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A review of larger Philippine swiftlets of the genus *Collocalia*

EDWARD C. DICKINSON

The taxonomy of the larger *Collocalia* in the Philippines involves many repeated errors owing to problems of identification and lack of information. A thorough analysis of the evidence suggests that six species are recorded from the archipelago: *C. maxima* on Palawan, *whiteheadi* (montane) on Luzon and Mindanao, *vanikorensis* (probably lowland) throughout, *salangana* on Basilan (possibly a vagrant), *mearnsi* (probably submontane) on Bohol, Luzon, Mindanao, Mindoro, Negros and Palawan, and *fuciphaga* (lowland), mainly on the Palawan group.

During the last 25 years considerable progress has been made in sorting out the relationships of the forms of *Collocalia* occurring in Malaysia (Medway 1961, 1962, 1966, Somadikarta 1986) and New Guinea and Melanesia (Somadikarta 1967, Medway 1975, Salomonsen 1983). However, while some of these authors have referred to Philippine forms, none has sought to unravel the particular problems of the Philippines. This is now attempted in preparation for a checklist of birds of the Philippines (Dickinson *et al.* in prep.).

The name *Collocalia* is used as the generic name for all species in this paper. This is purely a convenience that simplifies the text: the genus has been separated into three subgenera (Brooke 1970) and my usage should not be read as a rejection of the preference of some authors to treat these as three genera (Brooke 1972, Medway and Pye 1977). English names have been adopted from Pratt (1986).

The swiftlets occurring in the Philippines have suffered much confusion in the literature, but they may conveniently be separated into larger and smaller groups for review. This paper deals with all Philippine taxa except the White-bellied Swiftlet *C. esculenta* (including *marginata*) and the small distinct white-rumped Pygmy Swiftlet *C. troglodytes*.

Partly stimulated by the problems of field identification in the Philippines, this study is based on a thorough literature review and the examination of many skins, especially older ones, to be sure about the identity of the taxon being discussed by a given author. The opportunity has also been taken to examine relevant typical or paratypical material. The Philippine literature on *Collocalia* is a minefield of perpetuated errors, and the main challenge has been to identify these and to put the record straight. Little information is available on the ability of Philippine taxa to echolocate. Information on nesting is incomplete; worse, several authors have cited earlier publications without establishing what taxon was really involved.

There have been two main problems: (1) specific and subspecific scientific names have been used against a background of changing views on the specific affinities of Philippine forms; (2) authors writing simultaneously about the

same taxon have used different names for it owing to disagreement over its validity. As a consequence, where one might hope that those reviewing the Malaysian species of *Collocalia* would have been able to expand their review of data on nesting and echolocation to Philippine forms, they have been inhibited by these problems.

In organising the material to be presented here I have elected to follow the advice of Lord Cranbrook and give a synonymy for each form discussed in order to provide a readable account which minimises repetition. Within the synonymy I have also followed the citations of authors with island names to show the first accepted record for that island. Rejected first records for islands are discussed in the body of the text.

Many museums cooperated in providing material for this study. In the text they are indicated by the following abbreviations: American Museum of Natural History, New York, AMNH; Brigham Young University, Salt Lake City, Utah, BYU; British Museum (Natural History), London (now in Tring), BMNH; Carnegie Museum of Natural History, CM; Delaware Museum of Natural History, DMNH; Field Museum of Natural History, Chicago, FMNH; Museum of Comparative Zoology, Cambridge, Massachusetts, MCZ; Muséum d'Histoire Naturelle, Geneva, MHNG; James Ford Bell Museum of Natural History, University of Minnesota, MMNH; Ohio State University, Museum of Zoology, OSUMZ; Rothschild Museum, Tring (collection now at AMNH), Tring; United States National Museum, Washington, D.C., USNM.

BLACK-NEST SWIFTLET *Collocalia maxima* 'Hume' Hartert 1892

Specific characters

Wing: 122–136 mm (Medway 1966); tail: 50–57 mm (Oberholser 1906), tail fork very shallow; tarsus feathered; back sooty-black with concealed downy tips to the basal barbs mainly black, but traces of white at the top of downy area (Sims 1961); rump colour racially variable.

Uses echolocation. Makes a 'black' nest of salival cement and feathers.

Differs from *C. salangana* and *C. fuciphaga* by larger size, squarer tail and 'black nest'. Both *C. whiteheadi* and *C. vanikorensis* have more deeply forked tails and naked tarsi.

Three races recognised (*maxima* 'Hume' Hartert 1892, *lowi* Sharpe 1879 and *tichelmani* Stresemann 1926).

Overview

This species was not listed in the most recent handbook on Philippine birds (DuPont 1971), although Medway (1966) suggested that the species had occurred. A specimen from Palawan has been located and its identity confirmed.

Collocalia maxima lowi (Sharpe) 1879

Synonymy

Collocalia lowi: Hartert (1892) – partim – Palawan; Ogilvie Grant (1895) – Palawan; Worcester and Bourns (1898); Oberholser (1906); McGregor (1909a) – partim.

Collocalia lowi palawanensis: Hachisuka (1934) – partim; Peters (1940) – partim; Delacour and Mayr (1946) – partim.

Collocalia maxima lowi: Medway (1966).

Subspecific characters

Rump concolorous with sooty-black back or only slightly paler. Rump darker than *maxima* and usually than *tichelmani*, which is somewhat smaller.

Discussion

Hartert (1892) listed two specimens of *lowi* in BMNH taken in Palawan by E. L. Moseley on the Steere Expedition 1887–1888. Steere (1890) did not record a swiftlet from Palawan but at least 10 were taken on this expedition. Moseley's two in BMNH were reviewed by Ogilvie Grant (1895), who accepted one as *lowi* and treated the other, which is a specimen of *palawanensis*, like those examined that were taken by Steere, as related to his new *whiteheadi* from Luzon.

The specimen that Ogilvie Grant accepted as *lowi* is BMNH 1890.12.1.87 with a wing length of 123 mm, collected by Moseley on 6 September 1887; it does have some tarsal feathering but it is the shallow tail fork compared to *palawanensis* that provides the most conviction that it is *lowi*.

This re-identification became the basis for listing this taxon from Palawan by Worcester and Bourns (1898) and Oberholser (1906). However, in listing *lowi* from Palawan, McGregor (1909a) cited Everett, Whitehead and the Steere Expedition as the collectors. This requires review. (1) The Steere Expedition was cited correctly, in that Moseley took it as shown above. (2) Everett's name seems to have been drawn from Hartert (1892), whom McGregor misread, as discussed below under Nesting. (3) Whitehead collected in Palawan in 1887 and Sharpe (1888) reported on his collection but listed only *fuciphaga* – which Whitehead (1890) said was common (although it will emerge that this may have been based on confusion of two forms). McGregor cited Whitehead as a Palawan collector of *lowi*, *whiteheadi* and *fuciphaga* but, although it is possible he took three forms, any evidence has since been dispersed. One skin (AMNH 634662) has been traced and it is discussed further under *C. mearnsi*.

There do not appear to be any subsequent records of *lowi* in the Philippines. Hachisuka (1934), Peters (1940) and Delacour and Mayr (1946) all presumed that *palawanensis*, described by Stresemann (1914) as a race of *lowi*, must have feathered tarsi (which it does not) and therefore used the name *C. lowi palawanensis* as a composite.

Nesting

McGregor (1909a) wrote that Everett found nesting colonies in Palawan, but this was a misunderstanding of Hartert (1892), who wrote of it: 'Palawan and Northern Borneo, where Everett found it breeding in caves in October'. The reference to breeding is clearly to Northern Borneo, for although Everett collected in Palawan in 1877/1878 no *Collocalia* was among the 52 species that he took (Tweeddale 1878b). Everett did not collect there again until 1894, later than the account of Hartert (1892).

No nest typical of *C. maxima* has been reported from the Philippines.

Range in the Philippines Palawan.

Material examined Palawan 1 (BMNH).

Remarks The status of this bird in Palawan is unknown; it may be a vagrant or represent a rare local population.

WHITEHEAD'S MOUNTAIN SWIFTLET *Collocalia whiteheadi* Ogilvie Grant 1895

Specific characters

A large species with a very distinctive 'massive' skull (see Plate 1); wing: 129–140.5 mm (Oberholser 1906, Stresemann 1914); tail: 57–60 mm (Oberholser 1906), distinctly forked; tarsus naked; rump and back concolorous brownish-black with concealed white feathers below.

Information on echolocation is lacking. The vegetable nests seem not to include salival cement.

Differs from *maxima* by naked tarsi, and from continental Asian *brevirostris* (Horsfield) 1840 – of which some populations have naked tarsi – by the lack of the ill-defined grey-brown rump with dark shaft streaks (see also under Nesting below).

Endemic to the Philippines with two races (*whiteheadi* and *origenis*). Taxa occurring in New Guinea, the Bismarck Archipelago and the Solomon Islands, and previously thought to be conspecific, have been discussed by Salomonsen (1983) under the superspecies *C. orientalis* Mayr 1935; of these *C. nuditarsus* Salomonsen 1962 is remarkably close to *whiteheadi* (Plate 2).

Overview

Most standard works have given the name *whiteheadi* to a relatively common medium-sized Philippine swiftlet, following McGregor (1909a). Unfortunately the evidence suggests that McGregor can never have seen the type of *whiteheadi*, which is a substantially larger bird, although it is similar in colour and in having naked tarsi.

Plate 1. Specimens of *Collocalia w. whiteheadi* (BMNH 1897.5.13.290) from Mt. Data, Luzon and *C. w. origenis* (USNM 192161) from Mt. Apo, Mindanao compared with 2 of *C. vanikorensis palawanensis* (BM 1896.6.6.799 and 1911.11.16.87) from Palawan. Note the breadth and shape of the skull of *whiteheadi*.

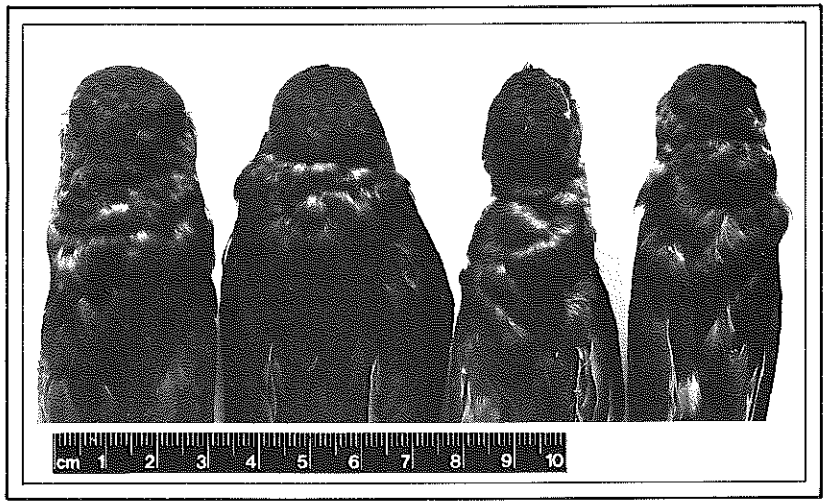
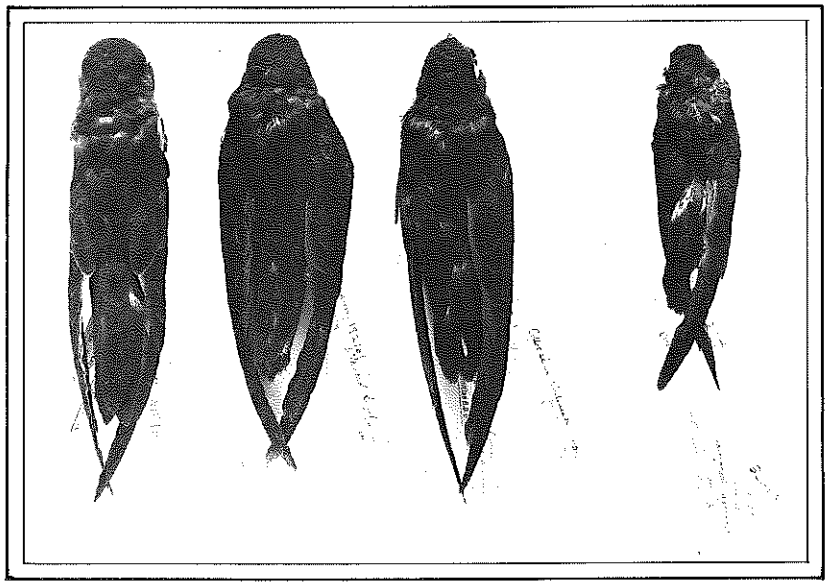


Plate 2. Left to right: BMNH 1897.5.13.290 *Collocalia w. whiteheadi* from Mt. Data, Luzon; USNM 192161 *Collocalia w. origenis* from Mt. Apo, Mindanao; BMNH 1911.12.20.959 *Collocalia* [*whiteheadi*] *nuditarsus* from New Guinea; and DMNH 36285 *Collocalia apoensis*, a syntype, [= *C. mearnsi*] previously associated with *Collocalia whiteheadi*.



The size difference was pointed out by Oberholser (1906) – for by this date McGregor had published upon his collections – but McGregor (1909a) did not accept this. Stresemann (1922), having seen the original series including the two types of *whiteheadi*, re-emphasised the difference but McGregor's standard work has remained the basis for all subsequent authors.

The range of the large, rare *whiteheadi* is here redefined. Secondly, two forms have been described from Mount Apo, apparently from different elevations. In fact the type-series of one of the two represents a smaller species.

Collocalia whiteheadi whiteheadi Ogilvie Grant 1895

Synonymy

Collocalia brevirostris whiteheadi: Stresemann (1926); Medway (1966) – partim; DuPont (1971) – partim.
Collocalia whiteheadi: Ogilvie Grant (1895) – partim – Luzon; Worcester and Bourns (1898) – partim; Whitehead (1899); Oberholser (1906) – partim; McGregor (1909a) – partim; Stresemann (1914).
Collocalia whiteheadi whiteheadi: Hachisuka (1934) – partim; Peters (1940) – partim; Delacour and Mayr (1946) – partim.

Subspecific characters

Wing: 133.5–140.5 mm (Stresemann 1914); tail: 64 mm (original description). Said to differ from *origenis* in colour.

Discussion

Described by Ogilvie Grant (1895) based on four specimens of which two went to BMNH and two to Tring. The four birds taken had wing lengths from 5.2 to 5.5 inches (about 134 to 141 mm). The longest winged bird, a male, and one of the two next longest winged, a female, were declared types but were identified only by wing length. The four specimens have wing lengths measuring as follows: BMNH 97.5.13.289 – male, 142; BMNH 97.5.13.290 – female, 136; AMNH 634754 – male, 137; AMNH 634755 – female, 134 (the AMNH birds were kindly measured by Mary LeCroy). From this it may be concluded that the BMNH specimens are the types.

Worcester and Bourns (1898) and Oberholser (1906) both listed *whiteheadi* from Luzon and Palawan and Oberholser gave measurements of a composite series, of *whiteheadi* from Luzon and of the birds from Palawan that have since been called *palawanensis*. Oberholser in fact acknowledged that the Palawan birds were smaller and browner above.

More importantly Oberholser (1906) rejected all the records of *whiteheadi* by McGregor. He compared McGregor's birds with some or all of the type-series of *whiteheadi* and showed that the former, which he named *C. unicolor amelis*, were substantially smaller. However, McGregor (1909a) treated *amelis* – dealt with below under *vanikorensis* – as a synonym of *whiteheadi*. Stresemann (1926) attached *whiteheadi*, which as mentioned he understood in the correct narrow sense, to *brevirostris* on the strength of its naked tarsi. Almost every other author since then has been misled by McGregor's views.

Hachisuka (1934) recognised the smaller *amelis* but in treating *whiteheadi*, which he considered a polytypic species, he made it a composite for he gave the nominate form McGregor's erroneous distribution (except that he transferred the Palawan records to his new form *tsubame*, which is discussed below under *palawanensis*). His other forms were *origenis* and *apoensis* (Hachisuka 1930) from different heights on Mt Apo in Mindanao! The population of Mindanao is discussed below under *origenis*.

Peters (1940) listed 10 Philippine islands for his composite *whiteheadi*, including Catanduanes – drawn from Manuel (1937b), a record discussed under *C. v. amelis*. Delacour and Mayr (1946) did the same.

Medway (1966) underlined the size of *whiteheadi* – mentioning a wing length of 136 mm for one syntype – and treated it, like *origenis* and *palawanensis*, as a race of *brevirostris*; he did not go into the accuracy of published distribution records. In summary, every standard text on Philippine birds has followed McGregor (1909a) and ascribed to this rare montane species a wide distribution and an altitudinal range from the lowlands to the mountain tops. They have erred: nominate *whiteheadi* is still only known from the four type-specimens from Mt Data. It may or may not be a resident form.

Nesting

There are no reliable records of the nest of nominate *whiteheadi* from Luzon (however see below under *origenis*). McGregor's records of nests refer to *amelis* and are discussed below under *C. vanikorensis amelis*.

Range in the Philippines Luzon – known only from 'near the summit' (approx 2,300 m) of Mt Data (Whitehead 1899).

Material examined Mt Data, Lepanto, Luzon: 3.

Collocalia whiteheadi origenis Oberholser 1906

Synonymy

Collocalia brevirostris origenis: Stresemann (1926); Medway (1966); DuPont (1971).
Collocalia origenis: Oberholser (1906) – Mindanao; McGregor (1909a) – partim.
Collocalia whiteheadi: Stresemann (1914) – partim.
Collocalia whiteheadi origenis: Hachisuka (1934); Peters (1940).

Subspecific characters

Wing: 129–138mm (Oberholser 1906); tail: 53–60mm (Oberholser 1906); compared to the nominate form, *origenis* was described as having the 'upper parts much darker, more blackish and more uniform, the rump not appreciably lighter than the back; under surface darker and throat not decidedly paler than abdomen' (Oberholser 1906).

Discussion

Described by Oberholser (1906) from four adults taken by E. A. Mearns on 4 July 1904 at 4,000 feet on Mt Apo, Mindanao, with wing lengths of 129, 130, 134 and 138mm (USNM 192159–192162). He also mentioned a very young bird taken on 11 July (USNM 192303).

A single skin of *origenis* (USNM 192161), lent me by the USNM, with a wing length measured as 136mm, stands out immediately as it has the same 'massive skull' that is seen in nominate *whiteheadi*.

The nestling (USNM 192303) collected at this time also already shows the skull size.

McGregor (1909a) listed *origenis* and cited Mearns and Celestino as collectors. Mearns was correct but Celestino appears to be an error, as discussed under *C. mearnsi*. Stresemann (1914) perceived *origenis* as identical to *whiteheadi* (*sensu stricto*). Hachisuka (1934) placed *apoensis*, which he had described in 1930 as a separate species, in his polytypic *C. whiteheadi* as a subspecies distinct from *origenis*, although both were only known from Mt Apo. This is discussed under *C. mearnsi*. Peters (1940) doubtfully followed Hachisuka (1934), whilst Delacour and Mayr (1946) listed *origenis* and omitted *apoensis*. Medway (1966) treated both the Philippine forms and *palawanensis* as races of *C. brevirostris*. DuPont (1971) did the same and listed *apoensis* as a synonym of *origenis* but, as will be shown later, it is not.

In summary *origenis* is also a rare montane form known only from the original series. My direct comparison of a single specimen of *origenis* with two from Mt Data suggested they were doubtfully separable, but Oberholser (1906) seems to have had more material to compare.

Nesting

Medway (1966) drew attention to nests in USNM thought to be those of *origenis*. The nests were collected on 12 July and one nestling (USNM 192303) was taken the day before. One presumes that Mearns sent his Bagobo collectors back for the nests. Mearns's ms. notes (on file in USNM) say 'based on 4 adults and one nestling', 'the large dusky swift called *Cal-ahn-tee'-pach* by the Bagobos, was said to build on cliffs. Four adults were brought to me at Camp Goodfellow, which the Bag[ob]os said were taken from a hollow tree'. No mention is made of the collection of nests.

Medway (1966) described them as 'rounded vegetable nests constructed of green bryophytes together with some fibrous plant material, and apparently not incorporating nest-cement'. This lack of nest cement sets them apart from the nests of *C. brevirostris*.

Range in the Philippines Mindanao – known only from Mt Apo at 4,000 feet.

Material examined Mindanao: 1 adult, 1 juvenile (USNM).

ISLAND SWIFTLET *Collocalia vanikorensis* (Quoy and Gaimard) 1830

Specific characters

Medium-sized; wing: 115–126mm (Medway 1966), 109–130mm (Salomonsen 1983), but including *palawanensis* reaching 134mm; tail: 44–57mm, distinctly forked (4.5–12mm) (Salomonsen 1983), blackish-brown above with more or less concolorous back and rump, usually somewhat glossed and with concealed white barbs at the bases of the feathers of the back. Tarsi naked.

Uses echolocation (Medway 1975), and makes vegetable nests placed on ledges and bound with moist salival cement.

Widespread with some 14 races (*palawanensis* Stresemann 1914, *amelis* Oberholser 1906, *aenigma* Riley 1918, *heinrichi* Stresemann 1932, *moluccarum* Stresemann 1914, *waigeuensis* Stresemann and Paludan 1932, *steini* Stresemann and Paludan 1932, *granti* Mayr 1937, *tagulae* Mayr 1937, *pallens* Salomonsen 1983, *coultasi* Mayr 1937, *lihirensis* Mayr 1937, *lugubris* Salomonsen 1983 and *vanikorensis* (Quoy and Gaimard 1830) excluding forms in Micronesia (*pelewensis* Mayr 1935, *bartschi* Mearns 1909 and the *inquieta* [Kittlitz] 1858 group), some of which may be closely related.

Differs from *C. mearnsi* by having naked tarsi, and from *salangana* in having white barbs beneath the back feathers. The Philippine form of *C. fuciphaga* has a pale rump and makes edible white nests.

Overview

The Palawan population has not previously been assigned to this species. The population of the main group of the Philippine islands has had a different problem: it has suffered confusion with another species.

This is the commonest large to medium swiftlet in Palawan and is represented by just over 20 skins in well known museums. These match the type of *palawanensis* and show a closer affinity to *amelis* than to *whiteheadi* for they lack the massive skull of the latter. In wing length they are intermediate and Palawan skins in McGregor's hands by early 1906 reinforced his belief that *whiteheadi* and *amelis*, which he was collecting, were a single taxon.

The birds from the main islands, typical *amelis* discussed below, are smaller, shorter-winged birds. They have generally been treated together with true *whiteheadi* in composite accounts in most standard works. The massive head of true *whiteheadi* shows this to be wrong.

If *palawanensis*, which is consistently long-winged and has naked tarsi, is accepted as a race of *vanikorensis*, as I propose, it is necessary to review the alignment of other Palawan taxa, and this is discussed under *C. mearnsi*.

Finally, there has been a continuing question through the years: how can these birds with naked tarsi (particularly *C. v. amelis*), be safely told from the almost identical birds with feathered tarsi (*mearnsi*)? This is discussed below under *amelis*, but more work lies ahead.

Collocalia vanikorensis palawanensis Stresemann 1914

Synonymy

Aerodramus vanikorensis: Coleman (1981).
Collocalia brevirostris palawanensis: Stresemann (1926); Medway (1966); Baud (1978); DuPont (1971).
Collocalia fuciphaga: Blasius (1888b); Whitehead (1890); McGregor (1909a) – partim; Lowe (1916).
Collocalia fuciphaga amelis: Manuel (1939).
Collocalia lowi: Hartert (1892) – partim; McGregor (1909a) – partim.
Collocalia lowi palawanensis: Stresemann (1914); Hachisuka (1934) – partim; Peters (1940) – partim.
Collocalia unicolor amelis: Oberholser (1906) – partim.
Collocalia whiteheadi: Ogilvie Grant (1895) – partim; Worcester and Bourns (1898) – partim; Oberholser (1906) – partim; McGregor (1906); McGregor (1909a) – partim.
Collocalia whiteheadi palawanensis: Greenway (1978).
Collocalia whiteheadi tsubame: Hachisuka (1934); Peters (1940); Delacour and Mayr (1946).
Cypselus lowi: Blasius (1888a) – Palawan.

Subspecific characters

Wing: 123–134mm; tail: 53–56mm, distinctly forked (6–9mm); back and rump more or less concolorous dull blackish-brown. Longer-winged than *amelis*.

Differs from *C. whiteheadi* by much smaller skull as shown in Plate 1.

Discussion

Blasius (1888a) listed, under the name *lowi*, the four or more birds taken in Palawan by Platen, which he perceived to have a shallower tail fork than *Cypsiurus balasiensis infumatus*. Blasius (1888b) corrected himself over the nomenclature and called them *fuciphaga*. It was from among Platen's skins that the type of *palawanensis* (AMNH 634757 – collected on 30 June 1887) was later selected. A second is in New York (AMNH 634758), a third in Leiden and a fourth, traced but not examined, is in Braunschweig.

Hartert (1892) included in *lowi* two specimens taken in Palawan by Moseley on the Steere Expedition. Ogilvie Grant (1895) showed that, whilst one of these (BMNH 1890.12.1.87 discussed above) was indeed *lowi*, the other (BMNH 1890.12.1.86 collected 29 August 1887) was not – and he placed it, along with a specimen (BMNH 94.8.6.117) taken in Palawan by Everett in January 1894, with *whiteheadi*, which he was describing from northern Luzon. These two are typical of *palawanensis*, having naked tarsi and wings respectively of 126mm and 132mm but lacking the massive skull of nominate *whiteheadi*.

Everett's 1894 collection was not fully written up and Everett (1895) – publishing a few months before Ogilvie Grant – included no comments on swiftlets, although two skins from this trip are in BMNH.

One long-winged bird – mentioned above – is *palawanensis*. The other smaller bird is discussed below under *C. mearnsi*.

Consequently *C. whiteheadi* was listed for Luzon and erroneously for Palawan by Worcester and Bourns (1898). Oberholser (1906) did likewise, and while he acknowledged that the Palawan birds were smaller and browner above he gave the measurements of a composite series, of *whiteheadi* from Luzon and the birds from Palawan that have since been called *palawanensis*.

Oberholser (1906) also included a bird from Palawan, with a wing measuring 118mm taken on 5 September 1887 in his list of 10 USNM specimens of his new *amelis*. The USNM register shows that this must have been USNM 161298 collected by F. S. Bourns on the Steere Expedition. Exchanged to Brigham Young University, Utah, in 1983, this skin (now BYU 7661) has been borrowed, thanks to the USNM. It has naked tarsi, a flattened wing of 123mm, and is *palawanensis*.

McGregor (1909a), who understood his *whiteheadi* to have a maximum wing length of 125mm (i.e. averaging slightly smaller than the Palawan birds discussed here although just overlapping), listed *whiteheadi* from Palawan citing neither Everett nor the Steere Expedition – and thus apparently overlooking the careful remarks of Ogilvie Grant (1895) – but citing Whitehead and White as collectors. Two considerations arise. (1) Whitehead's Palawan record has been mentioned above under *C. m. lowi*; the only specimen traced is *C. mearnsi*. (2) White's collections went partly to the Bureau of Science and may have been seen by McGregor. This part has been destroyed. Another part went to AMNH but no relevant specimen has been found there. Of relevance to this enigma are Lowe's skins in BMNH, for Lowe was a cousin of White and stayed with him at Iwahig (Lowe 1932). These, listed by Lowe (1916) as *fuciphaga*, are in fact *palawanensis*. As Lowe (1916) called these common, the probability is that any birds taken there by White will have been the same species.

McGregor (1906), reporting on a trip to Palawan by Celestino and Canton in late 1905 to early 1906, wrote 'three small swifts from Puerto Princesa belong without doubt to this species', so it is unclear why McGregor (1909a) did not list Celestino and Canton, along with Whitehead and White, as collectors of *whiteheadi* (or any other *Collocalia*) in Palawan, when presumably he had their skins available.

Stresemann (1914) described *C. lowi palawanensis* based on eight specimens: one from Leiden, where there was one Platen specimen and one Moseley specimen, and seven drawn from Tring (where there were at least two Platen specimens including Stresemann's selected type) or from BMNH (where there were eight skins: one each from Everett and Moseley, two from Steere and four from Lowe). Stresemann compared these with all four of the original series of *whiteheadi* – both the two in BMNH and the two then in Tring – and said that *whiteheadi* had paler underparts and larger feet, and described *palawanensis* as having a naked tarsus like *whiteheadi* but unlike *lowi*.

Later, Stresemann (1926) placed both *whiteheadi* and *palawanensis*, with their naked tarsi, in *brevirostris*, thus removing *palawanensis* from *lowi* with its feathered tarsi. This correction of the affinity of *palawanensis* was unfortunately overlooked by Hachisuka (1934), who continued to view *palawanensis* as a form of *lowi* and, saying that it had the front part of the tarsus scantily covered with large feathers, gave a new name, *tsubame*, to the form with the naked tarsus. As his type Hachisuka (1934) selected the Moseley specimen that had been examined by Ogilvie Grant (1895).

Evidence that McGregor might in the end have changed his mind over *whiteheadi* is to be found in Manuel (1939). Manuel used the heading *Collocalia fuciphaga amelis* and the English name 'Whitehead's Swiftlet'. Manuel made clear that he was drawing on notes by McGregor about his collecting around Puerto Princesa in 1925, and that McGregor described this form (as *amelis*?) as abundant. Manuel had two of his skins available to him. No measurements were given but abundance suggests *palawanensis*. Fortunately, however, three other skins (MHNG 885/48 to 50) collected by McGregor on this trip became part of the Parsons Collection (Baud 1978). These have been re-examined and found to have wing lengths of 127, 129 and 130mm and to be *palawanensis*.

Peters (1940), misled by Hachisuka, listed both *C. l. palawanensis* and *C. whiteheadi tsubame*, and was followed by Delacour and Mayr (1946). Medway (1966) pointed out this error and made *tsubame* a synonym of *palawanensis*, seeing this and *whiteheadi* as forms of *brevirostris*, as had Stresemann. DuPont (1971) followed this.

Nesting

Manuel (1937a), discussing white nests satisfactorily proved to be those of *germani* (see below), reported two types of nests in the same cave, the brown ones being in 'the very deep parts of the cave'. These could possibly have belonged to *palawanensis*.

Coleman (1981) reported photographing nests 4km inside St Pauls Underground River and Medway, quoted by Coleman, considered that one of them apparently had the characteristics of *vanikorensis* nests. This would be consistent with the relative abundance of *palawanensis* and the morphological evidence that it belongs to *vanikorensis*. Satisfactory proof is still lacking.

Range Endemic to Palawan.

Material examined Palawan 17 – 8 BMNH (Steere 2, Moseley 1 – the type of *tsubame*, Everett 1, Lowe 4); 3 MHNG (McGregor); 2 RMNH (Platen 1, Moseley 1); 2 AMNH (Platen – including the type of *palawanensis*); 1 USNM (Steere); 1 BYU (Steere ex USNM). Not examined: Palawan: at least 6 – 2 AMNH (Worcester 1, Steere 1 – both ex USNM); 1 OSUMZ (Steere); 1 SMNB (Platen); 2 UMMZ (Steere).

Collocalia vanikorensis amelis Oberholser 1906

Synonymy

Collocalia brevirostris whiteheadi: Baud (1978); DuPont (1981) – partim; Gonzales (1983).
Collocalia francica: Steere (1890) – partim – Cebu, Mindoro.
Collocalia fuciphaga: Worcester and Bourns (1898) – partim.
Collocalia fuciphaga amelis: Stresemann (1914); Hachisuka (1934); Peters (1939) – Marinduque.
Collocalia inexpectata amelis: Peters (1940); Delacour and Mayr (1946); Ripley and Rabor (1958); Meyer de Schauensee and DuPont (1962).
Collocalia unicolor amelis: Oberholser (1906) – partim: Mindanao.
Collocalia vanikorensis amelis: Medway (1966); DuPont (1971) – partim; DuPont and Rabor (1973) – Dinagat.
Collocalia vestita mearnsi: Gilliard (1950).
Collocalia whiteheadi: McGregor (1904) – Cagayancillo, Luzon and Verde; McGregor (1905c); McGregor (1909a) – partim; Manuel (1937b) – Catanduanes; Alcala and Sanguila (1969) – Calagna-an and Gigantes.
Collocalia whiteheadi whiteheadi: Hachisuka (1934) – partim.
Salangana whiteheadi: McGregor (1905a) – Sibuyan; McGregor (1905b); McGregor (1906); McGregor (1907a); McGregor (1907b) – Bantayan; McGregor (1907c) – Bohol; McGregor (1907d) – Batan.

Subspecific characters

Wing: 111–127mm (McGregor 1909a sub nom. *whiteheadi*), tail: 46–56mm (McGregor 1909a sub nom. *whiteheadi*), distinctly forked. Smaller than *palawanensis*.

Discussion

Steere (1890) listed only *C. francica* (Gmelin) 1789 and this from Cebu, Mindoro, Negros and Panay. In fact other collectors (Moseley, Bourns and Worcester) on the Steere Expedition took *Collocalia* sp. in Mindanao and Palawan as well (table on page 194 in Oberholser 1906). These collections need further comments.

(1) The bulk of Steere's own material is in BMNH where there were three specimens from Cebu, one from Mindoro, two from Negros and one from Mindanao. Two species are represented. (a) The Cebu birds (BMNH 1896.6.6.791, 792 and 797) have naked tarsi and are *amelis*, and as noted below this has been pointed out earlier by Stresemann (1914, 1922 – see below). The Mindoro bird in BMNH also has naked tarsi (although another in AMNH has feathered tarsi). (b) His Negros birds have feathered tarsi, as did the Mindanao bird (BMNH 1896.6.6.794), which cannot now be found but which was examined by Stresemann (1914). These are *C. mearnsi*. (c) No evidence has been found to support Steere's record from Panay. Presumably he had a dark-rumped specimen. It seems unlikely he had a pale-rumped one (*germani*), like USNM 161299 discussed under *C. f. germani*, as this would have contrasted markedly with his series.

(2) The only specimens traced to Moseley are those in BMNH from Palawan, brought into the literature by Hartert (1892) and Ogilvie Grant (1895) and discussed above under *palawanensis*.

(3) Worcester presented the USNM with five skins of *Collocalia* collected by Bourns or himself on this Expedition: three from Palawan are all *palawanensis* – although one (USNM 161298, now BYU 7661 – discussed above) was ascribed to *amelis* by Oberholser (1906); one from Panay – discussed under *C. f. germani* – and one from Mindanao. The Mindanao bird (USNM 161295 collected on 28 November 1887) was recognised by Oberholser (1906) as *amelis*. The identity of this has been confirmed by re-examination. Although it has naked tarsi, concealed white barbs beneath the feathers of the back, and seems closest to *amelis*, it has a rump that pales a little – like USNM 201924 from Ilocos Norte and somewhat like DMNH 11401 from Ticao, which is discussed under *germani*.

Worcester and Bourns (1898) reported collecting *fuciphaga* during the Menage Expedition. This is discussed under *C. mearnsi*, but one skin each from Cebu and Panay has naked tarsi and is *amelis*.

McGregor (1904, 1905a,b,c) listed his earliest birds with naked tarsi as *whiteheadi*, taking them in Luzon (Benguet), Cagayancillo, Verde, Sibuyan and Mindoro. At this point, with fresh material coming in from McGregor and Mearns, Oberholser (1906) drew attention to some differences. McGregor had noted that his birds had naked tarsi; those from Mearns, from Mindanao, had feathered tarsi. For the latter Oberholser used the name *fuciphaga*. However, he compared McGregor's birds with the types of *whiteheadi* and found them too small, so he named McGregor's birds *Collocalia unicolor amelis*. He also assigned McGregor's published records of *whiteheadi* from Cagayancillo, Mindoro, Sibuyan and Verde to this form.

Meanwhile McGregor (1907a,b,c,d) added *whiteheadi* for Cebu, Bantayan, Bohol and Batan. In connection with his Batan record he said 'this may be the recently described *Collocalia unicolor amelis*'. However, McGregor (1909a), in retaining *whiteheadi*, made *amelis* a synonym. He maintained that what he had been collecting was *whiteheadi*, although it is apparent from his surviving skins that Oberholser was correct.

Stresemann (1914) examined the original series of *whiteheadi* and looked at Cebu specimens with naked tarsi (one from Tring and three from BMNH – which can only have been those of Steere) and thought these to be *amelis*. Later he confirmed (Stresemann 1922) that such small birds were definitely *amelis*, having discovered in Dresden a specimen from Irisan, Benguet, taken by McGregor and Celestino and labelled *whiteheadi*. He rejected McGregor's identification and placed this with *amelis* of Oberholser (1906).

McGregor's skins of his *whiteheadi* were not all lost with the destruction of the Bureau of Science, Manila. Apart from the specimen once in Dresden, 10 from Benguet and one from Sibuyan have been obtained on loan from U.S. museum collections and have been examined. They are *amelis*, have naked tarsi, wing lengths of 111–124 mm (av. 116.2), and when seen alongside true *whiteheadi* with its massive skull they look puny; *amelis* has essentially the same skull size as *mearnsi* (See Plate 2). These wing lengths are in accord with those given by McGregor (1909a): 111–127 mm – which would not take in true *whiteheadi*. Apparently McGregor did not recognise that true *whiteheadi* is a larger bird, and in this he was probably misled by the long wings of his Palawan birds. Consequently all the distribution records McGregor gave for *whiteheadi* are erroneous – except the original Whitehead record from Mt Data. McGregor's account is thus a composite, and it is particularly important to recognise that his nesting data are applicable to *amelis* not to true *whiteheadi*.

Two unpublished skins from Laguna province (MCZ 57496 and 57499) collected by W. Cameron Forbes in 1910 have been reviewed. They have wing lengths of 126 and 127 mm respectively. They appear to be overstuffed *amelis* rather than true *whiteheadi*.

Hachisuka (1934) recognised both *whiteheadi* and *amelis* but failed to take the next logical step of moving all McGregor records from his text on *whiteheadi* to his text on *amelis*. He thus listed *amelis* only for Luzon, Mindanao and Palawan, the three original islands from which Oberholser (1906) had skins.

Manuel (1937b) reported *whiteheadi* from Catanduanes – doubtless using McGregor's material then in the Philippine Museum as his basis for comparison so that this must be assigned to *amelis*. Peters (1939) reported *amelis* from Cebu, Marinduque – a new locality – and Mindanao. He pointed out the concolorous back and rump of *amelis* and the pale rump of *germani* – which also has naked tarsi – and rejected the suggestion by Mayr (1937) that these two belonged to the same species. In this Peters appears correct as *palawanensis*, which is sympatric with *germani*, must be seen as the Palawan representative of *C. v. amelis*. Peters also discussed distinctions between *mearnsi* and *amelis* which he restricted to the tarsal feathering and the strength of the bill, seen as small and weak in *mearnsi* and strong and decurved in *amelis*. These are further discussed below.

Peters (1940) put *amelis* (with a range restricted to Cebu, Luzon, Marinduque and Mindanao) in *C. inexpectata* along with the pale-rumped *germani*. It is important to recognise that this represented an *earlier* view, the

introduction to Peters (1940) specifically saying 'the treatment . . . has been brought up to 31 December 1938' and 'no pretense has been made of keeping the work up to date after 1938' (although he did include his 1939 range extension of this form to Marinduque). Here, like Hachisuka (1934), the range he gave for nominate *whiteheadi* contained all the old errors, i.e. the islands that should have been listed under *amelis*. Delacour and Mayr (1946) followed the treatment of Peters (1940).

Gilliard (1950) reported *mearnsi* from the Batan lowlands in Luzon. Specimens (AMNH 459274 and 459275) seem to have naked tarsi and are judged to be *amelis*. Mary LeCroy has kindly examined the rest of the series in AMNH and agrees that they have naked tarsi.

Ripley and Rabor (1958), whose notes on the nesting of *mearnsi* in Mindoro are reviewed under that form, discussed the differences between it and *amelis* and concluded that distinction by tarsal feathering could not be relied on and that a difference in the colour of the chin and throat (brownish-grey in *mearnsi* versus dark brown in *amelis*) could be used to tell them apart. Their conclusion will be disputed below.

Meyer de Schauensee and DuPont (1962) also recorded *amelis* from Mindanao, but skins have not been re-examined.

Alcala and Sanguila (1969) listed *whiteheadi* from Calagna-an and the Gigantes, doubtless following available textbooks. As expected, 16 specimens from the Gigantes lent by Silliman University to USNM and examined there prove to be *amelis*.

Baud (1978) treated a bird from Solsona, Ilocos Norte (MHNG 885/47), as *whiteheadi*: this has been re-examined. It has a wing length of 112 mm and naked tarsi and is *amelis*.

Some time earlier Medway (1966) introduced the specific name *vanikorensis* for Philippine birds and pointed out that both *amelis* and *mearnsi* have the concealed white barbs at the base of the back feathers that are found in *vanikorensis*. He speculated – based on the comments of Ripley and Rabor (1958) – that they might be representatives of one variable population.

Where recent authors have followed DuPont (1971), who – following Medway – treated *mearnsi* as a synonym of *amelis*, their records require review to be sure whether they are *amelis* (*sensu stricto*), or have feathered tarsi and the features of *mearnsi*. Such records are those of DuPont (1972) for Ticao (which is discussed under *germani*), of DuPont and Rabor (1973) for Dinagat, and of Gonzales (1983) for Catanduanes. One specimen from Dinagat has been examined (DMNH 20877): it has naked tarsi, and this record of *amelis* may stand. A number of Catanduanes specimens (DMNH 73574 to 73585) taken in 1981 are *amelis* and are presumably identical with those reported by Gonzales (1983).

In summary, it is clear that *C. v. amelis* is a relatively common bird. The present re-evaluation of all possible records allows a clear picture of its range, detailed below. This, however presumes that one is willing to let the record be decided by whether specimens have or do not have naked tarsi.

McGregor (1904) considered that he had taken birds with and without tarsal feathers in the same flock in Benguet. To him the feathering of the tarsi was the sole useful distinction. He emphasised the importance of noting this in the hand (McGregor 1905c), for he felt that labels could dislodge these small feathers. Other possible keys to whether we have here one taxon or two seem to lie in the distinctions perceived by Oberholser (1906) – and repeated by Ripley and Rabor (1958) – and those perceived by Peters (1939). Looking at most of the specimens that Oberholser examined (Oberholser pencilled on their labels their respective names and initialled them), it is quite possible to see the differences, although the condition and make of the skins seem partly responsible. In general when tarsal feathering is present this is the best character to use to separate *mearnsi*. After review of a wider series of skins it is possible tentatively to reaffirm a subtle difference in the bill, which seemed clearly narrower in *mearnsi* to Ralph Browning at USNM. I found this character hard to use and too subtle to reflect in measurements. Other reported differences seem unsatisfactory when looking at series of the two putative series.

It remains desirable to seek further, perhaps more constant and/or reliable and evident features. One may be the extent of the feather tracts for the white basal barbs beneath the feathers of the upperparts. More work on this is recommended. Meanwhile, in essence, the principal difference remains the tarsal feathering, which is absent in *amelis* and present in *mearnsi*.

Nesting

McGregor (1905a) described the nesting of *whiteheadi* from Sibuyan and later (1905b) that of *whiteheadi* from Benguet. Of the Sibuyan nests one learns only that they 'were supported by little ledges not fastened to the rock nor to each other'. The Benguet nest was in a waterworn cave 'its base is composed of dirty dead moss, the rim and the inside are of moss, which was bright green when the nest was collected; the whole nest is compact and well glued together but there are no masses of the glutinous material that are of commercial value'. The eggs were pure white and two specimens measured 22.3 by 13.9 and 23.6 by 14.2 mm (McGregor 1909a).

The evidence that the nest was supported by little ledges is consistent with the nest of nominate *vanikorensis* (Medway 1975).

Range in the Philippines Definitely known from Catanduanes, Cebu, Gigantes, Dinagat, Luzon, Mindanao, Mindoro, Panay and Sibuyan. Literature records accepted from: Bantayan, Batan, Bohol, Cagayancillo, Marinduque and Verde. Records from Palawan relate to *palawanensis*, except for two specimens discussed under *C. mearnsi*. A record from Ticao (DuPont 1972), discussed under *C. f. germani*, is rejected, and one for Calagna-an (Alcala and Sanguila 1969) requires confirmation.

Material examined 59 – Catanduanes 7, Cebu 3, Dinagat 1, Gigantes 16, Luzon 24 (all from central and northern Luzon, none from Bicol), Mindanao

5, Mindoro 1, Panay 1 (examined by Ralph Browning) and Sibuyan 1; also Palmas or Miangas, Indonesia 1 (note that this last record is not included in White and Bruce 1986).

MOSSY-NEST SWIFTLET *Collocalia salangana* (Streubel) 1848

Specific characters

Wing: 115–128 mm (Medway 1962, 1966); tail: 49–54 mm (Medway 1962), moderately forked (3–6 mm); tarsi naked; upperparts uniformly blackish-brown with the concealed barbs at the bases of the feathers greyish-brown, not white. Differs from *C. vanikorensis* in this latter character.

Uses echolocation (Medway 1966). Makes vegetable nests held together with nest cement which remains moist; as does *C. vanikorensis*.

The *salangana* group (*salangana* [Streubel] 1848, *natunae* Stresemann 1930, *aerophila* Oberholser 1912 and *maratua* Riley 1927) has a contiguous allopatric range (and may be conspecific) with *C. vanikorensis* (Medway 1975).

Overview

There are no previous records from the Philippines.

Collocalia salangana subsp?

Synonymy

Owing to the lack of previous Philippine records, none is given here.

Subspecific characters

Geographically, the closest race is probably *maratua*. Medway (1966) examined the type of *maratua* and confirmed that it showed no white basal barbs to the feathers of the back. Ralph Browning has kindly re-examined it and confirms that it has naked tarsi.

Discussion

In assembling the relevant records for this study it was discovered that no species of *Collocalia* had been reported from Basilan, but it was known – from separate work – that Mearns had taken a specimen (Field No. 13961) there. When located, this specimen (USNM 201238), collected 18 February 1906, was found to resemble *amelis* – indeed it had had its label annotated *amelis* by Oberholser – but to lack the white barbs at the base of the feathers of the back. It has a wing length of 119 mm, a tail of 45 mm and a tail fork of 8 mm. It represents the sole record of this species for the Philippines.

Nesting

No known evidence from the Philippines.

Range in the Philippines Basilan.

Material examined Basilan 1 (USNM).

PHILIPPINE GREY SWIFTLET *Collocalia mearnsi* Oberholser 1912

Synonymy

Callocalia [*sic*] *fuciphaga*: Whitehead (1890).
Collocalia apoensis: Hachisuka (1930).
Collocalia francica: Tweeddale (1878a) – Negros; Steere (1890) – partim.
Collocalia francica mearnsi: Stresemann (1925) – partim.
Collocalia francica vestita?: Stresemann (1931).
Collocalia fuciphaga: Sharpe (1888) – Palawan; Hartert (1892); Bourns and Worcester (1894) – Luzon; Ogilvie Grant (1895); Ogilvie Grant (1896); Worcester and Bourns (1898) – partim; McGregor (1904); McGregor (1905c) – Mindoro; McGregor (1909a) – partim; McGregor (1909b).
Collocalia fuciphaga fuciphaga: Oberholser (1906) – Mindanao.
Collocalia fuciphaga mearnsi: Oberholser (1912).
Collocalia inexpectata amelis: Rabor (1954) – partim; Rand and Rabor (1960) – Bohol.
Collocalia 'mearnsi': Mayr (1937) – partim.
Collocalia origenis: McGregor (1909a) – partim.
Collocalia vanikorensis amelis: DuPont (1971) – partim.
Collocalia vanikorensis mearnsi: Medway (1966).
Collocalia (vestita) mearnsi: Peters (1939); Delacour and Mayr (1945).
Collocalia vestita mearnsi: Stresemann (1914); Peters (1940); Delacour and Mayr (1946); Ripley and Rabor (1958).
Collocalia vestita vestita: Hachisuka (1934).
Collocalia whiteheadi: Rabor (1955).
Collocalia whiteheadi apoensis: Hachisuka (1934).

Specific characters

Medium-sized; wing: 106–119.5 mm (Oberholser 1912); tail: 45–52 mm (Oberholser 1912), slightly forked; tarsi feathered; bill relatively small and decurved; upperparts including rump glossy blackish-brown, basal barbs with white tips; crown darker than back; underparts brownish-grey.

No known evidence on echolocation. Builds moss nests held together with salival cement which hardens rather than remaining moist.

Differs from the longer winged, sympatric *C. vanikorensis amelis* by feathered tarsi and subtle differences in shape and size of bill.

Monotypic (but see discussion below).

Overview

The essential problems here are first how to distinguish this form from *C. v. amelis* and second whether to attach it to another wide-ranging species and if so which.

Discussion

Tweeddale (1878a) listed *francica* from Negros based on skins (BMNH 1888.10.1.168 to 172) taken by Everett. These same specimens were listed by Hartert (1892) as *fuciphaga* and subsequently re-examined and listed as *mearnsi* by Stresemann (1914) as discussed below. I have re-examined these and indeed they appear to have or to have had tarsal feathers.

Sharpe (1888) listed *fuciphaga* from Palawan and, although this may have been based on a composite collection by Whitehead, only one specimen (AMNH 634662) has been traced. It was taken on 3 August 1887 at Taguso, Palawan. It has feathered tarsi, a wing of 118mm, and must be considered *C. mearnsi*.

Steere (1890) listed *francica* for the Steere Expedition from Cebu, Mindoro, Negros and Panay. The bulk of Steere's own specimens reached the BMNH, but only after Hartert (1892) wrote his Catalogue. Included are skins from Cebu, Mindoro and Negros (but not Panay) and these show, as discussed above under *amelis*, that Steere had, overall, a composite series.

His Cebu skins were *amelis*. One Steere Expedition skin from Mindoro (BMNH 1896.6.6.796) is *amelis*, a second (AMNH 634664) once in Tring, was identified as *mearnsi* by Stresemann (1914). His two Negros skins in BMNH are *mearnsi*. So is the skin (BMNH 1890.12.1.88) taken in Negros on this expedition by Moseley which Hartert (1892) examined and called *fuciphaga*. Although Steere (1890) did not list Mindanao the register at BMNH includes one (BMNH 1896.6.6.794) and this was examined by Stresemann (1914), who considered it had feathered tarsi. This skin is now untraceable.

At the island level all Steere's records could have been based on composite series – tarsal feathering was not then an issue.

Hartert (1892) listed *fuciphaga* from Negros and described it, but did not mention tarsal feathering. He cited Steere (1890) in the synonymy but had probably not seen material from the Steere Expedition other than Moseley's skin from Negros.

Bourns and Worcester (1894) listed *fuciphaga* as new to Luzon. This record is discussed below under their 1898 paper. Ogilvie Grant (1895) reported a swiftlet (BMNH 1897.5.13.288) with feathered tarsi taken in northern Luzon by Whitehead, and clarified that *fuciphaga* had a feathered tarsus. To verify this he re-examined all the material listed as *fuciphaga* by Hartert (1892) and found the Philippine material then available – i.e. that of Everett from Negros (Tweeddale 1878a) and that of Moseley from Negros – to have feathered tarsi. Ogilvie Grant (1896) reported a Whitehead specimen from Negros (BMNH 1897.5.13.454).

Worcester and Bourns (1898) reported more fully on the Menage Expedition, and considered they had taken *Collocalia fuciphaga* in Cebu, Luzon, Mindoro and Panay. Like Steere, they had a composite series, as shown by specimens from Cebu and Luzon. Preparatory notes relative to Delacour and Mayr (1945), made by Mayr in August 1945 (and kindly shared with Lord Cranbrook, who in turn shared them with me) allow us to be certain that two of Worcester and Bourns's specimens (then MMNH 6454 [this specimen is now CM 137964 and is from Toledo, Cebu] and 6455) differed – the former from Cebu had naked tarsi, the Luzon one had feathered tarsi.

Their Mindoro record is not critical as there are other valid records from there (cf. Oberholser 1912). In Panay they reported collecting both this and *germani*. Their Panay record – which was not repeated by McGregor (1909a) – is shown by the Menage Expedition catalogue to have had the number 991. This is now USNM 315070 and is *amelis*.

Worcester and Bourns included their records in a table showing the known distribution of all species. Two that they listed are relevant here and reconciliation is helpful:

1. They continued to list *francica* for Negros, presumably following Tweeddale (1878a): in other words they did not perceive that Ogilvie Grant's review had established that Hartert had treated this record as being of *fuciphaga*.
2. They listed *fuciphaga* from Cebu, Luzon, Mindoro, Negros, Palawan and Panay. They included here the records of *francica* in Steere (1890), in line with the placement of this in synonymy by Hartert (1892), but they seem not to have reviewed whether Steere's birds all had feathered tarsi. These have been discussed above. The Luzon listing would include both their earlier record and that of Whitehead (Ogilvie Grant 1895). The Negros listing is based on collecting by Whitehead (Ogilvie Grant 1896). The Palawan record is derived from Sharpe (1888): this has been discussed above.

McGregor (1904) called birds with a feathered tarsus by the name *fuciphaga*. He applied the name *mearnsi* when that name was published. He reported *fuciphaga* from Luzon – in the same flock as *whiteheadi* – and from Mindoro. Two of his specimens from Mindoro are still extant and as expected show feathered tarsi – they are in the FMNH and have been marked *mearnsi*.

Oberholser (1906) reported *fuciphaga* from Mindanao for the first time based on Mearns's two specimens with feathered tarsi.

It is important to recognise that McGregor (1909a) set out, as had Bourns and Worcester (1894) and Worcester and Bourns (1898), to follow Hartert (1892) in his swiftlet nomenclature. He omitted Mearns's records and listed *fuciphaga* as follows: Cebu, Luzon, Mindoro (Bourns and Worcester); Negros (Everett); Luzon, Mindoro (McGregor); Cebu, Mindoro, Negros, Palawan, Panay (Steere Expedition); Luzon, Negros, Palawan (Whitehead). Of these it has been possible to confirm the Luzon record of Bourns and

Worcester (and delete that for Cebu), the records of Everett and McGregor, the records of Mindoro and Negros of the Steere Expedition and all Whitehead's records. In summary, records of this form can so far only be accepted from Luzon, Mindoro, Negros and Palawan – plus the valid, but omitted, Mindanao record of Oberholser (1906).

McGregor (1909a) included Celestino as a collector of *C. origenis*; this work bears a date of publication of 15 April 1909 and the text was no doubt completed the previous year, including initial findings from recent collecting. McGregor (1909b) worked up Celestino's collections from northern Mindanao and the only relevant swiftlet taken was given as *fuciphaga* (with which Mindanao was not credited in the *Manual*). It must therefore be presumed that when working up Celestino's collection McGregor found the tarsi to be feathered and corrected his initial diagnosis – although he omitted to mention this in the corrigenda at the end of volume two of the *Manual*.

Oberholser (1912) reviewed *fuciphaga* and, finding that his Mindanao material with tarsal feathering differed from the nominate Javanese form by having the rump concolorous with the back, named the Philippine population *mearnsi*. He claimed to have a series of 15 from Luzon, Mindoro and Mindanao, but listed only 14. Eight of these were kindly lent by the USNM for this study and all have feathered tarsi.

Stresemann (1914) examined 14 specimens from BMNH and it is possible to reconstruct which he saw: one from Luzon (BMNH 1897.5.13.288 taken by Whitehead), four from Valencia, Negros (ex BMNH 1888.10.1.168–172 taken by Everett), four from Negros (BMNH 1890.12.1.88 ex Moseley, BMNH 1896.6.6.793 and 795 ex Steere and BMNH 1897.5.13.454 ex Whitehead), one from Mindanao (BMNH 1896.6.6.794 ex Steere: not now traceable), one from Palawan (BMNH 1894.8.6.116 ex Everett) – all these he listed as *mearnsi*; and three from Cebu (BMNH 1896.6.6.791–2 and 797) which he believed to be *amelis*. The only specimen then in BMNH that he seems not to have examined is BMNH 1896.6.6.796 ex Steere from Mindoro.

Stresemann (1914) considered that the name *fuciphaga* had been misapplied and belonged to the larger Javan form with a *naked* tarsus. (When, later, it was shown to build a vegetable nest, this invalidated Stresemann's action as *fuciphaga* was linked to a bird building edible or white nests. Medway [1961, 1966] called Stresemann's *fuciphaga* by the name *salangana* and has since suggested [Medway 1975] that this is conspecific with *vanikorensis*.) Stresemann introduced the combination *C. vestita mearnsi* for Philippine birds with tarsal feathering, listing specimens from Luzon, Mindoro, Negros and Mindanao – as well as one from Palawan. This Palawan bird (BMNH 1894.8.6.116) was taken by Everett and has a wing length of 115 mm and a feathered tarsus, and is indeed *mearnsi*. Hence we have apparent sympatry in Palawan between *mearnsi* and both *palawanensis* and *germani*. I will revert to this later. (Besides his series of *palawanensis* – with naked tarsi – Stresemann [1914] had two other dark-rumped Palawan birds: (a) A BMNH specimen with a wing of 115 mm and a feathered tarsus, which he listed as *C. vestita*

mearnsi, undoubtedly Everett's specimen mentioned above; (b) A Tring specimen, probably now AMNH 634758, with a wing of 120 mm and a naked tarsus, which he assigned to a unnamed race of *fuciphaga* – this is the second Platen skin which Stresemann considered different from his type series of *palawanensis*, but I have not re-examined it.)

Later, Stresemann (1925) attached his *C. vestita* to *C. francica*, and the name *francica* was brought into use as it had priority. This combined a number of races – including *germani* – with more or less pale rumps and *naked* tarsi, with the *vestita* group, comprised solely of forms with feathered tarsi – including *mearnsi* which he treated as a valid form from Borneo and the Philippines.

Hachisuka (1930) described *apoensis* (type locality: Apo Lake at 8,000 feet) as a species, not a race of *whiteheadi*. He was well aware that *origenis* was from the same mountain but not of the elevation at which it had been taken. His original description is far from satisfactory. He made a comparative statement regarding its coloration but did not state clearly with what he compared it, he made no mention of the presence or absence of tarsal feathering, and he neither specified how many specimens he had before him nor gave measurements.

Stresemann (1931) introduced the concept of a widespread race *vestita* from Sumatra to Borneo and the Philippines and made *mearnsi* a probable synonym. Hachisuka (1934) disagreed with Stresemann and retained the importance of tarsal feathering so that he kept *vestita* (with *mearnsi* as a synonym) separate from *francica* – under which name he placed the pale-rumped *germani* with a naked tarsus. Hachisuka also added to his earlier description of *apoensis*, characterising it as having a darker and glossier back (which would in fact set it apart from the rather brown-backed *whiteheadi* and *origenis*, its supposed allies) and giving the wing length as 130 mm – which is contradicted by two apparent syntypes as discussed below. At this point Hachisuka did make *apoensis* a race of *whiteheadi* despite the presence of *origenis* lower down the same mountain.

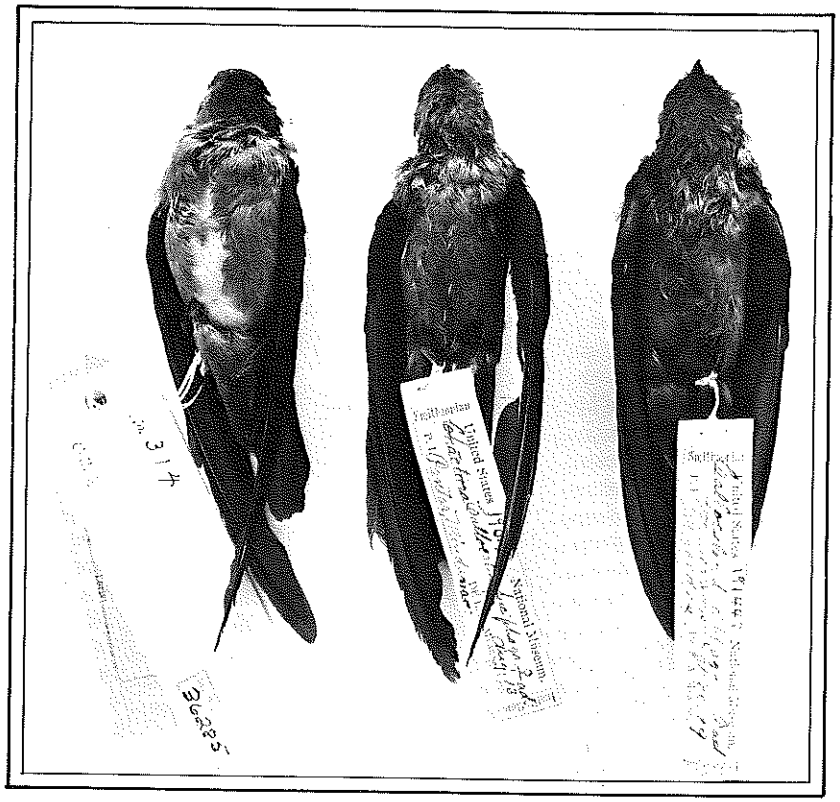
Two specimens of *apoensis* (DMNH 36284 and 36285) were kindly lent by the DMNH – having been received from S. Dillon Ripley, who had acquired Hachisuka's collection – and they bear what appear to be Hachisuka's original blue labels, with the respective numbers H. 1259 and H. 1257. Mary LeCroy has drawn to my attention a third specimen of *apoensis* (AMNH 348682): this also came through Ripley from the Hachisuka collection. Its green label carried number H. 1256. The first two agree with the original description, but interestingly they have feathered tarsi and are relatively small so that confusion with *whiteheadi* and *origenis* ought not to have occurred (Plates 2 and 3). The third bird also has feathered tarsi and the label has been annotated *mearnsi* by Salomonsen. All three seem to have valid claims to type status.

The wing lengths of the three are 120, 109 and 118 mm (respectively for DMNH 36284, DMNH 36285 and AMNH 348682). The measurement of 130 mm given by Hachisuka (1934) must have been an error for 120 mm and

this may have misled Hachisuka as to its affinities. Despite the fact that Hachisuka disagreed with Stresemann (1925) and retained the taxonomic importance of tarsal feathering, on the evidence available I can but conclude that he overlooked the feathered tarsi and misread the wing measurement. It follows that the name *apoensis* must be removed from the synonymy of *C. whiteheadi origenis* and becomes available for a southern population of *mearnsi* should a name be required.

These errors can be readily understood against the background of shifting taxonomy and in particular McGregor's mistaken views as to the commonness, distribution and wing length of *whiteheadi*. Hachisuka (1934) used McGregor's distribution data on *whiteheadi* but not his measurements, drawing these from the original description. He seems to have written without a full representation of the forms before him, and he clearly never compared his

Plate 3. Mindanao specimens of *Collocalia mearnsi*: Left to right: DMNH 36285 from Mt. Apo – a syntype of *C. apoensis*; USNM 190172 from Pantar and USNM 191447 from Mercedes – both from the original series of Oberholser (1912).



types of *apoensis*, probably then in Japan, with the types of either true *whiteheadi* or *origenis* (Plate 2).

Peters (1939) reported *mearnsi* from Luzon and Mindoro and discussed distinctions between *mearnsi* and *amelis*, which he restricted to the tarsal feathering and the strength of the bill, seen as small and weak in *mearnsi* and strong and decurved in *amelis*. Peters (1940), like Hachisuka (1934), treated *C. vestita* as a species but unlike Stresemann and Hachisuka recognised *mearnsi* as a race. Delacour and Mayr (1946) followed this, although with some doubts expressed in their preliminary paper (Delacour and Mayr 1945).

Gilliard (1950) reported *mearnsi* from Bataan. I have re-examined two skins (AMNH 459274 and 459275) and find them to be *amelis* with naked tarsi. Mary LeCroy has examined the rest of the series and agrees that they too have naked tarsi. This is important, as Gilliard's was perhaps the only documented lowland record ascribed to *mearnsi*. This may clear the way to proving it an upland species.

Rabor (1954) reported *amelis* nesting at Miatan Caves in Mindanao. Later, Ripley and Rabor (1958) seemed to confirm that the birds found nesting in Miatan Caves were *amelis*, although they found some to have tarsal feathering and others not. They still felt this was a single population and retained the name *amelis*. It seemed more probable that they were all *mearnsi* with many having suffered the loss of their tarsal feathering through abrasion. I borrowed 16 specimens from this long series to examine at BMNH and examined the rest at FMNH. I could not separate them into two distinct series but indeed some carry notations on the labels affirming the presence of tarsal feathers, and show these. It may be that this collection is wholly made up of specimens of *mearnsi*, of which some individuals have suffered the loss of tarsal feathering during preparation.

Ripley and Rabor (1958) commented on differences they perceived between their *mearnsi* from Mindoro and *amelis* (their samples of which seem to have been drawn from the Miatan Cave series). The point they made that has had the most impact was that the presence or absence of tarsal feathering could not be relied on. However, if the series from Miatan Caves is *mearnsi* as I suspect, the other minor differences they report would, at most, be between two geographical races of *mearnsi*.

Rabor (1955) reported *whiteheadi* from Massisiat, Abra. Although these might have been expected to be *amelis*, one specimen (FMNH 184119), taken there by Rabor in May 1946 – and the only one traced – has been examined and proves to be *mearnsi* with a feathered tarsus and a wing length of 117 mm. Rand and Rabor (1960) reported *amelis* nesting in caves in Bohol, but specimens (FMNH 223098 and 223100) have feathered tarsi and are *mearnsi*.

Medway (1966) introduced the name *vanikorensis* for Philippine birds and pointed out that both *amelis* and *mearnsi* have the concealed white barbs at the base of the back feathers that are found in *vanikorensis* and, citing the apparent findings of Ripley and Rabor (1958), speculated that they might be

representatives of one variable population. DuPont (1971) followed Medway (1966) by placing *amelis* in *vanikorensis* and applied Medway's speculation by treating *mearnsi* as a junior synonym of *amelis*. The effects of this have been discussed under *C. v. amelis*. Finally, skins (in FMNH) taken by Rabor on Camiguin Sur have been examined and found to have feathered tarsi.

The regular, as opposed to casual, occurrence of *mearnsi* in northern Palawan would show sympatry with *germani* (which it really does not resemble) and of course with the larger *palawanensis*. Both differ from *mearnsi* in having naked tarsi.

Collocalia fuciphaga germani, which has a pale rump and produces an edible nest, is relatively easy to separate and is discussed later. On the other hand the species *fuciphaga* is still poorly understood; some races seem to have feathered tarsi and these were once grouped with *mearnsi* under the name *Collocalia vestita*, but all seem to build edible 'white' nests. On present evidence this alone warrants specific separation.

Finally, I must refer the reader back to the account on *amelis* for ways to distinguish it from *mearnsi*. On this more work lies ahead. The two are indistinguishable in the field and separated here more on faith than firm evidence. As will be seen, the evidence on nesting does not conclusively support separation. In the final analysis I justify this separation by the need to minimise further confusion of the record, which would certainly occur if they do differ and are treated under one name – for an interesting, and possibly directly instructive, parallel, see Mayr (1937) on the differences between *vanikorensis* and *hirundinacea* Stresemann 1914 in New Guinea.

Nesting

Rabor (1954), writing of *amelis*, provided a photograph of a nest taken in Miatan Caves in May 1952. I have given above my reasons for treating the birds taken there as *mearnsi*. The colony was some 700m inside the cave system; the nests were 'typically shallow half saucers composed mainly of green and black moss woven strongly together and glued with a little amount of the birds' hardened saliva. Hardened saliva is used in rather good amounts in attaching the nests to the rock supports. The nests . . . were mainly supported on the rock floor of the small shallow cavities . . . so that there was really no need for an exceptionally strong layer of hardened saliva at the attached sides.' Four white eggs measured 24mm by 14mm, 23mm by 13.5mm, 24mm by 13.5mm and 24mm by 14.2mm. Ripley and Rabor (1958) found nests of *mearnsi* at about 5,300feet on Mt Halcon in Mindoro. Ledges were in use and the nest material was a mixture of moss and plant material glued together with saliva, but they mention a lining of 'feathers which appeared to be those of the birds themselves', and a single white egg measured 20.5mm by 14mm. They considered that these nests of *mearnsi* were identical to the nests, which they ascribed to *amelis*, that Rabor had taken in Miatan Caves, Mindanao, in 1952. This may prove to be further evidence that the nests in Miatan Caves were indeed those of *mearnsi*.

Rand and Rabor (1960) reported nests of *amelis* in completely dark places

in caves at some 700m altitude in Bohol and mentioned that these were similar to those reported from the Galakting Caves at Miatan. Specimens collected show that the species concerned was *mearnsi*. This further supports the contention made above.

Nonetheless these descriptions do not differ much from McGregor's description of nests in Sibuyan that were associated with specimens with naked tarsi (discussed under *amelis*). However, Rabor (1954) writes of hardened saliva and in nominate *vanikorensis* the salival cement stays moist (Medway 1975). If Rabor is correct but writing about *mearnsi*, and if *amelis* nests include salival cement that stays moist, a feature not mentioned by McGregor (1905a), there may be a constant and significant difference. This will be an important finding.

Specific relationships

With what other species can *mearnsi* be associated? Of the medium-sized species occurring in Borneo all three seem to be inappropriate: (a) *C. maxima* is larger and has a squarer tail. It has occurred at least once in Palawan. (b) *C. salangana* is not here treated as conspecific with *C. vanikorensis* although it was by Medway (1975); it differs both from *mearnsi* and from *vanikorensis* by lacking the concealed white tips to the barbs at the bases of the feathers of the back. (c) *C. fuciphaga* (*sensu* Medway 1966) is represented both in Borneo and Palawan by a pale-rumped form which is, or is close to, *germani* as well as by a dark-rumped inland form – *vestita* – in Borneo. At first sight *vestita* appears to be a potentially conspecific form but it makes edible 'white' nests.

A few Philippine birds (such as *Gallicolumba*) show affinities to species present in Papuasia rather than Borneo. Interestingly Mayr (1937) has already pointed out the affinity of *mearnsi* to *hirundinacea* and this seems the most promising candidate for close kinship. However, it does seem desirable to avoid further confusion in the literature until proof is available – preferably including better data on nests. In consequence *Collocalia mearnsi* – in combination with *hirundinacea* (1914) the name *mearnsi* (1912) takes priority – is treated tentatively as part of a superspecies including *C. hirundinacea*. Possibly this should include *C. capnitis* Thayer and Bangs 1909 – which is said to have feathered tarsi and cannot belong to *C. vanikorensis* – if this is not a juvenile example of *C. brevirostris innominata* Hume 1873 as suggested by Deignan (1955). This has not been examined.

Range in the Philippines Known from Bohol, Camiguin Sur, Luzon, Mindanao, Mindoro, Negros and – perhaps only rarely – Palawan.

Material examined 43 – Bohol 2, Camiguin Sur 3, Luzon 16, Mindanao 8, Mindoro 2, Negros 10 and Palawan 2.

EDIBLE-NEST SWIFTLET *Collocalia fuciphaga* (Thunberg) 1812

Specific characters

Medium-sized; wing 110–125 mm; tail: 50–53 mm, well forked (7 mm); rump in most subspecies greyish-brown, more or less distinctly paler than the back and tail and with dark shaft streaks; white tips to concealed feathers on the back; tarsus unfeathered or lightly feathered.

Echolocates and builds edible, 'white' nests.

Up to eight races (*germani* Oustalet 1878, *inexpectata* Hume 1873, *amechana* Oberholser 1912, *vestita* (Lesson) 1843, *perplexa* Riley 1927, *fuciphaga* (Thunberg) 1812, *dammermani* Rensch 1931 and *micans* Stresemann 1914). Stresemann (1931) did not recognize *amechana* and apparently overlooked *perplexa*; *dammermani* has been described since and awaits review. The Philippine form, *germani*, is readily distinguished from other species of swiftlets occurring in the Philippines by its whitish-grey rump with dark shaft streaks.

Overview

The Philippine literature of this species was confused in the early years by changes in nomenclature, but its pale rump has generally allowed the record to be kept straight.

This Malaysian species probably reached Palawan from Borneo. It has not spread much beyond the nearby islands. There is, however, one record from Panay which appears to be justified and during our study we have found that it has been taken on Ticao.

Collocalia fuciphaga germani Oustalet 1878

Synonymy

Collocalia francica: Bourns and Worcester (1894) – Calamianes and Panay; Worcester and Bourns (1898); McGregor (1903) – Cagayan Sulu; McGregor (1904) – Cagayancillo and Cuyo.
Collocalia francica germani: Oberholser (1906); Hachisuka (1934); Manuel (1937a); Manuel (1939).
Collocalia francica inexpectata: Mearns (1905).
Collocalia fuciphaga germani: Medway (1966); DuPont (1971).
Collocalia fuciphaga perplexa: Medway (1966).
Collocalia germani: McGregor (1909a).
Collocalia inexpectata germani: Peters (1940); Delacour and Mayr (1946).
Collocalia vanikorensis amelis: DuPont (1972) – Ticao.

Subspecific characters

The naked tarsi and the whitish-grey rump in combination distinguish this from other races except *inexpectata*, in which the rump is usually darker.

Discussion

Bourns and Worcester (1894) listed *francica* for the Calamianes and Panay, believing both to be new records. Their Calamianes record is substantiated by two skins (CM 137965 and 138619) from Culion taken in February 1892. The Panay record seems to have been based on a skin (USNM 161299) that Bourns took on the Steere Expedition in 1888. This was amongst skins given to the USNM by Worcester and appears to have been held back for further study. (There is a possibility that this skin is mislabelled, as are a few other skins from the Steere Expedition collection. If so it might really be from Palawan. Corroboration is really required from the Panay record.) Several such skins from the Steere Expedition were the basis for new records in Bourns and Worcester (1894), who omitted to explain that they were not taken on the Menage Expedition! Such skins were almost certainly not seen by Steere (1890) whose series, although composite, probably included no pale-rumped birds, for these would have been strikingly dissimilar.

Worcester and Bourns (1898) repeated their record but erroneously listed Negros too, on the basis of Everett's skins of *francica* reported by Tweeddale (1878a), which Hartert (1892) re-identified as *fuciphaga* and which have been shown to be *mearnsi*. McGregor (1903) reported *francica* from Cagayan Sulu, as did Mearns (1905). McGregor (1904) found it abundant on Cagayancillo and also collected it on Cuyo. A few skins taken by Mearns on Cagayan Sulu are available in the USNM. Some of McGregor's material from Cagayancillo and Cuyo is now in the FMNH but the skins in the Bureau of Science listed by Manuel (1937a) have now been lost along with the whole collection.

Oberholser (1906) listed *C. francica germani* specimens in the USNM from Cagayancillo, Cagayan Sulu and Panay, and mentioned published records for Calamianes, Cuyo and Negros. The Negros record is no doubt the erroneous one of Worcester and Bourns (1898) mentioned above. McGregor (1909a) listed the same islands plus Cebu for *germani*, and for Cebu and Negros cited the Steere Expedition, which seems to be due to nomenclatural confusion. The Steere Expedition should not be credited with a record of *germani* from Cebu or Negros unless corroborative evidence is forthcoming. Hachisuka (1934) kept to the classical view of *francica*, excluding dark-rumped birds with feathered tarsi, and listed the race *germani* from the same seven islands as McGregor.

Manuel (1937a, 1939) discussed edible birds nests from Bacuit, north-west Palawan. A pale-rumped bird was taken on a white nest and after comparison with specimens from Cagayancillo and Cagayan Sulu was pronounced to be *C. francica germani*. From the account it seems that no previous specimen had been taken from Palawan. Ten small offshore islands were named as sources of white nests. Peters (1940) listed *C. inexpectata germani* only from Palawan (in the Philippine part of its range), apparently overlooking the islands listed by McGregor (1909a) and Hachisuka (1934),

but was handicapped by considering *amelis* conspecific with it! Delacour and Mayr (1946) listed *germani* only in the Palawan chapter of their book.

Medway (1961) reinstated the Javanese white nest builder as the proper owner of the name *fuciphaga* and later (Medway 1966) used it for a number of forms all building white nests, including an inland-nesting, dark-rumped and tarsally feathered *vestita* in proximity to, if not actually mixing with, coastal-nesting white-rumped *germani* with naked tarsi. To explain this he postulated a circular cline with the ends overlapping in Borneo. Nominate *francica* has meanwhile been shown not to make white nests (Medway 1966).

The map in Medway (1966) suggests that the race *perplexa* extends, or has spread, from Maratua Island off eastern Borneo (its type-locality) to the Sulus. Unfortunately the circle has mistakenly been placed too far to the north-east over Sibutu in the southern Sulus, there being no records from the Sulu Archipelago itself. Cagayan Sulu, with the nearest substantiated record, lies 150 miles farther north. The population of Cagayan Sulu is treated here as *germani* but this has not been studied.

DuPont (1972) recorded two specimens of *C. vanikorensis amelis* from Ticao. DuPont's two skins (DMNH 11401 and 11402) from Ticao, taken in July 1971, were kindly lent by the DMNH. Both seem to lack the concealed white-tipped barbs beneath the feathers on the back (which should be present in both *vanikorensis* and this species), but so does one of three *germani* examined from Cagayan Sulu. DMNH 11402 is otherwise undoubtedly *germani* with a pale rump with dark shaft streaks. By contrast DMNH 11401 shows only an indication of this and if it were the sole specimen from Ticao one might readily accept it as a specimen of *amelis*, but it seems best to consider both *germani*. At least one other specimen of *amelis* (USNM 2019924 from Ilocos Norte), which does have white barbs below the feathers of the back, has faint indications of a pale rump like that of DMNH 11402 – but it has been judged best to leave it under *amelis*. It cannot be totally excluded that this and the Ticao birds ascribed to *germani* are hybrids.

Nesting

The only satisfactory account of the nest is that of Manuel (1937a), but even that is composed of a mixture of direct observation and a description by Baker (1927). Nevertheless it is a pure white half-saucer with the pointed end drawn upwards and slightly inwards and the edge against the wall thicker.

Range in the Philippines Cagayancillo, Cagayan Sulu, Calamianes, Cuyo, Palawan and, apparently, at least vagrant to Panay and Ticao. (Some doubt attaches both to the Panay record, which might be mislabelled, and to the Ticao records, which might be based on hybrids.)

Material examined 12 (Cagayancillo 3, Cagayan Sulu 3, Calamianes 2, Cuyo 1, Panay 1, Ticao 2).

SUMMARY

This review of larger Philippine swiftlets (*Collocalia*) is only partially successful – one vital riddle remains to be solved. The table below summarises the taxonomic conclusions.

SCIENTIFIC NAMES OF ACCEPTED TAXA	RECOMMENDED ENGLISH NAMES	CHANGES COMPARED TO DUPONT (1971)
Collocalia maxima *C. m. lowi*	Black-nest Swiftlet	Not included by DuPont.
Collocalia whiteheadi *C. w. whiteheadi* *C. w. origenis*	Whitehead's Mountain Swiftlet	Treated as races of *C. brevirostris* but range given was inclusive of smaller birds.
Collocalia vanikorensis *C. v. palawanensis* *C. v. amelis*	Island Swiftlet	See below. Treated as a race of *C. brevirostris*. Distribution omitted; some records treated as *C. b. whiteheadi*. *C. mearnsi* a synonym.
Collocalia salangana	Mossy-nest Swiftlet	Not included by DuPont.
Collocalia mearnsi	Philippine Grey Swiftlet	Treated as a synonym of *C. vanikorensis*.
Collocalia fuciphaga *C. f. germani*	Edible-nest Swiftlet	No change.

These six species may be briefly characterised as follows:

SPECIFIC NAME	*DESCRIPTION*	*NESTING*	*ECHOLOCATION*
maxima	fairly large with shallow tail fork, tarsi feathered.	'black' nest incl. feathers.	Yes
whiteheadi	large with 'massive' head, deeply forked tail, tarsi naked.	vegetable nests, without salival cement.	Unknown
vanikorensis	medium; distinct tail fork, tarsi naked, white bases to feathers of upperparts.	vegetable nests, on ledges, with salival cement which stays moist.	Yes
salangana	medium; moderate tail fork, tarsi naked, no white basal barbs to back feathers.	vegetable nests with salival cement staying moist.	Yes
mearnsi	medium; slight tail fork, feathered tarsi, and white basal barbs to back feathers.	moss nests with salival cement which hardens.	Unknown
fuciphaga	medium; tail well forked, rump paler than back and tail, white basal barbs to back feathers, tarsi more or less naked.	edible 'white' nests of salival cement alone.	Yes

In the field *C. fuciphaga* can be told by its contrasting pale rump. It may prove easy to tell *C. maxima* by its square tail and *C. whiteheadi* by its strikingly large head size. The three remaining species, *C. salangana*, *C. vanikorensis* and *C. mearnsi* are considered indistinguishable in the field. The last two may eventually be proven conspecific but I believe their co-existence resembles that of two close relatives in New Guinea.

Within the Philippines the distribution of these species appears to be broadly as follows:

SPECIFIC NAME	ISLAND DISTRIBUTION	ALTITUDINAL DISTRIBUTION	STATUS
maxima	Palawan only.	Uncertain.	Vagrant?
whiteheadi	Luzon and Mindanao only.	Montane.	Rare.
vanikorensis	Widespread incl. Palawan.	Mainly lowland?	Common.
salangana	Basilan only.	Unknown.	Vagrant?
mearnsi	Bohol, Luzon, Mindanao, Mindoro, Negros and Palawan.	Probably sub-montane.	Uncommon.
fuciphaga	Mainly the Palawan group.	Lowland.	Locally common.

These details only begin to complete the jigsaw puzzle; much needs to be added. The smaller species will soon be dealt with in a separate shorter paper.

Great encouragement was given by the Earl of Cranbrook, who was kind enough to visit the British Museum twice and share with me his knowledge of these swiftlets when I was working on some of the more difficult issues. Thanks to the interest of the authorities at the British Museum it has been possible to bring together there many skins of Philippine *Collocalia*. Study space was kindly made available and much help was received from Graham Cowles and Derek Read. For making swiftlet skins available on loan my thanks go to Dr Storrs Olson, Messrs Charles Ross and Ralph Browning at the USNM, Dr Raymond A. Paynter at MCZ, Dr David Niles at DMNH, Dr Kenneth Parkes at CM, Mrs Mary LeCroy at AMNH, Dr John Fitzpatrick and Mr David Willard at FMNH. Additional specimens were examined from Leiden thanks to Dr Gerlof Mees and Dr Frank Rozendaal and from Geneva thanks to Dr Claude Weber. At one stage or another this paper has been reviewed by the Rt. Hon the Earl of Cranbrook, Dr Robert S. Kennedy and Dr Kenneth C. Parkes and by Mrs Mary LeCroy and Mr Ralph Browning.

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Edward C. Dickinson, Norman Chapel, Aston Magna, nr. Moreton-in-Marsh, Glos., GL56 9QN, U.K.