White-rumped Swiftlet
*Aerodramus spodiopygius*

**Description:**

In flight: Rennell Island 29.3.2009 Photo G. Jones.
New Caledonia 24.3.2009 Photo G. Jones.

Adult Sleeping in Lava Tube Cave Tiapapata Upolu,
Samoa. Photo: M.K. Tarburton.
Adult climbing rock-face to gain altitude, for take-off, Fiji. M.K. Tarburton.


Measurements:

*A.s. spodiopygius* (Samoa)  *A.s. assimilis* (Fiji)  *A. Spodiopygius* (All other s.spp)
<table>
<thead>
<tr>
<th></th>
<th>Mean ± se</th>
<th>Mean ± se</th>
<th>Mean ± se</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 1)</td>
<td>(n = 102)</td>
<td>(n = 2)</td>
</tr>
<tr>
<td>Length (mm)</td>
<td>114</td>
<td>103.1 ± 0.4</td>
<td>109 ± 5.5</td>
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<tr>
<td>Wing (mm)</td>
<td>118 ± 0.3</td>
<td>112.0 ± 0.3</td>
<td>108 ± 0.43</td>
</tr>
<tr>
<td>Wing Span (mm)</td>
<td>283</td>
<td>261.0 ± 0.6</td>
<td>283</td>
</tr>
<tr>
<td>Outer Rectrix (mm)</td>
<td>55.2 ± 0.4</td>
<td>44.7 ± 0.2</td>
<td>53.6 ± 0.55</td>
</tr>
<tr>
<td>Central Rectrix (mm)</td>
<td>48 ± 0.0</td>
<td></td>
<td>45.0 ± 2.0</td>
</tr>
<tr>
<td>Tarsus (mm)</td>
<td>9.2 ± 0.5</td>
<td>10.6 ± 0.1</td>
<td>9.1 ± 0.4</td>
</tr>
<tr>
<td>Tail (mm)</td>
<td>52 ± 0.4</td>
<td></td>
<td>51.3 ± 0.38</td>
</tr>
<tr>
<td>Exposed Cul. (mm)</td>
<td>4.3 ± 0.2</td>
<td>3.8 ± 0.03</td>
<td>4.2 ± 0.2</td>
</tr>
<tr>
<td>Mid Toe (mm)</td>
<td>5.6 ± 0.5</td>
<td></td>
<td>5.5 ± 0.4</td>
</tr>
<tr>
<td>Mid. Claw (mm)</td>
<td>3.6</td>
<td></td>
<td>4.2 ± 0.6</td>
</tr>
<tr>
<td>Wt (g)</td>
<td>7.65 ± 0.21</td>
<td>8.2 ± 0.06</td>
<td>7.39 ± 0.2</td>
</tr>
</tbody>
</table>

The subspecies *A. c. noonaeanae* had wing-length of 101-109mm (mean 104.7, n = 30) near the coast, and 102-111mm (mean 106.1, n = 9) high on the Lelet Plateau (Salomonsen 1985). *A. c. delichon*: 38 adults had wing lengths of 101-109mm (mean 105.3 n = 38) (Salomonsen 1983). *A. c. noonaeanae*: 39 adults had wing lengths of 101-111mm (mean 104.8) (Salomonsen 1983). *A. c. eichorni*: 12 adults had wing-lengths of 100-103mm. (Salomonsen 1983). *A. c. reichenowi*: 8 adults had wing-lengths of 102-108mm (Mean 104.4mm) (Salomonsen 1983). *A. c. desolata*: 10 adults had wing-lengths of 99-102mm (Mean 101.0) (Salomonsen 1983). *A. c. epiensis*: 5 adults had wing-lengths of 100-104 mm (Mean 102.0) (Salomonsen 1983). *A. c. ingens*: 4 adults had wing-lengths of 108-116 mm (Mean 110.8) (Salomonsen 1983). *A. c. leucopygia*: 23 adults had wing-lengths of 104-118 mm (mean 110.8) (Salomonsen 1983). : 1 Ad from Lifou, Wing = 101 mm (Brasil 1916).

**Distribution:**
The currently accepted distribution of this species in the South-west Pacific is as follows:


A.s. ingens (Salomonsen 1983). Sth Vanuatu.

A.s. leucopygius (Wallace 1964). Loyalty Islands (Lifou, Maré, & Ouvea) and New Caledonia. (Mayr 1945).


A.s. spodiopygius (Peale 1848). Samoa: Apolima, Savaii, Upolu; American Samoa: Manua & Tutuila. (Mayr 1945 & du Pont 1975)

It is my view that the Australian Swiftlet, the Atiu Swiftlet and the Polynesian swiftlets should also be part of this species. They form a morphological cline with the broadest and palest rump in Australia, and as you move eastwards the size and whiteness of the rump declines until it is very small and only slightly paler than the upper tail and back in the Polynesian forms. Other morphological distinctions are very slight though unfortunately exaggerated by differential aging in museum collections, and comparisons made between birds with old plumage with others with fresh plumage, by observers who have had little experience with them in the field.

Habitat:

Feeds over forest, croplands, lakes, swamps & pasture. Nests in caves both small and large. Returns to same nest cave to roost each evening throughout the year.

Having the ability to use special tracheal muscles (as they do not have syringeal muscles) to sharply divide their click call into two parts (Suthers & Hector 1982, 1987), and having ears and brains that can interpret small differences in the time the echo’s return to them they are able to navigate in the dark and so use the safety of caves in which to breed and sleep.
Breeding Behaviour:

In Fiji, egg laying correlates with an increase in rainfall during September & October (Tarburton 1987a). In some caves and some years, the previous seasons nests are added to (or repaired) – which is little extra work as the birds sleep all year at their nests. Nests are composed of what local vegetation is suitable and of course their super-glue or saliva. On Viti Levu the nests were composed of foliose and crustiose lichens, liverworts, filmy fern and club moss (Tarburton 1986). The occasional angiosperm leaf gets added to a nest or two and in Veidrala cave, the nests were composed of local grasses. On Cikobia-i-Lau the nests were totally crown-sheath fibre, mid-rib and leaf lamina from Coconut trees (Tarburton 1986).

On New Caledonia, nests are made of fine rootlets, strands of Casuarina, dry grass, feathers and nest cement (Layard & Layard 1878). In the Loyalty islands the nests are composed of Casuarina stems, with a few feathers and grass stems (Medway 1966). Australian birds have also been recorded as using Casuarina stems on Bedarra Island (Medway 1966). Again, nesting materials are clearly largely a result of what is available and cannot be used to define the different species or subspecies, contra Medway (1961, 1966).

Internal nest size at Nasinu, Fiji, averaged 50.0 ± 4.4 mm X ± s.d. left to right; 49.7 ± 4.4 mm front to rear; 21.1 ± 6.0 mm, depth from lowest part of front rim. The weight of four nests ranged between 9.2g and 22.3 g, averaging 15.3 g. (Tarburton 1986). Samoan nests averaged 44.7 x 43.7 x 11.8 mm in size, 5.1 m from the cave floor, and 5.2 m from their nearest neighbour. These nests took 19 days to three months to build.

In Fiji, this swiftlet has been reported nesting against overhanging rocks in deep gullies (Mercer 1966, Belcher & Sibson 1972, Clunie 1984). However, most colonies and all the largest known colonies are in limestone caves. These large colonies have wrongly been said to be in caves in soapstone rocks (Bahr 1912). Nest counts I have made were, Veidrala One, 34 nests, Veidrala Two, 78 nests (both Feb 1976); Cikobia-i-Lau, 70 nests, (3 Jan 1976); West-end colony Ono Cave, Wailotua, 115 nests (1975); Dry Cave Nasinu, 163 nests (Jan 1975); Waiyala Cave, 2810 nests (Feb 1975); East-end colony, Ono Cave 3455 nests (June 1975); Waterfall Cave, Nasinu 7370 nests (Dec 1976). The location of and maps of these caves can be seen at: http://www.swiftsoftheworld.info/Publications/tarburton1987c.pdf (Tarburton 1987b). Most Samoan and Fijian nests are in total darkness, but some are in the twilight zones of the caves used.

On Bougainville, they have been found nesting in the adits of the old Kupei gold mine (Hadden 2004).


On Niue they nest in caves at Avaiki (near Makefu) and at Ulupaka (near Lakepa) (Child 1982).
Normal clutch size in Fiji is two (Tarburton 1986, 1987c), whereas in Samoa it is one (Tarburton 2009). The Fijian birds have a restricted breeding season, whereas the Samoan birds breed practically all year and usually produce two clutches and sometimes three.

Samoan eggs took 25 or 26 days to hatch, and 47-57 days for the nestlings to fledge. Fijian eggs took 22-25 days to hatch, and 41-51 days to fledge (Tarburton 1986, 1987c, 2009).

Samoan birds had a 72% nesting success rate in one colony and 45% in another. Fijian birds had a 92% fledging success rate – one of the highest of any Apodinae (Tarburton 1986).

Whitmee (1875) was wrong in suggesting that the White-rumped Swiftlet in Samoa had a synchronized breeding season. Although Armstrong (1932) disagreed with Whitmee regarding the synchronisation, he also was incorrect in concluding that these swiftlets had a single discreet breeding season. Ashmole (1963) saw the need to determine more breeding observations to clarify the seasonality (or not) of their breeding. In dry years the small colony near Letui on Savai’i does have a non-breeding period in the very localized dry season, which only that part of Samoa appears to experience. I found swiftlets throughout the rest of Samoa breeding in all months of the year (Tarburton 2009).

Fijian and Tongan birds may build their nests 4-deep at favoured spots on the cave roof, presumably to reduce predation from pythons in Fiji and unknown predators in Tonga (Tarburton 2011). Pacific Pythons are very rare in Samoa and Fiji now, but the birds still behave as though they are there. They may not be without reason as humans find them easiest to catch near the entrance also.

At 1090m on the Lelet Plateau, New Ireland it is too cold for Pythons, rats and cats and the compunction to nest on smooth high surfaces has been forgotten, some White-rumped Swiftlets were found nesting on a rubble pile on the cave floor (Tarburton 1990). The same paper also describes some Mountain Swiftlets nesting at 2,000m on the floor of a cave in the Southern Highlands of P.N.G.

In the total darkness of the Ulupaka Cave near Lakepa, Niue, Child (1982) noted the birds appeared to be using sonar to detect the rock walls but postulated that as they flew into humans that their sonar did not pick up humans. What I have found is that if there are not a lot of birds in the airspace, they often switch off their echolocation in familiar passages of caves and flying from memory, will hit humans or other objects that are not normally there.

Adult on nest Cikobia-i-Lau, Fiji. Nest built of Coconut Palm crown fronds.
Feeding Behaviour:

Non-breeding birds feed on the wing all day. Breeding birds return to feed their nestlings a few times during the day. They hold captured prey in a bolus in the top of the throat, which may contain more than 1,000 insects. Fijian birds feed their young on average 2.8 times per day, whether they have one or two nestlings (Tarburton 1986).

Conservation:

This bird appears to be holding its own in all areas except Vanuatu. Layard (1878) in 1870 recorded it on Ambrym, Aneityum, Efate, Epi, Emae. Erromango, Malakula, Malo, Santo, Tanna and Ureparapara, – but Bregulla (1992) claimed that by the 1960’s it was found only on Malo and the West Coast of Santo. Dougherty et al (1999) added that they had also gone from Aniwa, Dolphin, Epi, & Malekula. Gladly, these statements are not all correct. It was observed on Ambrym in Nov. 2004 (Myers et al. 2004), on Erromango in 1998 (Dutson 2001), on Malekula in Nov 2004 (Myers et al. 2004), as well as 4 obs there in 2014 (Anderson et al 2014). Also present on Tanna Nov 2004 (Myers et al 2004) and Dec 2014-Apr 2016 (Tarburton 2017c). In addition, one observed on Sakao island 30 Oct 2014 by Daphne Gemmell (in Tarburton 2017a). Efate has five recent observations as outlined at Tarburton 2017b.

Rats and Barn Owls are believed to prey on some Samoan swiftlets. The rat tracks and owls were seen where eggs had been lost from nests and bird parts observed (Tarburton 2009). Peregrine falcons on Joske’s Thumb, Fiji, in rainforest habitat did take White-rumped Swiftlets along with 16 other species of birds and Fruit bats, but in the Urban environment of Suva they concentrated on seabirds and Rock Doves and were not recorded taking swiftlets (Clunie 1976).

Cyclones Ofa (1-3 Feb 1990) and Val (6-9 Dec 1991) reduced swiftlet colonies from thousands to less than 20 and may have eliminated one or two Samoan colonies (Tarburton 2011). Swiftlets however, fared much better than the Polynesian Sheath-tailed Bats that inhabited some of the same caves. In visiting 41 caves in Samoa I found only 5 of these bats and they had dropped to two individuals, sexes unknown; by the end of my four years of searching. Some of the caves clearly had prior to the cyclones held thousands judging from the depth of the guano. (Tarburton 2002).
The wingless Louse Fly on a swiftlet at Nasinu Caves, Fiji. These do not appear to kill their hosts, but parasites from Cuscus getting onto nestling swiftlets in New Guinea have killed nestlings (MKT. personal observations).

White-rumped swiftlets experience most danger when entering their cave entrance, and this is why they circle above the entrance until more birds arrive and they enter the entrance at high speed in rapid succession to reduce an individual’s chances of being taken by a predator at the entrance. I have timed them at up to 108 kmh at Nasinu 9-mile, as they entered Waterfall Cave.

**History:**


31 ulnae fossil bones and many other bones from this species found in Pindai Cave site, New Caledonia, along with bones of 11 extinct species of birds and some other living forms. They are thought to be of Late Quaternary age. (Balouet & Olson 1989).

**References:**


Bahr, P.H. 1912. On a journey to the Fiji Islands, with notes on the present status of their avifauna, made during a year’s stay in the group, 1910-1911. *Ibis* (9)6, 282-314.


Whitmee, S.J. 1875. List of Samoan birds, with notes on their habits & c. *Ibis* 5, 436-447.