

Breeding above 6000 feet and upward,	193 species.
“ “ 7000 “ “ “	155 “
“ “ 8000 “ “ “	106 “
“ “ 9000 “ “ “	86 “
“ “ 10000 “ “ “	51 “
“ “ 11000 “ “ “	40 “

That do not breed below 5000 feet,	101 species.
“ “ “ “ “ 6000 “	72 “
“ “ “ “ “ 7000 “	42 “
“ “ “ “ “ 8000 “	30 “
“ “ “ “ “ 9000 “	16 “
“ “ “ “ “ 10000 “	11 “
“ “ “ “ “ 11000 “	7 “
“ “ “ “ “ 12000 “	4 “

Breeding at 5000 feet,	164 species.
“ “ 6000 “	165 “
“ “ 7000 “	163 “
“ “ 8000 “	139 “
“ “ 9000 “	94 “
“ “ 10000 “	79 “
“ “ 11000 “	47 “

As before remarked, the birds of Colorado, especially as to their breeding range, have been but little studied, and any eastern ornithologist who wishes to combine collecting and investigation with recreation and a new supply of health can find no better field for his summer outing than the parks and peaks of the Rocky Mountains of Colorado.

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## ADDITIONAL CHARACTERS OF THE MACROPTERY- GIDÆ.

BY FREDERIC A. LUCAS.

IN ‘The Auk’ for January, 1889, I proposed the family *Dendrochelidonidæ* for the reception of the Tree Swifts of Malaysia, establishing it upon well-marked characters found in the cranium and shoulder-girdle. Unfortunately I was not then aware that



the name *Dendrochelidon* was preoccupied, but since the proper generic name of the Tree Swifts is *Macropteryx*, the family name should be *Macropterygidæ*. By the courtesy of Dr. Sclater I have been able to examine an alcoholic specimen of *Macropteryx coronata*, and can now add three important differential characters to those already given. These are as follows:—

	<i>Micropodidæ.</i>	<i>Macropterygidæ.</i>
Hypotarsus	simply grooved	with one tendinal foramen.
Shoulder-muscles	strictly Cypseline	Passerine.
Deep plantars	strictly Cypseline	characteristic.

The accompanying figures bring out these points more clearly than any descriptions and show some other points of interest as well. The plantars of *Macropteryx* differ from those of the other Swifts in being almost free from one another, curiously enough very nearly resembling those of *Apteryx*. The extent of their anastomosis resembles that of the Trochilidæ, but in *Macropteryx* the *flexor longus hallucis* is connected with that branch of the *flexor perforans digitorum* which runs to the fourth digit, while in the Hummingbirds it is connected with the branch to the second digit, much as in the Falconidæ. The modifications of the hypotarsus among the Swifts show that the farther a species departs from the typical Cypseline form the more sharply are the tendons differentiated from each other. Thus while all the plantar tendons of *Micropus* play in a common groove, in *Cypseloides* and *Chaëtura* they are separated by little ridges of bone, and finally, in *Macropteryx* the *flexor perforans digitorum* is honored with a special foramen, just as among the Hummingbirds.

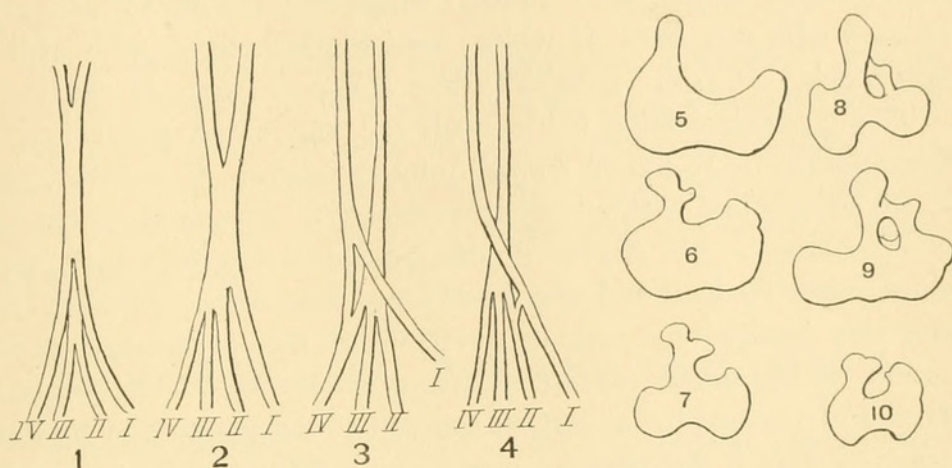
The subject of tendinal individuality and tarsal perforations is extremely interesting, and some day I hope to publish some of the results I am slowly gathering in. These seem to indicate that for morphological characters we must look to the upper end of the tarsus, the distal extremity being particularly subject to physiological adaptations.

The tongue and alimentary canal of all Swifts examined agree with one another in their general characters, and the tongue is very much as it is found among the Swallows, or even in such a



form as *Procnias*, this organ being very susceptible to modifications dependant on food or mode of feeding.

In my previous paper I said that the differences between the Macropterygidæ and the other Swifts were as great as those between the Crows and Swallows; in this I am prepared to go farther and to say that they are greater than those existing between any two families of Passeres with which I am acquainted.



EXPLANATION OF FIGURES.

Deep plantar tendons of 1, *Tachornis gracilis*; 2, *Chætura pelagica*; 3, *Macropteryx coronata*; 4, *Florisuga mellivora*.

Proximal end of left tarsus of 5, *Micropus apus*; 6, *Chætura pelagica*; 7, *Cypseloides niger*; 8, *Campylopterus hemileucurus*; 9, *Macropteryx coronata*; 10, *Tachornis gracilis*.

## NOTES ON CERTAIN FLYCATCHERS OF THE GENUS *EMPIDONAX*.

BY WILLIAM BREWSTER.

GREEN-CRESTED FLYCATCHER. *Empidonax virescens* (VIEILL.).

The name *Empidonax acadicus* has been so long established and so generally used that despite its obvious inappropriateness it is indeed a pity that it must be discarded. But there is apparently no alternative, as can be shown in a few words. The



Lucas, Frederic A. 1895. "Additional Characters of the Macropterygidæ." *The Auk* 12, 155–157. <https://doi.org/10.2307/4068835>.

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