtained, with a female of the true *P. bilineata*, near La Union in San Salvador, and have the lores black, with a few white feathers intermingled. . . . Putting *P. albiloris* aside, and observing the distribution of *P. nigriceps* and *P. bilineata*, we find the curious fact that the ranges of these

two forms actually cross one another, and that the area where *P. bilineata* comes into contact with the northern section of *P. nigriceps* corresponds more or less to that occupied by *P. albiloris*, at once suggesting the supposition that *P. albiloris* is not a true species at all, but due to the intermingling of *P. bilineata* and *P. nigriceps*, and, further, that technically these last named birds are not true species either."

The authors next endeavor to explain this geographical muddle by some curious conjectures which exactly reverse the accepted workings of the theory of evolution as understood on this side of the Atlantic. *P. nigriceps* and *P. bilineata* are supposed to have been originally distinct species, which having extended their respective ranges to a point of meeting, where a hybrid race, *P. albilora*, was produced, crossed each other's path, and in their further extension apart, resumed their distinctive characters.

A simpler solution than this must surely be found to exist, and to the ornithologist who next takes up the investigation, I offer the preceding analogy, in the hope that it may at least have some bearing on what seems to me a parallel case.

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### Recent Literature.

VOGT ON THE SECOND FOSSIL ARCHÆOPTERYX.\*—This specimen was found by M. Haeberlein in the same slates as the first. As described by Professor Vogt, it shows several structural peculiarities which were not visible in the first specimen. Of the head, which was not preserved in the first example, Professor Vogt only says that the upper jaw had two small teeth at its end (i. e. in premaxillæ?), and that the entire skull is strongly reptilian in its appearance. The position of the teeth in the *Archæopteryx* is thus exactly the opposite of their position in the *Odontornithes*, where teeth were absent only in the end of the upper jaw. The cervical vertebræ were not very numerous and were provided with ribs. The dorsal vertebræ were ten in number, and their ribs lacked uncinate processes. One of the points of great interest is the thoracic arch,

\* L'Archæopteryx macroura. — Un intermédiaire entre les oiseaux et les reptiles. Par M. C. Vogt. La Revue Scientifique, 2<sup>e</sup> Sér., 9<sup>e</sup> Année, No. 11, 13 Sept. 1879, pp. 241-248, figg. 18-21. There is a translation of this piece, supplemented by a photograph of the slab, in the "Ibis" for October, 1880, pp. 434-456.