

**First record of *Truncatellina atomus* (Shuttleworth, 1852)  
(Gastropoda, Truncatellinidae) and *Paralaoma servilis* (Shuttleworth, 1852)  
(Gastropoda, Punctidae) from the island of Gran Canaria**

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Taxonomy and nomenclature follow MolluscaBase (2019).

**Abstract:** *Paralaoma servilis* (Shuttleworth, 1852) and *Truncatellina atomus* (Shuttleworth, 1852) are reported from the nature reserve of Los Tilos de Moya, Gran Canaria island. Although both species are known from other islands of the Canarian archipelago, this is the first record from Gran Canaria.

**Los Tilos de Moya:** On 9 August, an excursion to Los Tilos de Moya, a nature reserve in the north of the island, was made (Fig. 1). It concerns a laurel forest (laurisilva) covering 91.5 hectares of the Barranco del Laurel ravine. A laurel forest is a subtropical forest occurring in areas with high humidity and stable, mild temperatures and is characterised by evergreen, broadleaf tree species (Laurel forest, 2017). Along the “Laurel Trail”, a 1,900 m long trail at an altitude between 480 and 550 m, many shells were collected. It starts with an ascent to a very dry and arid area where cacti are the most common plants. After ca. 300 m, the laurel forest commences. Here, it is cooler and more humid, but in August it is still hot and dry.

**Introduction:** In the summer of 2016, a visit to Gran Canaria, an island in the centre of the Canarian archipelago, was carried out. Various sites were explored as to their terrestrial malacofauna. On 9 August the nature reserve of Los Tilos de Moya was visited. Shells were collected at random on site and one soil sample was taken. The sample contained many shells of *Paralaoma servilis* (Shuttleworth, 1852) and one adult, empty shell of *Truncatellina atomus* (Shuttleworth, 1852). Both species are hereby reported from Gran Canaria for the first time, although they are known from other islands of the Canarian archipelago (Brito & Fraga, 2010; Helixebas, 2017).

**Material and methods:** All species mentioned here were collected as empty shells. No living specimens were observed. Larger shells, such as *Hemicycla* sp., *Napaeus* sp., *Monilearia* sp., were collected by hand on site. To collect small shells, one soil sample was taken. It was put in a small plastic bag and examined at home, where smaller shells could be plucked out with a pair of tweezers. The species were identified based on shell characteristics using different articles and websites (e.g. iucnredlist.org and animalbase.org). All shells mentioned in this article are in the collection of the author. For the distribution and status of land snail species of the Canary Islands, data from Brito and Fraga (2010) were used.



**Fig. 1:** Map of Gran Canaria with the location of Los Tilos de Moya and the botanical garden of Tafira (distance: 13.36 km). Source: Google Earth.

Most of the shells were collected in the dry, arid area. Due to the lack of organic material on the bottom here, the shells were easily spotted and collected. In the forest

itself, fewer specimens were collected, as the presence of leaf litter made it much more difficult to find shells. Most of the species, however, could be found in both habitats. One small soil sample was taken in the arid area at an altitude between 530 and 550 m. In total, ten different species of land snails were found in Los Tilos de Moya (Table 1).

FAMILY	SPECIES	STAT.
Enidae	<i>Napaeus moquinianus</i> (Webb & Berthelot, 1833)	N
Geomitridae	<i>Monilearia praeposita</i> (Mousson, 1872)	N
Geomitridae	<i>Xerotricha conspurcata</i> (Draparnaud, 1801)	PI
Geomitridae	<i>Xerotricha</i> aff. <i>orbignii</i> (d'Orbigny, 1836)	?
Helicidae	<i>Hemicycla glasiana</i> (Shuttleworth, 1852)	N
Helicidae	<i>Hemicycla guamartermes</i> (Grasset, 1857)	N
Oxychilidae	<i>Oxychilus draparnaudi</i> (H. Beck, 1837)	PI
Pomatiidae	<i>Pomatias canariensis</i> (d'Orbigny, 1840)	N
Punctidae	<i>Paralaoma servilis</i> (Shuttleworth, 1852)	?
Truncatellinidae	<i>Truncatellina atomus</i> (Shuttleworth, 1852)	?
Vitrinidae	<i>Insulivitrina parryi</i> (Gude, 1896)	N

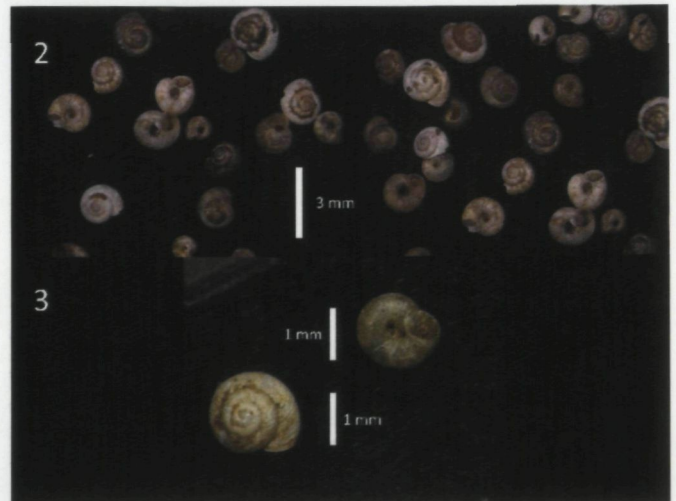
PI = probably introduced; N = native; ? = status unclear

**Table 1:** Land snail species found in Los Tilos de Moya. Status according to Brito and Fraga (2010), see also under "Discussion".

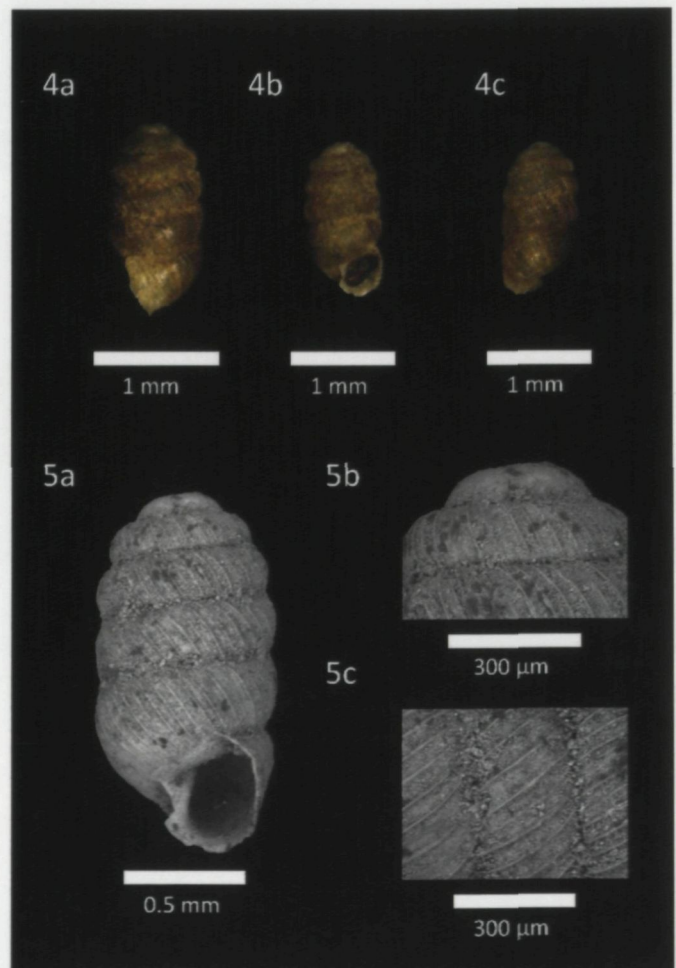
**The land snails of the laurel forest:** Most of the species found here are native and some are very common, e.g. *Monilearia praeposita*, *Hemicycla glasiana* and *Napaeus moquinianus*. There is, however, another species which is very common here. It concerns multiple shells of *P. servilis* (both adult and juvenile) found in the soil sample (Fig. 2). This species originated from New Zealand and is now globally dispersed (Van den Neucker & Ronsmans, 2015; Welter-Schultes, 2012; Wiese, 2016). *P. servilis* is stated as "possibly native" on El Hierro, La Palma, Tenerife and Lanzarote (Brito & Fraga, 2010; Helixebas, 2017). On Tenerife, *P. servilis* is also known from laurel forests (Kappes *et al.*, 2009). *P. servilis* was also found in large numbers in the botanical garden of Tafira (Fig. 3) on 4 August, which could possibly suggest anthropogenic introduction of this species on Gran Canaria (see below).

Another remarkable discovery in the soil sample was an adult shell of a *Truncatellina* species (**Vertiginidae**) with a shell height of 1.48 mm and body whorl diameter of 0.76 mm (Figs 4-5). No earlier records of *Truncatellina* on Gran Canaria could be traced in literature. Two *Truncatellina* species have been found on the Canary Islands: *T. atomus* and *T. purpuraria*. These two species occur allopatrically in the Canaries, where *T. atomus* is present on the western islands (El Hierro, La Palma, La Gomera and Tenerife) and *T. purpuraria* is present on the eastern islands (Fuerteventura, Lanzarote and Alegranza) (Hutterer & Groh, 1991). Gran Canaria is situated in the middle and would be the only island without a

*Truncatellina* species. This find now shows that this is no longer the case.



**Figs 2-3:** Shells of *Paralaoma servilis* (Shuttleworth, 1852) from Gran Canaria. **2:** Shells from Los Tilos de Moya (28°5'37.83"N; 15°35'41.21"W). **3:** Two shells from the botanical garden of Tafira (28° 3'48.99"N; 15°27'43.16"W).



**Figs 4-5:** Shell of *Truncatellina atomus* (Shuttleworth, 1852) found in the soil sample at Los Tilos de Moya (28°5'37.83"N; 15°35'41.21"W). **4a:** Lateral view. **4b:** Frontal view. **4c:** Dorsal view. **5a-c:** SEM (Hitachi Tabletop Microscope TM-1000, uncoated). **5a:** Frontal view. **5b:** Protoconch (frontal view). **5c:** Detail of shell structure on middle whorls (frontal view).

*T. purpuraria* has three teeth in the aperture, which are well visible in frontal view, while *T. atomus* has no teeth in the aperture (Hutterer & Groh, 1991). The shell found in the soil sample belongs to *Truncatellina atomus*. Like *P. servilis*, *T. atomus* is also known from laurel forests on Tenerife (Kappes et al., 2009) and Groh and Neubert (2013) state that "... this species lives in the soil of the dry temperate shrub vegetation (Piso basal).".

**Results:** Shells of two different species new for the island of Gran Canaria were discovered in the summer of 2016. Only *P. servilis* was found in large numbers and was present in Los Tilos de Moya, but also in the botanical garden of Tafira. The amount of shells found, both adult and juvenile, may suggest the existence of a stable population on the island.

For the first time, a *Truncatellina* species is found on Gran Canaria. It concerns a single, empty, adult shell of *T. atomus*. A living population could not be verified. *T. atomus* is native to El Hierro, La Palma, La Gomera and Tenerife.

**Discussion:** Only a small part of the laurel forest was investigated. The species shown in Table 1 are thus only a fraction of what may live in this area and it is hard to judge whether *P. servilis* and *T. atomus* are rather locally dispersed or cover a wider area. *P. servilis* is possibly native to several other Canary Islands. The fact that it has never been found on Gran Canaria could mean that the species was introduced here. However, the large numbers of shells found on two different sites could implicate that the species had already been living here for some time. The status of *T. atomus* is also unclear. It is native to the western islands of the Canarian archipelago, but it is questionable if the species is also native to Gran Canaria. This is probably not impossible, but the species may also have been introduced from another island.

Due to their small sizes, it is possible that these species have been overlooked and have already occurred on the island for a longer time. On the other hand, there are many ways in which these newly introduced species could have reached the island. Anthropogenic dispersal could play an important role (Dörge et al., 1999), especially because many shells of *P. servilis* were found in the botanical garden. However, natural vectors like birds (Dörge et al., 1999; Dundee et al., 1967; Maciorowski et al., 2012; Rusiecki & Rusiecka, 2013; Shikov & Vinogradov, 2013; Simonová et al., 2016; Wada et al., 2012), wind (Dörge et al., 1999; Kirchner et al., 1997) and rafting at sea (Dörge et al., 1999; Thiel & Gutow, 2005) cannot be excluded. Further investigation and exhaustive survey is necessary to elucidate how these land snails cross the open sea to colonise new islands of the Canarian archipelago.

**Epilogue:** On 18 September 2018, the same location was investigated again. A soil sample from the exact same spot yielded another empty, adult shell and one fragmented shell of *T. atomus*. Shells of *P. servilis* still proved to be very common in the whole area. In addition, some shells of a notable *Xerotracha* species were identified from the site and were encountered in both 2016 and 2018. These specimens are still under investigation and are referred to as *Xerotracha aff. orbignii* (d'Orbigny, 1836) in Table 1.

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