

L@CERTIDAE

EIDECHSEN ONLINE



2024 Artikel
article 2



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Zitat / Citation:

SCIBERRAS, A. & J. SCIBERRAS (2023): Updates on the natural history of Cheirolophus Rock (Maltese Archipelago) with a description of its lacertid. - L@CERTIDAE (Eidechsen Online), 2024 [2]: 9-16.



Updates on the natural history of Cheirolophus Rock (Maltese Archipelago) with a description of its lacertid.

ARNOLD SCIBERRAS & JEFFREY SCIBERRAS, October 2024

Abstract

The islet's recent discovery by the authors hold quite a rich biota compared to its size. In this work topography is re-described adding one species of flora to the already known six (SCIBERRAS & SCIBERRAS 2010, SCIBERRAS et al. 2012) and 32 new species of fauna to the two recorded (LO CASCIO & SCIBERRAS 2020, AGUIS & SCIBERRAS 2022) with a complete description of the endemic lacertid, *Podarcis filfolensis*, in situ.

Keywords: Cheirolophus Rock (il-Ħaġra tas-Sajjetta), new records, description of Cheirolophus lacertid, *Podarcis filfolensis*.

Introduction

As brothers, we have always been fascinated by discovering remote places such as uninhabited islands and islets since we were young of age. The movie Jurassic Park played a very important role in our childhood, and since the inception of this film, it was our favorite game to look out for any piece of land that may turn into an isolated rock or an islet in hope of discovering new species/forms, ecosystems etc. As time passed, the game transformed itself into serious studies, and for this reason we started taking a deeper look to all the negligent islets and rocks that are around the Maltese Islands. In later years we also focused on islets/rocks and stacks of other archipelagos, and slowly from the Mediterranean, this kind of research took us to many parts of the world. Cheirolophus Rock is no exception. It is a very inconspicuous rock in a very remote area, difficult to find and also to reach. Its discovery was prior to Google Earth and by sheer coincidence, scanning Malta's boulder screes and cliffs, we noticed an outcrop of land that might be a potential isolated rock. Thanks to several friends that got us to this remote location by their private boats through

the years, we studied this one-of-a-kind location in detail and here we present for the first time a study dedicated solely to this rock.

Location of the islet

Cheirolophus Rock is a Rocky outcrop islet situated in the coordinates 35°48'48"N 14°29'42"E, close to Wied Moqbol in the locality of iż-Żurrieq, at average distance of 22 meters away from mainland Malta. The location where the Rock is situated, it is known as "tas-Sajjeta" meaning lighting zone. It was practically an unknown site prior to being studied by the authors because of its unique hidden location. Being promoted through their studies and coastal educational tours, the Rock is getting some recognition for its ecological value. Some local fisherman that know the site call it "Il-Ħaġra" which means "the stack" however since there are other non-terrestrial habitable stacks in the vicinity, and in order to avoid confusion, it is now being referred to as "Il-Ħaġra tas-Sajjeta". The English name given by the authors in the first publication of which the site is included (SCIBERRAS & SCIBERRAS 2010) is Cheirolophus Rock. This is because the islet is the



Fig 1. Overall location of Cheirolophus Rock.



Fig 2. A zoomed aerial location of the *Cheirolophus* Rock and Wied Moqbol.

only location, besides the main islands of Malta and Gozo, where *Cheirolophus crassifolius* grows. The *Cheirolophus* Rock population of this plant is morphologically different from the Malta and Gozo populations, perhaps due to phenotypic plasticity, but this is still under investigation (SCIBERRAS & SCIBERRAS pers. com.).

Description of the islet

This small islet was first described by SCIBERRAS & SCIBERRAS (2010), followed by an updated flora list in SCIBERRAS, SCIBERRAS & PISANI (2012) and SCIBERRAS & SCIBERRAS (2024). At its highest point *Cheirolophus* Rock is roughly 9 to 12 m high above sea-level. The islet has two slopes. One is south facing, which is the most steep and sparse with vegetation. The other slope, which is facing the nearby mainland cliff, has a gentler inclination, is much wider, and filled with most of the vegetation. This gentler inclined wider plateau is most protected from sea sprays and large waves, thus allowing it to have much of the vegetation. On the south slope facing the sea there are two very small caves, one few meters above the other, but they are large enough for sea-birds to breed in.

The plateau is roughly 148 m² while the whole islet is 220 m² as visible from space. The islet is most likely made up Lower Globigerina Limestone.



Fig 3. *Cheirolophus* Rock and Wied Moqbol.



Fig 4. The eastern side of the islet from sea-level view.



Fig 5. *Cheirolophus crassifolius* (BERTOL.) SUSANNA on the islet.

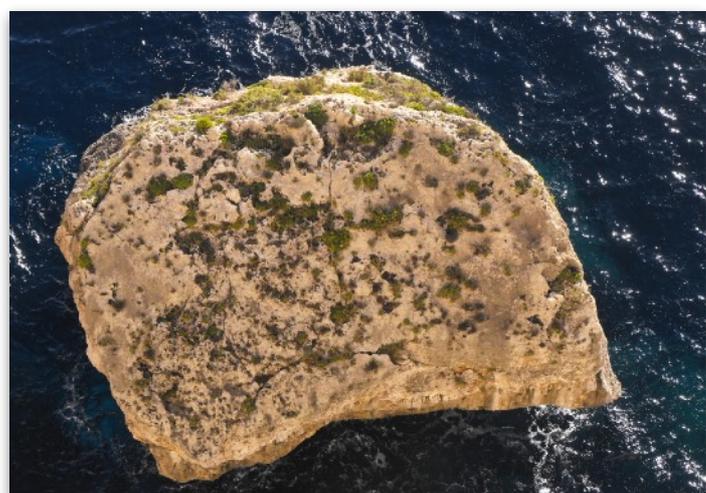


Fig 6. The plateau where the majority of the vegetation occurs.

Flora on Cheirolophus Rock

The islet is dominated by the Maltese Rock-Centaury, *Cheirolophus crassifolius*, followed by *Limbarda crithmoides*, *Limonium virgatum* and *Salsola melitensis*. The least common species on this islet are *Euphorbia segetalis* var. *pineae*, *Crithmum maritimum* and *Daucus gingidium*. Vegetation only occurs 8 m high upwards. The lowest point where vegetation occurs is on the south face of the islet. The species at these lowest points are *Salsola melitensis* and *Crithmum maritimum*. The small annual *Silene sedoides* was noted in May 2020.

Fauna recorded on the islet

Although the islet is tiny, several fauna was present at each visit. Whilst some species might obviously be migratory ones, most listed below are resident and breeding. Every spring visit, the authors

encountered specimens of *Lespisma* sp. (Thysanura: Lespismatidae) which were noted but till now, none could be collected for further identification. Same goes for a specimen of Formicidae sp. that was on the cliff side. Other Hymenoptera species identified were *Camponotus lateralis*, *Leptanilla revelierii* and *Apis mellifera ruttneri*. The Diptera noted almost every visit were *Eupeodes corollae* and *Episyrphus balteatus*. Other species await identification. The Lepidoptera encountered were *Colias crocea*, *Pieris rapae*, *Pieris brassicae* (Pieridae), *Vanessa cardui* and *Vanessa atalanta* (Nymphalidae). The latter two all noted feeding on the golden samphire (*Limbardia crithmoides*). *Phragmatobia fuliginosa melitensis* and *Eublemma parva* were recorded on several visits whilst *Microsphecia tineiformis* was only recorded once, being the second record of the Maltese archipelago (AGUIS & SCIBERRAS 2022). The only orthopterid vagrantly seen is *Sphingonotus caeruleus* (probably some influxes from the mainland). *Polyphaga aegyptiaca* is the only blattid found on the islet. *Pimelia rugulosa elitana* is the only coleopterid found. Two species of Arachnida that occasionally were encountered are *Hasarius adansoni* and *Aelurillus monardi*. Residential and quite common terrestrial Mollusca *Tudorella melitense*, *Caracollina lenticula*, *Muticaria oscitans* and *Muticaria macrostoma* are quite widespread all over the plateau of the islet.

During every visit, one of the authors (AS) managed to find *Calonectris diomedea* nesting in the lower small cave. During some visits *Puffinus yelkouan* was found breeding as well in the upper cave. *Monticola solitarius*, *Passer hispaniolensis*, *Sturnus vulgaris*, *Motacilla alba*, *Oenanthe oenanthe* and *Columba livia domestica* were all observed on the islet, sometimes resting or feeding, but none were recorded breeding in situ.



Fig 7. *Muticaria macrostoma* (CANTRAINE, 1835) specimen.

Material and methods

Since the discovery of the rock by the authors in 2007, the site was almost visited annually. In the third visit (24. 8. 2010), the presence of a lacertid was noted. It was late in the day and just one quick sprint was seen. On 7. 5. 2011, three lizards were observed but again, they were extremely skittish. From 2012 to 2020, a lacertid was encountered each time, with the number of specimens per visit varying between 3 and 5. The population was never sampled and studied genetically, along with the 2014 genetic studies of *Podarcis filfolensis* (SALVI et al. 2014), because the specimens were always extremely skittish and considered extremely vulnerable due to low population number to be collected by the authors. In our 24/25. 5. 2020 trip, it was specifically planned to study the lacertid, resulting in 9 adults and one juvenile that were observed. Several specimens were photographed, measured and observed without being collected. Measurements were taken against the terrain that they were resting on. The population of *Podarcis filfolensis* on Cheirolophus Rock was officially recorded by LO CASCIO & SCIBERRAS (2020).

Description of the lacertid

Morphologically the Cheirolophus wall lacertid is close to some specimens of intermediates between Cominotto, Lampione and Linosa specimens, however the general white spots of the latter are replaced by greenish to blue spots. Although geographically and genetically (SALVI et al. 2014) it does not make sense, this population looks morphologically closest to the population of Filfla on the south western coastal side of Malta. Filfla has three slightly separate populations that rarely mix and they are almost morphological distinct. These are the south side, north side and plateau specimens. Their behavior also varies (SCIBERRAS pers. obs.). The Cheirolophus Wall Lizard male's top side of the head is completely black and same goes to the side till the supralabial. The sublabial, inframaxillars are also black, however the gular and sulcus gularis are a tinge of dark green which stops at the collar and rest of the ventral turns black again. In females, the supralabial is mostly black with 5 isolated greenish blue ones. Same goes for the sublabial. The temporals are also marked with greenish blue markings. Dorsal of head is usually completely



Fig 8. Nesting site of *Calonectris diomedea* (SCOPOLI, 1769) on the southern side of the islet.



Fig 9. Male *Podarcis filfolensis* photographed on Cheirolophus Rock (24. 5. 2020).

black. The inframaxillars of females are patched with greenish blue spots on and continue on the gular and sulcus gularis, yet it stops at the collar and rest of the ventral is much lighter than the male. When it comes to caudal autonomy, the morphological appearance is similar to that of the Cominotto Wall Lizard (SCIBERRAS 2014). While those on Filfla, the largest specimens measured were males from 26-29 cm (largest record 31.6 cm), the largest Cheirolophus specimens measured by the



Fig 10. Female *Podarcis filfolensis* photographed on Cheirolophus Rock (24. 5. 2020).

non-invasive methodology was 24 cm. In conclusion with regards to the Cheirolophus Wall Lizard morphology, the closest they resemble are those of the Filfla south side population. However, all specimens are much lighter in color and not as large.

Taxonomical position

Podarcis is a genus of lizards in the family Lacertidae. Its members look very similar to lizards of the genus *Lacerta*, to which they were considered part of until the 1970s. While similar externally and ecologically, *Podarcis* form a distinct group differing from *Lacerta* by the construction of the skull and the hemi-penis, and by the processes of the caudal vertebrae (WENDLER & REICHHOLF 1996). They are commonly known as wall lizards. They are native to Europe and northern Africa, and most species are restricted to the Mediterranean region. Mediterranean wall lizards diversified and hybridized during the Messinian salinity crisis, approximately 5.33 Mya (SALVI et al. 2014). This genus contains 27 species which are recognized as being valid with over 200 subspecies.

On the Maltese and Pelagian islands, only *Podarcis filfolensis* (BEDRIAGA, 1876) is present. Based on the results and conclusions in SALVI et al. (2014), we consider the existing subdivision of *Podarcis filfolensis* into the five described subspecies as no longer tenable. All 18 populations, unique with morphological and behavioural traits solely restricted to their islet, should be considered

belonging to the same species with no subspecies level.

In SALVI et al. (2014) two separate clades were recognized: A Gozitan lineage (Gozo, Comino and their surrounding islets including the extinct Selmunett population and the Pelagian Islands) and a Maltese lineage (Malta, Manoel Island, Ta' Fra Ben Islet and Filfla).

The Cheirolophus population, along with two other populations on Pigeon Rock and Ta' Fra Ben Islet (SCIBERRAS & SCIBERRAS 2014), were not included in SALVI et al. (2014), however, as mentioned previously, it is highly suspected that the Cheirolophus population is closest to the Filfla population. The closest mainland, where the locality is known as Wied Moqbol, has no *Podarcis filfolensis* lizard population. From personal observations (2006, 2007), it is a well known phenomenon that on Malta, there are no *Podarcis filfolensis* lizards approximately the first two kilometers from coast to inland along the entire western coast of the island.

Acknowledgments

The authors would like to thank CHRISTIAN BILOCCA, MARIO SCIBERRAS and GINA CURMI for assisting in transport and fieldwork. Special thanks goes to DAVID CILIA for the confirmation of the mollusc species and JONATHAN AGUIS for the Lepidoptera identification.

<i>Podarcis filfolensis</i> population	Former subspecies	Clade according SALVI et al. (2014)
Gozo Island (Għawdex)	<i>P.f. maltensis</i>	Gozitan clade
Fungus Rock (il-Ġebbla tal-Ġeneral)	<i>P.f. generalensis</i>	Gozitan clade
Halfa Rock (il-Ġebbla tal-Ġalfa)	not assigned	Gozitan clade
Taċ-Ċawl Rock	not assigned	Gozitan clade
Comino Island (Kemmuna)	<i>P.f. maltensis</i>	Gozitan clade
Cominotto Islet (Kemmunnett)	not assigned	Gozitan clade
Small Blue Lagoon Rock (il-Ħaġra Ta' Bejn il-Kmiemem iż-Żgħira)	not assigned	Gozitan clade
Large Blue Lagoon Rock (il-Ħaġra Ta' Bejn il-Kmiemem il-Kbira)	not assigned	Gozitan clade
Pigeon Rock (il-Ġebbla ta' Taħt il-Mazz)	not assigned	not included
Selmunnett Islet (St. Paul's Islet - il-Ġżira Ta' San Pawl) †	<i>P.f. kieselbachi</i>	Gozitan clade
Malta Island	<i>P.f. maltensis</i>	Maltese clade
Manoel Island	not assigned	Maltese clade
Ta' Fra Ben Islet	not assigned	Maltese clade
Filfla Islet	<i>P.f. filfolensis</i>	Maltese clade
Cheirolophus Rock (il-Ħaġra tas-Sajjetta)	not assigned	not included
Linosa Island (Pelagian Islands)	<i>P.f. laurentiimuelleri</i>	Gozitan clade
Lampione Islet (Pelagian Islands)	<i>P.f. laurentiimuelleri</i>	Gozitan clade
Lampedusa Island (Pelagian Islands)	<i>P.f. laurentiimuelleri</i>	Gozitan clade

Table 1. 18 known populations of *Podarcis filfolensis* of which the Selmunnett Islet (St. Paul's Islet) population has become extinct.

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