

***Imperturbatia griffithsi* n. sp. and new records  
for *Careoradula perelegans* (E. von Martens, 1898) in Seychelles  
(Mollusca: Gastropoda: Streptaxidae)**

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**Abstract.** New records of Seychelles Streptaxidae are reported. These comprise new localities for *Careoradula perelegans* on Praslin and La Digue islands, and the description of a new species from Praslin island: *Imperturbatia griffithsi*. This brings the streptaxid fauna of the granitic Seychelles islands to 20 species (18 endemic).

**Key words.** Islands, land snail diversity, terrestrial molluscs

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## INTRODUCTION

The Seychelles islands support a diverse terrestrial mollusc fauna of 89 recorded species (Gerlach 2006). The coral islands to the west (Aldabra group and Amirantes) have a recent geological history and are occupied by species that are widespread in the Indo-Pacific or are related to taxa from other islands in the Malagasy region (Gerlach & Griffiths 2002; Gerlach 2006). In contrast, the granitic islands are a fragment of Gondwana, and their fauna shows affinities to mainland Africa, India, and east Asia, with 88% of terrestrial species being endemic (Gerlach 2006).

One of the most notable families is the Streptaxidae, which have a large radiation in the granitic islands, comparable to the radiations in Madagascar and the Mascarene Islands (Gerlach & van Bruggen 1999; Rowson et al. 2010). Out of a total indigenous fauna of 45 land-snail species in the granitic islands, 18 streptaxid species have been described to date (Gerlach 2006). Of these, seven are helicoid: three in a well-defined genus, *Priodiscus* E. von Martens, 1898, and four originally placed in *Streptaxis* J.E. Gray, 1837 as the subgenus *Imperturbatia* E. von Martens, 1898. *Imperturbatia* was later recognised as a distinct genus (Kobelt 1905) before being fragmented, first with the recognition of *Augustula* Thiele, 1931 and later the remaining species being divided into *Imperturbatia*, *Silhouettia* Gerlach & van Brug-

gen, 1999 and *Careoradula* Gerlach & van Bruggen, 1999 (Thiele 1931; Gerlach & van Bruggen 1999).

Within the granitic Seychelles, the high islands of Mahé and Silhouette are the centre of diversity of the family, both with 13 species (Table 1), and most species are considered high-forest taxa (Gerlach & van Bruggen 1999). These *Imperturbatia*-like helicoid streptaxid genera are typical of this distribution: *Imperturbatia* restricted to Mahé, *Silhouettia* on Silhouette, and *Augustula* and *Careoradula* on both islands. Since the last revision of the islands' fauna (Gerlach 2006), *Imperturbatia* and *Careoradula* have been found on Praslin and La Digue islands, both of which lack high-forest habitat. This expands the known habitats for these genera from high-forest to lowland forest; these records are reported here.

## MATERIALS AND METHODS

The specimens referred to here were collected during surveys of the land snail fauna in sites on Praslin and La Digue islands during 2011–2021.

Measurements were made using digital callipers, accurate to 0.1 mm.

Abbreviations: MRAC = Musée Royal de l'Afrique Centrale, Tervuren; NHM (NHMUK) = Natural History Museum, London; ZMB = Zoologisches Museum, Berlin.

**Table 1.** Distribution of native streptaxids in the granitic Seychelles islands, based on data in Gerlach (2006) and new data presented here. The introduced *Tayloria quadrilateralis* is excluded.

Species	Mahe	Therese	Silhouette	North	Praslin	Curieuse	La Digue	Felicite	Fregate
<i>Gerlachina dussumieri</i>	+		+		+		+		
<i>Gerlachina moreleti</i>	+		+						
<i>Glabrennea gardineri</i>	+		+						
<i>Glabrennea silhouettensis</i>			+						
<i>Glabrennea thomasseti</i>	+								
<i>Stereostele nevilli</i>	+		+		+		+		
<i>Streptostele acicula</i>	+		+	+	+				
<i>Seychellaxis souleyetianus</i>	+	+	+		+	+	+	+	
<i>Imperturbatia constans</i>	+								
<i>Imperturbatia violascens</i>	+								
<i>Imperturbatia griffithsi</i>					+				
<i>Silhouettia silhouettae</i>			+						
<i>Careoradula perelegans</i>	+		+		+		+		
<i>Acanthennea erinaceus</i>	+		+						
<i>Conturbatia crenata</i>									+
<i>Priodiscus costatus</i>	+				+	+	+	+	
<i>Priodiscus spinosus</i>			+						
<i>Priodiscus serratus</i>			+						
<i>Augustula braueri</i>	+		+						
Total	13	1	13	1	7	2	5	2	1

## SYSTEMATICS

### New Species

#### *Imperturbatia griffithsi* sp. nov.

Figure 1A

**ZooBank identifier.** urn:lsid:zoobank.org:act:B40A3924-002E-4F82-A417-B764265ABDEF

**Holotype.** NHMUK 20240297. Dead in leaf litter on hill just behind S.E. side of Baie Ste Anne, village Praslin, Seychelles. Coll. O. Griffiths, Nov. 2021. GPS coordinates: 04.3490°N, 055.7617°E.

Shell subconical, with 5¼ straight-sided whorls. Whorls angled at margin. Protoconch of 1½ smooth whorls. Teleoconch ornamented with prominent S-shaped radial ridges

(8 per mm); ridges extend onto underside and into umbilicus. Umbilicus open, 20% of shell diameter, deep, extending to apical whorls. Aperture moderately narrow (height/width = 0.5), slightly angled at margin. Columella vertical, narrow, only slightly expanded. Lip not reflected, slightly expanded. Dull, white, with a thin, dehiscent, grey periostracum.

Measurements are given in Table 2.

**Comparative material studied.** *Imperturbatia constans* (E. von Martens, 1898) (42 specimens: MRAC 798.890, NHMUK 1825, 1937.12.30.218-2; ZMB 57280-1, author's collection) and *I. violascens* (E. von Martens, 1898) (12 specimens: MRAC 798.757, 869, 908; NHMUK unnumbered; ZMB 57294; author's collection).

**Table 2.** Morphometrics of *Imperturbatia* species.

Species	Height (mm)		Diameter (mm)		Height/diameter		Whorls	n
	Range	Mean	Range	Mean	Range	Mean		
<i>I. griffithsi</i> holotype	2.8		4.0		0.70		5.25	—
<i>I. constans</i>	2.1–3.6	2.9	3.7–6.0	5.1	0.55–0.69	0.62	5.0–8.0	42
<i>I. violascens</i>	3.1–4.0	3.5	4.6–5.5	5.1	0.55–0.82	0.67	7.5–8.25	12



Figure 1. *Imperturbatia* species. A, *I. griffithsi* sp. nov., holotype NHMUK 20240297. B, *I. violascens* (E. von Martens, 1898) (La Reserve, Mahé, 1990). C, *I. constans* (E. von Martens, 1898) (Morne Blanc, Mahé, 1997). Scale bar = 5 mm.

**Comparison.** This species differs from the previously described *Imperturbatia* species (Fig. 1B, C) in number of whorls, shape, and sculpture. It has fewer whorls than *I. violascens*, a higher spire, and lower, denser radial ridges (6 per mm in *I. violascens*); the whorls lack any shouldering and are widest near the slightly angled margin. *Imperturbatia constans* has a similar spire and is only slightly more strongly ridged, but it differs in the whorls being high-shouldered and rounded. Juveniles of *I. constans* may be slightly angled on the body whorl, but they have the widest point above the middle of the whorl. In both species the radial ridges are more prominent, and the aperture is straight on the outer margin, with an oblique columella in adults, but in juveniles it is lunate.

**Etymology.** Named after Owen Griffiths, who collected the type specimen and has made an outstanding contribution to the scientific understanding and conservation of the land snails of the Mascarenes, Madagascar, and Seychelles.

#### Additional Geographic Records

##### *Careoradula perelegans* (E. von Martens, 1898)

Figures 2, 3

This species was considered restricted to Mahé and Silhouette (Gerlach & van Bruggen 1999; Gerlach 2006), but it is

now known from Praslin and La Digue. Previously recorded only from high forest above 400 m above sea level, this species is now known to exist in lowland woodland at 50 m above sea level.

Praslin—in leaf litter in *Lodoicea maldivica* forest, Glacis Noir, Praslin. 1.xii.2011. Coll. J. Gerlach. Measurements: 4.5 mm diameter, 2.3 mm high, 7.3 whorls. (Figs 2, 3)

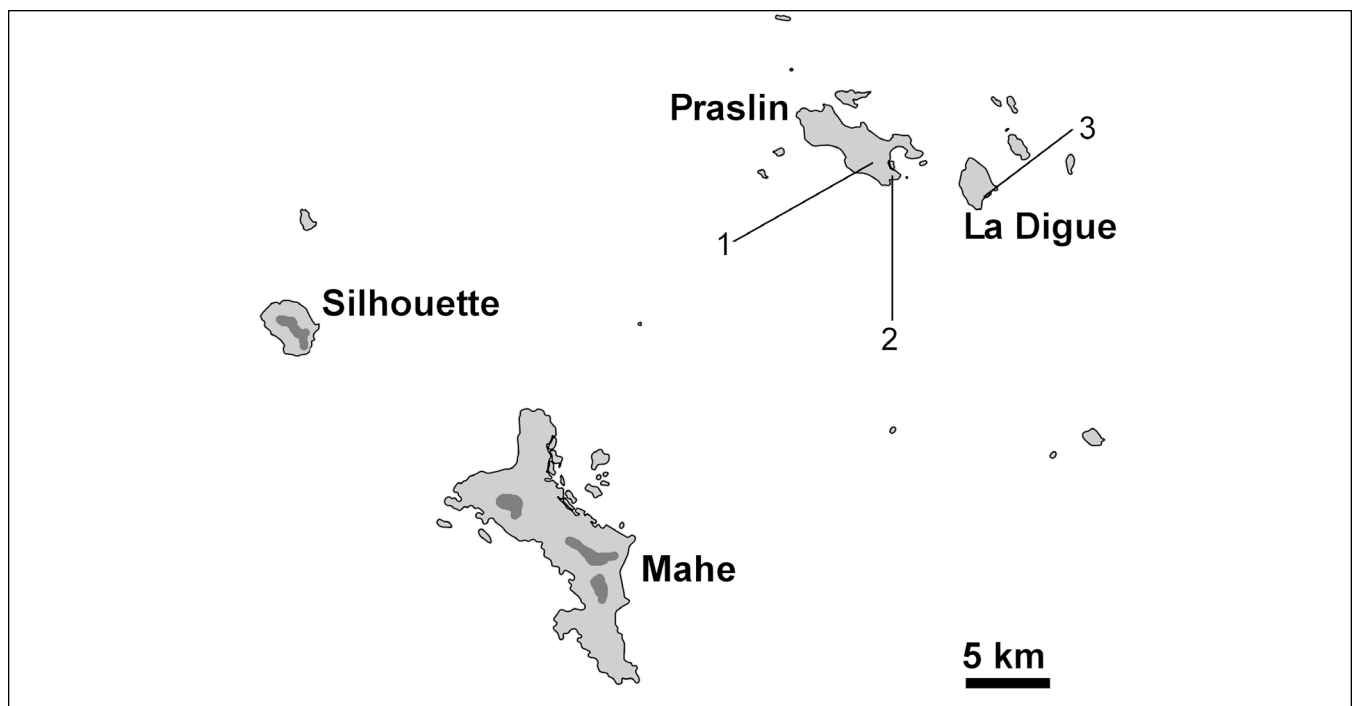
La Digue—under rock overhang on hill just N of Grand Anse on path to Petite Anse Beach, La Digue. Nov. 2021. GPS coordinates 04.3716°S, 055.8446°E. Coll. O.L. Griffiths. Measurement: 4.2 mm diameter, 2.2 mm high, 7 whorls. (Figs 2, 3)

#### ACKNOWLEDGEMENTS

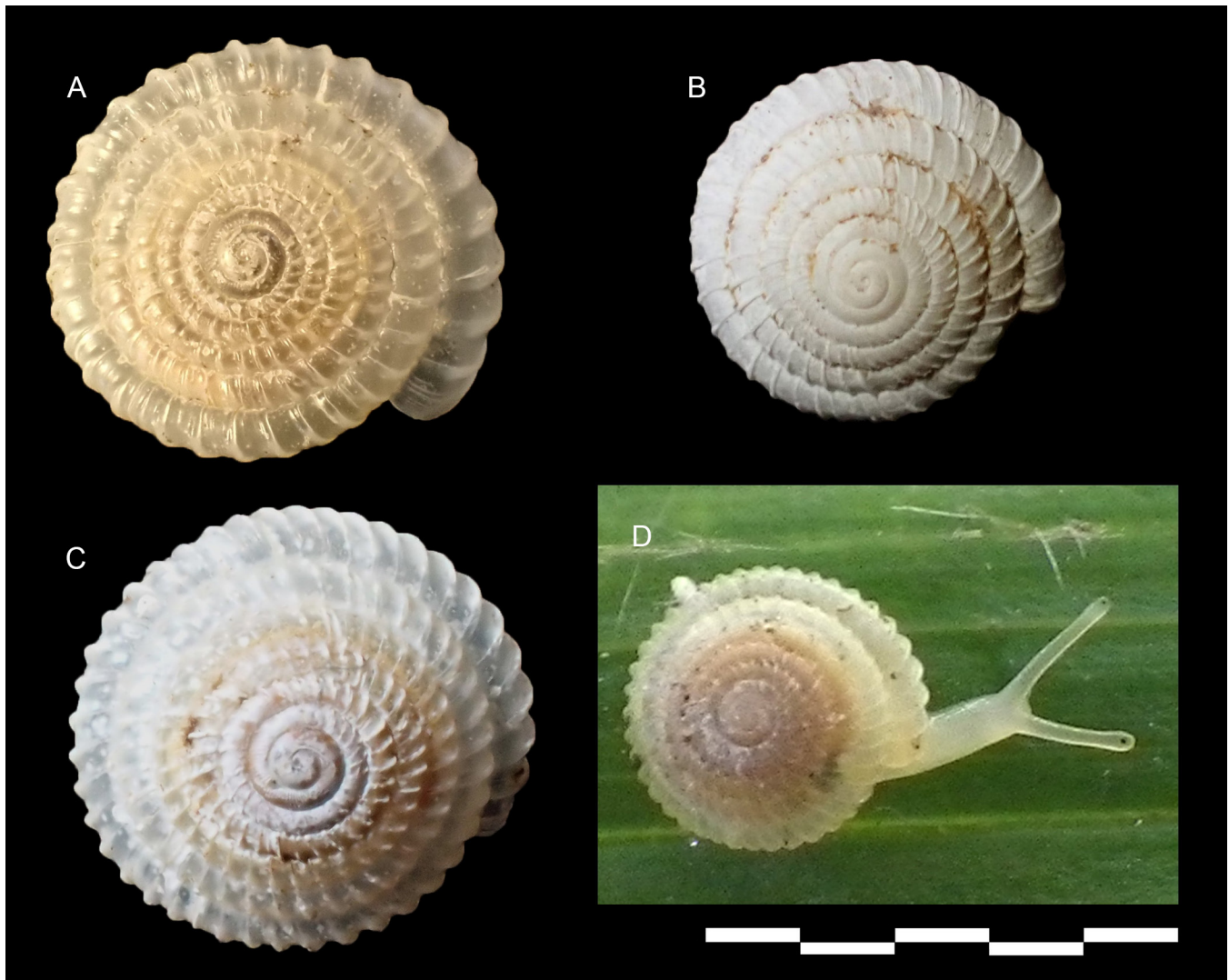
I am grateful for Owen Griffiths for the records presented here, and to NHM, ZMB, MRAC for providing access to the *Imperturbatia* material. Specimens studied comprise historical collections and material collected under the Indian Ocean Biodiversity Assessment.

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**Figure 2.** Islands occupied by *Imperturbatia* and *Careoradula*; previously recorded distribution shaded dark grey (from Gerlach 2006), new localities numbered: 1 = Glacis Noir (*C. perelegans*); 2 = behind Baie Ste Anne (*I. griffithsi*); 3 = between Grand Anse and Petite Anse (*C. perelegans*).



**Figure 3.** *Careoradula perelegans* (E. von Martens, 1898). **A**, From Silhouette (Jardin Marron, Silhouette, 2006). **B**, From La Digue. **C**, **D**, From Praslin; shell and live. Scale bar = 5 mm (d not to scale).

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