

BREEDING RECORD

First confirmed breeding record of Plume-toed Swiftlet *Collocalia affinis* in Singapore

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Historically the tiny *Collocalia* swiftlets resident in both the lowlands and higher altitudes of Peninsular Malaysia were designated Glossy Swiftlet *C. esculenta cyanoptila* (Wells 1999). However, the species was rare on Singapore mainland, with fewer than 10 records per year, all apparently in the period November to February, which is the non-breeding season in Malaysia (Wells 1999). In recent times the frequency of records in Singapore has increased, including a group of up to seven birds at Bukit Batok Nature Park in January 2005, as well as regular records thereafter in and at the periphery of the Central Nature Reserves, and its status was revised to 'uncommon' (Yong *et al.* 2017, Lim 2018).

Plate 1. Pair of Plume-toed Swiftlets *Collocalia affinis* at nest site A, Singapore, 21 July 2017.



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Plate 2. Adult Plume-toed Swiftlet at nest site A, Singapore, 16 July 2018.



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In the meantime, the results of a detailed analysis of the taxonomy of *Collocalia* swiftlets in the Indo-Pacific region (Rheindt *et al.* 2017) led to the proposal of radical changes to the established taxonomy; this was a big challenge due to the morphological uniformity of these taxa. Rheindt *et al.* (2017) studied the evolutionary history of the complex, combining new biometric measurements and plumage assessment of museum specimens with novel as well as previously published molecular data, with a total of 809 individuals representative of 32 taxa being assessed. The authors propose changing the classification of white-bellied swiftlets, for which just two species are currently recognised, to elevate eight regional forms to species level, as well as describing two new subspecies. The proposed changes pertinent here elevate the former subspecies *C. e. affinis* to full species status and name it the Plume-toed Swiftlet *Collocalia affinis*, with a range extending across the Andaman and Nicobar Islands, the Thai-Malay Peninsula and the Greater Sundas. It is a rare resident in the central part of Singapore Island, occurring over forests and adjacent well-wooded areas. Despite this, until now no evidence of nesting has ever been found in Singapore and the satellite islands.

In mid-July 2017, during bird surveys in central Singapore, YCKS and MN observed substantial numbers of unidentified *Collocalia* swiftlets flying in and out of a drain culvert (Site A). A quick

Plate 3. Two Plume-toed Swiftlet chicks in the nest at site A, Singapore, 16 July 2018.



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Plates 4–6 show main identification features of the Plume-toed Swiftlet, all taken at site B on 26 August 2018 by ALFRED CHIA.



Plate 4. The tuft of small feathers on the hind toe (or hallux) of the Plume-toed Swiftlet.



Plate 5. Adult Plume-toed Swiftlet showing the glossed blue-green mantle, the absence of white spots on the rectrices and the lack of a pale contrasting rump.

Plate 6. Adult Plume-toed Swiftlet showing the mottled lower breast and white belly rather than the pure white underparts of *C. esculenta*.



inspection revealed about 40–50 individuals resting on cup-shaped nests made of fibrous plant material and attached to the wall and roof of the culvert by the hardened saliva of the swiftlets. A second visit was made two weeks later by DLY, MN, YCKS and others, when the birds were identified as Plume-toed Swiftlet, the first documented colony in Singapore. The characters that helped clinch the identification were: glossed blue-green mantle as opposed to the glossed green mantle of *esculenta*; mottled lower breast and white belly rather than the pure white underparts of *esculenta*; absence of white spots on rectrices and lack of a pale contrasting rump; tuft of small feathers on rear-facing toes (hallux), from which the common name is derived.

On 19 August 2017, LKC and YSB found a second colony with 150 nests in another drain culvert (Site B) close to the first; 23 birds, both adults and chicks, were counted. AC and LKK revisited Site B on 22 October 2017 but by then all breeding activity had ceased and the swiftlets were not flying into the culvert, although they were foraging nearby. When Site B was visited again on 26 August 2018 by AC, LKK and others, the swiftlets were nesting again and at least 375 nests were counted, of which 98 held a total of 128 chicks: 30 nests held two chicks and 68 held a single chick; the other nests were empty and it is possible that chicks had already fledged from them. The nests were constructed in close proximity to each other and in many cases clumps of nests were formed as a result.

Our discovery of these breeding colonies of Plume-toed Swiftlets is the first documented breeding record of the species in Singapore. A subsequent visit to Site B in 2018 showed that the breeding period was consistent with the previous year. Further observations will be required to ascertain if the population here raises a second brood, as suggested by Wells (1999). Both of the breeding sites are concrete culverts carrying what appear to be permanent streams, and perhaps the presence of running water in these culverts is a factor in the swiftlets' choice of nest-site. However, such sites may be susceptible to localised flooding during monsoon periods.

Our findings suggest that the species's conservation status in Singapore should be reviewed, taking into consideration a much larger population than was previously known (Lim 1992, Davison *et al.* 2007). Both breeding colonies are easily accessible and located outside nationally protected areas; they are potentially vulnerable to disturbance and wilful destruction. Careful and sustained monitoring of the colonies is needed to ensure their sustainability and continuity.

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