

Recent observations of brown and olive tree skinks, with a review of records from Singapore

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Subjects: Brown tree skink, *Dasia grisea* (Reptilia: Squamata: Scincidae);
Olive tree skink, *Dasia olivacea* (Reptilia: Squamata: Scincidae).

Subjects identified by: Alex Figueroa.

Locations, dates and time: Records from two localities on Singapore Island adjacent to the Central Catchment Nature Reserve:

1. Chestnut Nature Park, Southern Loop; 10 February 2017; 1345 hrs.
2. Springleaf Forest; 01 February 2018 at 1256 hrs.; 12 July 2018; 0914 hrs and 1020 hrs; 06 April 2018; 0844 hrs.

Habitats: Young secondary forest at Chestnut Nature Park. Degraded, young secondary forest at Springleaf Forest.

Observers: Alex Figueroa, Chloe Tan, Joys Tan and Kah Ming Teo.

Observations: There are four observations of *Dasia grisea*, and one sighting of *Dasia olivacea*.

Dasia grisea

1. One of about 12 cm snout-vent length was observed basking on a tree trunk along Southern Loop at Chestnut Nature Park on 10 February 2017 at 1345 hrs (Fig. 1) by Alex Figueroa. When it sensed that it was being noticed, the skink sought safety in a nearby crevice (Fig. 2).
2. An individual of about 10 cm snout-vent length was seen on the trunk of a dead albizia (*Falcatoria moluccana*) in Springleaf Forest on 1 February 2018 at 1256 hrs (Fig. 3) by Alex Figueroa, Chloe Tan and Joys Tan. The lizard was first detected partially concealed by exfoliating bark with its head sticking out (Fig. 3A). After a few minutes, it slowly crawled out from under the bark to bask (Fig. 3B).
3. One example of about 11 cm snout-vent length perched on the edge of an aerial root of a banyan tree in Springleaf Forest on 12 July 2018 at 0914 hrs (Fig. 4), was noted by Alex Figueroa and Kah Ming Teo.
4. An individual of about 10 cm snout-vent length was observed sitting at the fork of two trunks of *Falcatoria moluccana* in Springleaf Forest on 12 July 2018 (same day as previous observation) at 1020 hrs (Fig. 5) by Alex Figueroa and Kah Ming Teo.

Dasia olivacea

1. One adult of about 9 cm snout-vent length, basking with head facing upwards near the top of a ~8 m coconut tree at the edge of Springleaf Forest, was observed by Alex Figueroa and Chloe Tan on 6 April 2018 at 0844 hrs (Fig. 6).

Remarks: The genus *Dasia* is composed of eight species collectively known as “Tree Skinks” owing to their diurnal and arboreal lifestyle (Grismer, 2011: 546). Characterised by stout bodies and short limbs, *Dasia* limit their daily activity predominately to tree trunks (Grismer, 2011: 546). Singapore is home to two species, the brown tree skink, *Dasia grisea*, and the olive tree skink, *Dasia olivacea*. Both species are uncommon and prefer occupying large trees in mature forests (Baker and Lim, 2012: 84). In Peninsular Malaysia, Grismer (2011: 550) declares that *Dasia grisea* is rare, speculating it is a canopy dweller, and found *Dasia olivacea* to be very common at certain localities (Grismer, 2011: 556). The rareness of both species in Singapore can also be attributed to their highly arboreal lifestyle, but is also likely a consequence of the rapid, wide-scale deforestation that is responsible for fragmenting habitats and eliminating most of Singapore’s tall trees (Corlett, 1992: 412).

Dasia grisea – The brown tree skink was first discovered in Singapore on 13 July 1994 from an individual observed on a tree along Golf Course Link in MacRitchie (Subaraj et al., 1995: 4). As such, the statement by Baker & Lim (2012: 84) that the species was first recorded in Singapore in 1998 is incorrect. This record was of a male specimen collected in the compound of the Night Safari at Mandai Lake Road in June 1998, and deposited in the Lee Kong Chian Natural History Museum (henceforth LKCNHM), at the National University of Singapore, catalogued as ZRC 2.3705. This record, along with another sighting at Nee Soon in 1996 confirm the occurrence of *Dasia grisea* in Singapore (Teo & Rajathurai, 1997: 386 as *Dasia cf. grisea*). The second and third records were made at Nee Soon Swamp Forest on 3 March 1995 and 9 April 1995 (Lim, 1995: 18). *Dasia grisea* then went unreported until one was seen on a tree near Bukit Kalang on 6 August 2014 (Groenewoud, 2014: 227). Groenewoud (2014: 227) also discloses two earlier observations, both from Venus Drive; one on 6 July 2011, seen multiple times thereafter on the same tree, and one from 14 July 2011 seen ~100 m away from the previous individual. Since then, one dead individual (deposited in LKCNHM as ZRC 2.7227) was found on Upper Peirce Service Road on 27 August 2016 (Law et al., 145), one live individual was seen at Windsor Nature Park on 17 October 2017 (Ng, 2017: 162), two were reported from Bukit Timah Nature Reserve (Teo & Thomas, 2019: 158), one was seen multiple times on four separate visits after 24 October 2019 on the same tree at Thomson Nature Park (Baker, 2019: 151), and the last reported record was of one being eaten by a snake, *Dendrelaphis kopsteini*, at Thomson Nature Park on 24 December 2019 (Baker, 2020: 13). Baker (2019: 151) also reported seeing a live individual on a tree along Old Upper Thomson Road. Teo & Thomas (2019: 158) mention that Baker & Lim (2012: 84) list *Dasia grisea* from Bukit Timah Nature Reserve, but neither publication provides any details. The picture of a *Dasia grisea* in Baker & Lim (2012: 84) was taken by Nick Baker at the edge of the Bukit Timah Nature Reserve where the biking trail is next to the presently dis-used railroad, on 6 January 2004.

Here we add four records of *Dasia grisea*, amounting to 19 published records for Singapore. One is from Chestnut Nature Park, which is a new locality and fills in a gap in the species' range in the western part of the Central Catchment Nature Reserve. The other three observations were all from Springleaf Forest. Thus, it is expected that *Dasia grisea* occurs throughout the Bukit Timah and Central Catchment Nature Reserves, as well as in neighbouring nature parks. Our records manifest that *Dasia grisea* utilizes the trunks of large trees, and is inclined to restrict its movement along portions of the trunks near to possible escape routes, such as crevices. The first and second observations involved two individuals that clearly escaped into a crack in the tree (Fig. 2) and obviously hiding under exfoliating bark (Fig. 3). The aerial roots of the Banyan tree, and the decaying host tree underneath it, where the third individual was found provide numerous locations to escape to (Fig. 4). The fourth individual was situated near numerous holes and exfoliating bark (Fig. 3). In fact, this individual appeared to be sitting on top of a tree hole. Despite its arboreal lifestyle, *Dasia grisea* will also descend from trees onto the ground and even cross roads (Law et al., 2016: 145; Baker, 2020: 13; personal observation of Alex Figueroa).



Fig. 1. An adult *Dasia grisea* basking on a tree trunk at Chestnut Nature Park on 10 February 2017.



Fig. 2. *Dasia grisea* retreating into a nearby crevice of the same tree trunk in Fig. 1.

Photographs by Alex Figueroa



Fig. 3. *Dasia grisea* in Springleaf Forest on 1 February 2018, partially concealed by exfoliating bark (A). After a few minutes, it slowly crawled out from under the bark to bask (B). Photographs by Joys Tan



Fig. 4. *Dasia grisea* perched on the edge of a Banyan aerial root in Springleaf Forest at 0914 hrs on 12 July 2018. Photograph by Alex Figueroa



Fig. 5. *Dasia grisea* sitting at the fork of two trunks of a *Falcatoria moluccana* in Springleaf Forest at 1020 hrs on 12 July 2018. Photograph by Alex Figueroa



Fig. 6. *Dasia olivacea* basking near the top of a coconut tree at the edge of Springleaf Forest on 6 April 2018. Photograph by Chloe Tan

Dasia olivacea - The olive tree skink was known from Singapore since April 1895 from a specimen collected in Geylang (Flower, 1896: 874). Subsequently, there are only six published records of this species in Singapore. The second was of one collected in 1898 at Bukit Timah Nature Reserve (Hanistch, 1899: 6) and the third was collected at Kranji in 1923 (Sworder, 1925: 68). Although Sworder (1925: 68) described *Dasia olivacea* as being not uncommon, it was not reported again from Singapore until 65 years later on 8 April 1990, when an injured individual was found in a concrete drain at the entrance of Bukit Timah Nature Reserve (Lim, 1990: 10) and since deposited in the LKCNHM catalogued as ZRC 2.2589. Three years later, five individuals were seen at Nee Soon Swamp Forest on 22 May 1993 (Lim, 1993: 4). Teo & Rajathurai (1997: 386) report seeing nine individuals during their surveys, but this number appears to include the ones from Lim (1990: 10) and Lim (1993: 4). Teo & Thomas (2019: 158) state that Teo & Rajathurai (1997: 386) recorded three. *Dasia olivacea* then went undocumented again until the last reported observation was made 17 years later from a roadkill on 10 April 2014 at Old Upper Thomson Road (Baker, 2014: 297). This roadkill specimen (ZRC 2.7063) was deposited in the LKCNHM, alongside an unpublished specimen (ZRC 2.4845) obtained on 29 November 2000 along the pipeline in the Nee Soon swamp-forest. Lim et al. (2008: 168) and Baker & Lim (2012: 84) state that *Dasia olivacea* also occurs on Pulau Ubin, but do not provide any details. The photograph of the juvenile example (snout-vent length about 4 cm) in Baker & Lim (2012: 84) was taken by Nick Baker on 5 August 2007 in back mangrove habitat at Chek Jawa on Pulau Ubin. All references to the occurrence of *Dasia olivacea* on Pulau Ubin were based on this picture (Kelvin K. P. Lim, personal communication).

Here, we provide the ninth observation of *Dasia olivacea*, from an individual observed on 6 April 2018 basking near the top of a coconut tree (Fig. 6). Grismer (2011: 557) described that he has seen many *Dasia olivacea* near the top of coconut trees, and that they seek refuge in the frond axils. However, Grismer (2011: 557) also mentioned that *Dasia olivacea* inhabits large tree with holes, similar to *Dasia grisea*.

The lack of reported observations substantiates that both species are uncommon. Although *Dasia olivacea* is rarer, it is also more widespread, being found outside the Bukit Timah and Central Catchment Nature Reserves where *Dasia grisea* seems confined. As both species occur in the same habitat, they are most likely occupying different ecological niches, but how they are segregated is not clear. Singapore records of *Dasia grisea* indicate its preference for large trees with many holes or exfoliating bark, such as banyan and albizia. Clearly, rigorous surveys are required to properly establish the status and distribution of both these species within Singapore.

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Note: The observations at Springleaf Forest were made by Camphora Pte Ltd while conducting research as part of the “Springleaf Forest Hydrology and Biodiversity Baseline Studies” project supported by the National Parks Board. Kelvin K. P. Lim supplied information on specimens deposited in the Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum at the National University of Singapore, as well as records of the two photographs of *Dasia grisea* and *Dasia olivacea* by Nick Baker featured in Baker & Lim (2012: 84).