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THE WING CLAW IN SWIFTS

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IN a paper on "The Claws and Spurs on Birds' Wings", Jeffries (Proc. Boston Soc. Nat. Hist., xxi, 1881, pp. 301-306) recorded in a tabular survey of the occurrence of wing claws in birds that the wing claw was present in the Old World swifts of the genus *Micropus* and that no wing claw was found in the Chimney Swift (*Chaetura pelagica*).

A brief examination of a series of Chimney Swifts showed the present writer that this species possessed well developed wing claws so that what had appeared to be another character separating the two subfamilies of spiny-tailed and soft-tailed swifts proved invalid. Opportunity was taken in this connection to examine for this character all of the species of swifts available in the collections of the United States National Museum with results that proved of some interest. In all, 48 species belonging to 12 genera were available, as indicated in the following list.

In arranging my notes on these swifts I have encountered difficulty in the arrangement, treatment and choice of names to be used; for there have been varying opinions as to the limits of groups and the allocation of subspecies, while no recent comprehensive monograph has covered the entire family in a manner wholly satisfactory. In general the arrangement of the genera is that given by Mr. Ridgway (Bull. 50, U. S. Nat. Mus., v, 1911, pp. 685-686), with the inclusion of *Tachynautes* (Oberholser, Proc. U. S. Nat. Mus., xxviii, 1905, p. 860), while the majority of the species are taken as they stand in Sharpe's Hand-List (vol. II, 1900, pp. 89-96). The genus *Collocalia* is based on Oberholser's monograph of this group (Proc. Acad. Nat. Sci. Phila., vol. 58, 1906, pp. 177-212), save that the treatment of *Collocalia fuciphaga*, *C. vestita*, and *C. lovi* is that of Stresemann (Verh. Orn. Ges. Bayern, Bd. XII, 1914, pp. 1-12). New species and subspecies not covered by these authors are included in what appears to be their logical positions. The writer does not venture to say that

the combination produced is a happy one, but believes that it will at least enable others to determine what birds he has seen.

<i>Micropus melba</i> (Linnæus)	<i>Collocalia innominata</i> Hume
<i>Micropus aequatorialis</i> (Müller)	<i>Collocalia ocista</i> Oberholser
<i>Micropus apus</i> (Linnæus)	<i>Collocalia fuciphaga fuciphaga</i> (Thunberg)
<i>Micropus pacificus</i> (Latham)	<i>Collocalia fuciphaga vanikorensis</i> (Quoy and Gaimard)
<i>Micropus horus</i> (Heuglin)	<i>Collocalia fuciphaga amelis</i> Oberholser
<i>Micropus affinis</i> (J. E. Gray)	<i>Collocalia fuciphaga unicolor</i> (Jerdon)
<i>Micropus subfurcatus</i> (Blyth)	<i>Collocalia vestita vestita</i> (Lesson)
<i>Micropus andicola</i> (Lafresnaye and D'Orbigny)	<i>Collocalia vestita mearnsi</i> Oberholser
<i>Micropus myoptilus</i> (Salvadori)	<i>Collocalia vestita elaphra</i> Oberholser
<i>Aeronautes melanoleucus</i> (Baird)	<i>Collocalia vestita aenigma</i> Riley
<i>Panyptila sanctihieronymi</i> Salvin	<i>Collocalia origenis</i> Oberholser
<i>Panyptila cayanensis</i> (Gmelin)	<i>Collocalia lowi lowi</i> (Sharpe)
<i>Tachynautes parvus</i> (Lichtenstein)	<i>Collocalia lowi palawanensis</i> Stresemann
<i>Tachornis infumatus</i> (Sclater)	<i>Collocalia inopina</i> Thayer and Bangs
<i>Tachornis phoenicobius</i> Gosse	<i>Collocalia thespesia</i> Oberholser
<i>Hirundapus celebensis</i> (Sclater)	<i>Collocalia francica townsendi</i> Oberholser
<i>Hirundapus caudacutus</i> (Latham)	<i>Collocalia francica inexpectata</i> Hume
<i>Hirundapus giganteus</i> (Temminck)	<i>Collocalia francica germani</i> Oustalet
<i>Mearnsia picina</i> (Tweeddale)	<i>Collocalia troglodytes</i> G. R. Gray
<i>Streptoprocne zonaris</i> (Shaw)	<i>Collocalia marginata</i> Salvadori
<i>Streptoprocne semicollaris</i> (Saussure)	<i>Collocalia linchi affinis</i> Beavan
<i>Nephoecetes niger</i> (Gmelin)	<i>Collocalia linchi elachyptera</i> Oberholser
<i>Cypseloides brunneitorques</i> (Lafresnaye)	<i>Collocalia linchi isonota</i> Oberholser
<i>Cypseloides cherriei</i> Ridgway	<i>Collocalia linchi oberholseri</i> Stresemann
<i>Chaetura pelagica</i> (Linnaeus)	<i>Collocalia dodgei</i> Richmond
<i>Chaetura vauri</i> (Townsend)	<i>Collocalia esculenta</i> (Linnaeus)
<i>Chaetura richmondi</i> Ridgway	<i>Collocalia bartschi</i> Mearns
<i>Chaetura gaumeri</i> Lawrence	
<i>Chaetura acuta</i> (Gmelin)	
<i>Chaetura poliura</i> (Temminck)	
<i>Chaetura cinereiventris</i> Sclater	
<i>Chaetura stictilaema</i> (Reichenow)	
<i>Chaetura leucopygialis</i> (Blyth)	

The wing claw in the Micropodidae is placed near the tip of the thumb or pollex and is concealed beneath the feathers that form a sharp anterior margin on the wing at that point. The large series of birds studied were examined under a binocular dissecting microscope with a magnification of eight diameters. The use of this instrument left both hands free to manipulate the bird, a necessary arrangement, as the claw is small and at times difficult to locate among the feathers. The claw in general is blackish or dusky in color, and is comparatively long, with the tip recurved in a slight hook. It is attached rather loosely and may be removed easily, but where a claw has been broken away, its former location is plainly indicated by a scar. The form of the claw varies to some extent, and in abnormal individuals it may degenerate into a short knob with slight projection.

In all of the swifts examined wing claws were normally developed save in one group of species belonging to the genus *Collocalia*. In the various subspecies of *C. linchi* the wing claw was normal in some cases, rudimentary in others, and occasionally was absent on one or both wings. The same was true in a

series of nine *C. esculenta*. The wing claw was much reduced in seven *C. troglodytes* and in one specimen was absent on one wing. In *Collocalia marginata* no trace of a wing claw was found in an examination of both wings of nine individuals, and wing claws were absent also in the type of *C. dodgei* (the only specimen of this species seen). Wing claws were present in the type specimen of *C. bartschi*. In the other species of *Collocalia* available (*C. innominata*, *ocista*, *fuciphaga*, *vestita*, *origenis*, *lowi*, *inopina*, *thespesia*, and *francica*) wing claws were present on both wings, though occasionally they were small and often were curled and twisted. In one individual of *C. f. amelis* the wing claw on the right wing grew from the base of the pollex instead of the tip. The wing claw may possibly develop rather late in the growth of the young bird, as I found it absent entirely in three nestlings of *Collocalia l. isonota*, but present in both wings in a fully fledged young of *Collocalia origenis*. It is interesting to note that in the Tree Swifts (Hemiprocnidae), a family considered to be closely allied to the true swifts (Micropodidae), no wing claw is present. The species examined include *Hemiproctus longipennis*, *mystacea*, *comata*, *wallacei* and *perlonga*.

While it has proved that the wing claw in the Micropodidae is not a character of taxonomic value it has been interesting to note its persistence in general and its absence in certain cases. The section of edible nest swiftlets, covering the small blue-black species with more or less white in the plumage, seems to be on the way to discarding the wing claw, though here the loss is not as yet universal and may vary in one species or even in one individual. From the present evidence I am inclined to consider the wing claw in swifts as an archaic trait that is no longer of value and is on the way to being lost. There is no evidence at hand to show that the claw is used by these birds in attaching or climbing on the rough surfaces on which they rest. No wear is evident on the wing claw itself, nor is there abrasion on the feathers concealing it.

From a limited amount of material (all in dried skins) it seems that the wing claw does not appear until the young bird is well feathered, so that it is not of use in a juvenile stage. This, however, should be carefully verified in fresh material for, if this claw be considered an archaic character, it is strange if it does not appear very early in the life of the individual.

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