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Herpetological trip to Menorca (Balearics, Spain): April 30 till May 11, 2012

MARTEN VAN DEN BERG, MIKE ZAWADZKI and MICHAEL KRONIGER, February 2013

Summary

We report on our observations on *Podarcis lilfordi* (GÜNTHER, 1874) and other Menorcan herpetofauna during our 12 day trip to Menorca (Balearics, Spain). 13 populations of *Podarcis lilfordi* were surveyed, 101 specimens were measured and photographed in detail, from which 84 specimens were “buccal-swabbed” for DNA samples. The subspecific status of *Hemidactylus turcicus spinalis* from Addaia Gran is discussed and rejected.

Keywords: Menorca, *Podarcis lilfordi*, *Hemidactylus turcicus spinalis*.

Introduction

Our primary target for this trip to Menorca was to expand our morphometrical data collection of the *Podarcis lilfordi* populations around Menorca, and additionally we wanted to collect DNA samples by a non-invasive technique, using micro-fiber dental brushes to collect buccal mucosal tissue (modified from SCHULTE *et al.* 2011), in behalf of VALENTÍN PÉREZ-MELLADO (Universidad de Salamanca) and his colleagues of UIB (Universitat de les Illes Balears). But unfortunately we could not get in contact to make the proper arrangements to meet each other in person on Menorca.

After sharing our last leg of our flight from Barcelona to Menorca, we met our friend, bibliophile and cockroach expert MICHAEL KRONIGER around midnight at the researcher-apartment of **Parc natural de s'Albufera des Grau**, in which we were kindly invited to stay, after our last visit in September 2011 (VAN DEN BERG & ZAWADZKI 2011), by RICARD BORRAS TEJEDOR. In the entire neighborhood of the apartment the noise of *Hyla meridionalis* was deafening. We were not able to find any of these frogs, as they live here in dense vegetation, and they stopped calling immediately when being approached.



Image 1: The path into the Vall d'Algaiarens area.



Image 2: Escull de Ses Vinyoles in front of Vall d'Algaiarens.

MICHAEL KRONIGER decided, after several moments of severe insistence, to join us on this trip, where he could participate the first seven days, which was for him a first-time experience on Menorca.

Monday the 30th of April:

Vall d'Algaiarens - Cap d'Artrutx

After meeting with the staff of Parc natural de s'Albufera des Grau, and making the proper preparations for the first days, we went on a little road trip to some interesting parts of the main island.

First we drove to the north-west of Menorca, to Vall d'Algaiarens, with two of the most beautiful beaches of the island, also known for the presence of *Natrix maura*, *Testudo hermanni*, *Emys orbicularis* and the invader *Trachemys scripta elegans*. The water level in the torrent was quite high, and with some patience we could observe some of the (at that moment) very shy *Trachemys scripta elegans*, and another invader, the Italian wall lizard, *Podarcis siculus siculus*.

At the beach we gave the little island Ses Vinyoles another look; we still have to visit this for *Podarcis lilfordi* unresearched island some time in the future, to check for ourselves. During our whole visit, the wind direction was straight from the south, providing optimal conditions to navigate the northern coast by kayak, as can be seen on the smooth surface of the Mediterranean Sea on image 2.



Image 3: Male *Podarcis siculus siculus* in the Vall d'Algaiarens area.



Image 4: Female *Podarcis siculus siculus* in the Vall d'Algaiarens area.



Image 5: Lighthouse at Cap d'Artrutx.



Image 6: *Hemidactylus turcicus* at Cap d'Artrutx.



Image 7: Mating pair of *Teira perspicillata* at Cap d'Artrutx.



Image 8: Mating pair of *Teira perspicillata* at Cap d'Artrutx.

The second stop on our Monday roadtrip was Cap d'Artrutx, on the south-western corner of the island, known for its population of yet another invader, *Teira (Scelarcis) perspicillata perspicillata*, which we observed in high density during this visit, despite the fact that due to the strong wind the sea sprayed up to 30 m inland.

At Cap d'Artrutx *Teira perspicillata perspicillata* lives syntopic with *Hemidactylus turcicus* and *Tarentola mauritanica*. We even got very lucky, and did observe one pair while in the process of courtship and mating.



Image 9: Male *Podarcis lilfordi sargantanae* MZMB 00196.

Tuesday morning the 1st of May:
Illa Sargantana

Again a beautiful day, so early in the morning up to Fornells, to get us two kayaks from ALBERTO at [Katayak Fornells](#). MICHAEL had some second thoughts about kayaking on open sea, but the sheltered bay of Fornells provided a perfect first-time experience, and he had to admit that kayaking is quite an easy way of transportation (and lots of fun) if you have found a way to keep in the right direction.

First we went to the biggest of the three islands in the bay, Illa Sargantana, where we measured 3,5 specimens of *Podarcis lilfordi sargantanae*. One of the observed males was quite outstanding. Never before we saw a specimen on Menorca with that much of dorsal blue tones. We presume this manifestation has a status-signalling function, and comes with age. Several lizards have been observed blossom eating. Lots of molluscs were observed and a single *Locusta migratoria* spotted.



Image 10: Mike taking the measurements on Sargantana.



Image 11: Michael in Sargantana habitat.



Image 12: Male *Podarcis lilfordi sargantanae*.



Image 13: Another view of Sargantana.



Image 14: Male *Podarcis lilfordi sargantanae* MZMB 00196.



Image 15: Ventral view of male MZMB 00196 from Sargantana.



Image 16: Surveying Illot de Porros.

Tuesday afternoon the 1st of May:
Illot de Porros (Fornells)

Around noon we left for the smallest of the islands in the bay, Illot de Porros, where we measured 2,3 specimens of *Podarcis lilfordi porrosicola*. On prior visits, we encountered in this population also some males with blue tones, but May 2012 must have been the year of blue lizards; some other quite blue specimens (see images 18 and 19). The island has a very dense and partly extremely prickly (*Opuntia*) vegetation, so the lizards were relatively difficult to spot. We found several small *Loboptera* cockroaches and ants at suited places.



Image 17: Another view on Illot de Porros.



Image 19: Pair of *Podarcis lilfordi porrosicola* from Illot de Porros.



Image 18: Male *Podarcis lilfordi porrosicola*.



Image 20: Female *Podarcis lilfordi porrosicola* MZMB 00201.



Image 21: Ventral view of female MZMB 00201.



Image 22: South-side of Illa Ravells.

Tuesday late afternoon the 1st of May:
Illa Ravells

At 16:30, on our way back to Fornells, we also spent some time on Illa Ravells. Conform our previous observations (2008-2011), in contrary to the lizards of Sargantana, the *Podarcis lilfordi sargantanae* specimens from Illa Ravells were very shy, with as result no additions to our “virtual” collection. However, still some pictures were captured.

On Illa Ravells 60 % of the island is covered with *Pistacia lentiscus*, providing the lizards a lot of cover while being active.



Image 23: Female *Podarcis lilfordi sargantanae* from Illa Ravells.



Image 24: Male *Podarcis lilfordi sargantanae* from Illa Ravells.



Image 25: Male *Podarcis lilfordi sargantanae* from Illa Ravells.



Image 26: Illa de Porros with view on Cap de Barbaria.

Wednesday the 2nd of May:
Illa de Porros (Sa Nitge)

Tuesday afternoon we arranged with ALBERTO from [Katayak Fornells](#) to bring us with two kayaks to a small beach at the peninsula of Cap de Barbaria, from where we started our 1,3 km and 45 min journey to Illa de Porros, also known as Sa Nitge. 13,8,1 specimens of *Podarcis lilfordi fenni* were captured and measured, mostly by the use of a trap with some pieces of apple as bait. We changed our bait strategy from smelly cat-food to apple, because on Sargantana it became clear that the lizards gorge on the cat-food, in most cases resulting in vomiting during handling, and therefore dirty mouths full of animal material. It is almost impossible to let the lizards rinse their mouth before probing, so in order to get uncontaminated tissue samples of the lizards, we preferred the apple, which were just licked by the lizards, or only small quantities were swallowed.

In order to get a comfortable way of probing, we didn't use the ordinary (big) cotton-sticks, but instead we used a microfiber dental application brush, Orbis Orbibrush, for buccal swabbing (see image 31).



Video 1: Panorama of Illa de Porros.

All sticks were labeled and stored in an individual container, and preserved frozen in a freezer.



Image 27: **A:** Variation in ventral views of non-melanistic Menorcan populations of *Podarcis lilfordi*.
B: Variation in ventral views of Illa de Porros population of *Podarcis lilfordi fenni*.



Image 28: Just arrived and getting ready.



Image 29: First specimen investigated.



Image 30: Counting scales.



Image 31: Buccal swabbing.

Besides the lizards and gulls, we found terrestrial snails in 3 species, 2 species of woodlice, earwigs, 2 species of beetles and a few ants. *Loboptera* cockroaches were found under relatively few stones, but then in quantities up to 10. The main flora on Illa Porros is *Crithmum maritimum* and *Allium sp.*. Just a few *Pistacia lentiscus* shrubs were seen, mainly in the eastern part of the island.

Even during the observations on the island, and certainly after quick analysis of our data that evening, we came to the first preliminary conclusion. Lizards from Illa de Porros can be distinguished from the other Menorcan populations of *Podarcis lilfordi* by the coloration of their ventral side, which is conform [EISENTRAUT \(1928a\)](#). In image 27 we present both variations, and just one male specimen in our dataset, from Illa del Rei (row A, fourth from the right), matches the variation of Illa de Porros.



Image 32: Female *Podarcis lilfordi fenni* from Illa de Porros.



Image 34: Female *Podarcis lilfordi fenni* from Illa de Porros.



Image 33: Male *Podarcis lilfordi fenni* from Illa de Porros.



Image 35: *Tarentola mauritanica* from Illa de Porros.



Image 36: Male *Podarcis lilfordi fenni* MZMB 00205.



Image 37: Male *Podarcis lilfordi fenni* MZMB 00206.



Image 38: Female *Podarcis lilfordi fenni* MZMB 00207.



Image 39: Female *Podarcis lilfordi fenni* MZMB 00213.



Image 40: Hatching....



Image 41: Hatchling and egg.



Image 42: Male *Podarcis lilfordi fenni* MZMB 00214.



Image 43: Male *Podarcis lilfordi* from Illa Ses Mones.

Thursday the 3th of May:
Illa Ses Mones

Ses Mones, this year with better weather conditions than last year, but that seems no guarantee of success. We spent the whole day on the island, from 10:00 till 16:00, put out the traps, but at the end of the day we could only add one female to our database, and she was caught by hand. Overall the lizards were quite shy as usual, most of the time underneath the cover of the vegetation, only basking for short periods in the open, and not interested in our bait. We even tried the cat-food again, without success. During all our sessions on this island, Ses Mones proved to be the most non-productive of all. Only MICHAEL had a single glimpse on one specimen of *Podarcis siculus*, at the northern slope of the island near to the waterline. Shyness might be contagious on this island.

A possible reason for this shyness could be predation pressure. As most other islands, Ses Mones is used by gulls for nesting. The difference is that the ones on Ses Mones acted very aggressive, especially towards some of us. Besides gulls and lizards we found several arthropods on the island: bees (a nest at the eastern slope), woodlice, locusts, ants and one scolopender. The *Loboptera* here seem to be broader



Image 44: King (or queen) of the island.



Video 2: Gull attack.

and less quick than at other visited locations. Many shells of terrestrial snails in three species, but very few living ones. Two specimens of *Tarentola mauretana* were found basking at the southern, more rocky side of the islet, and another two adult as well as two juvenile specimens on the upper part. There must be rodents on this island, in a crevice we found a few gnawed pinecones and a birdbone.



Image 45: Male *Podarcis lilfordi* from Ses Mones.



Image 46: Female *Podarcis lilfordi* from Illa Ses Mones.



Image 47: Male *Podarcis lilfordi* from Illa Ses Mones.



Image 48: Male *Podarcis lilfordi* from Ses Mones.



Image 49: Female MZMB 00225 from Illa Ses Mones.



Image 50: Female MZMB 00225.



Image 51: Mike getting his close-up.



Image 52: *Lavatera arborea* on top of Illot de Ses Àguiles.

Friday the 4th of May:
Illot de Ses Àguiles



Image 53: Ready to go.

Friday morning RICARD BORRAS TEJEDOR was so kind to bring us to Illot de Ses Àguiles by zodiac from Es Grau. This time the sea was calm enough, enabling us to get on to the island without wet clothes. First we have to make a correction to what was stated in our 2011 report on Illot de Ses Àguiles; we mentioned *Lavatera triloba* as one of the main plant species on the island, but after reconsideration, with the help of the the presence of blossom, we have to conclude it must be the more ordinary *Lavatera arborea* (see image 52). Don't be misguided, the vegetation on Illot de Ses Àguiles is not as abundant as it might appear in this picture, this is most of it, the main part of the island consists of bare rocks. The other main species, *Crithmum maritimum*, seemed seriously declined compared with our 2011 visit.



Image 54: Illot de Ses Àguiles.

The Island is littered with old bird and mammal bones maybe because it once was used as a nesting site of White-tailed Eagles (*Haliaeetus albicilla*), which provided the island it's name: "Eagle island". Nowadays only a few nests of gulls were observed, and several swifts (*Apus apus*) seem to breed here. The terrestrial arthropod fauna consists of woodlice, 1 species of terrestrial snail, beetles, ants and astonishingly many flies.

We were able to add 4,2 specimens to our database, including two melanistic males, one of them was a recaptured specimen we measured before in 2011. In contrary to our autumn visit in 2011, where we didn't find any green dorsal tones, we were able, during this spring visit, to distinguish three male specimens with clear green dorsal coloration.

Another new observation we made was the presence of a lot of subadults on lower parts of the island. The lizards were observed to use the whole island as hunting place, from the unvegetated, saltpond scattered sealine to the top. We also observed two adult specimens on our departure of the island, close to the waterline. One of them was a melanistic (probably) male specimen, which unfortunately lost its tail when we unsuccessfully tried to catch him by hand. This tail was preserved in ethanol and taken along with us. Including this last specimen we did observe during our two visits (2011 and 2012) to Illot de Ses Àguiles 3,3,1 different melanistic specimens.

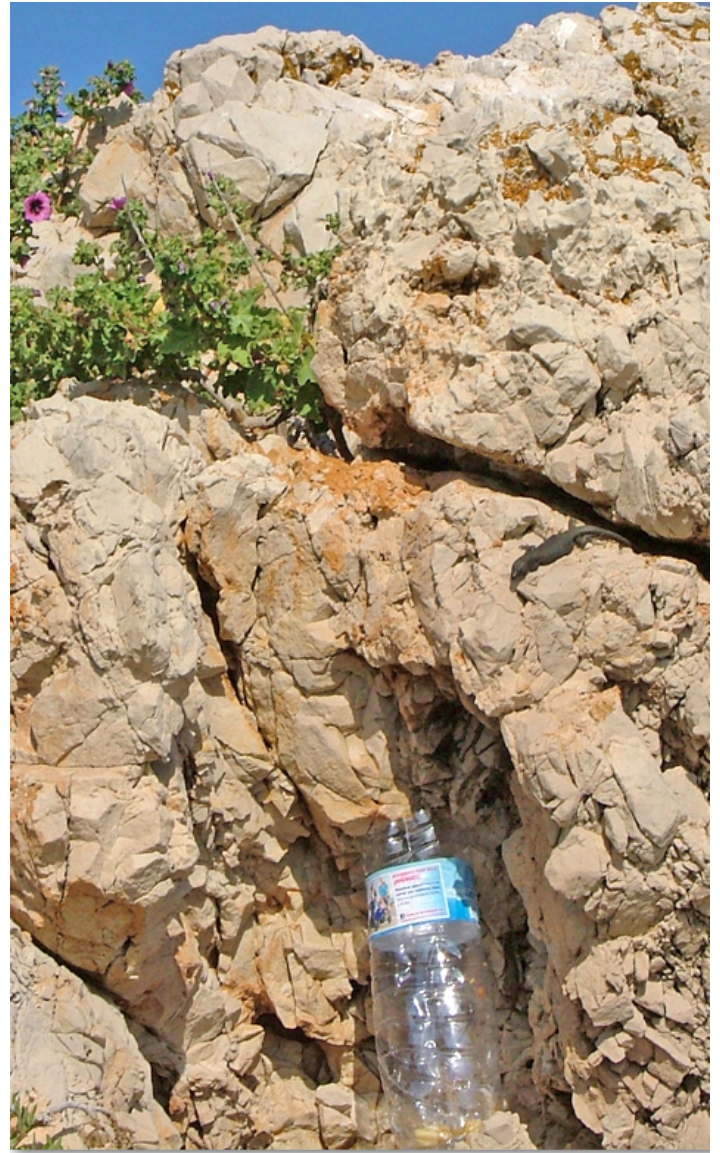


Image 56: Just checking out.



Image 55: Subadult on route from the lower part to the top.



Image 57: Writing it all down.



Image 58: Melanistic female *Podarcis lilfordi* from Illot de Ses Àguiles.



Image 59: Male *Podarcis lilfordi* from Illot de Ses Àguiles.



Image 60: Male from Illot de Ses Àguiles with view on Addaia



Image 61: Male *Podarcis lilfordi* from Illot de Ses Àguiles.



Image 62: Male *Podarcis lilfordi* from Illot de Ses Àguiles.



Image 63: Melanistic male *Podarcis lilfordi* . MZMB 00226.



Image 66: Male *Podarcis lilfordi*. MZMB 00227.



Image 64: Melanistic male MZMB 00226.



Image 67: Female *Podarcis lilfordi*. MZMB 00229.



Image 65: Melanistic male MZMB 00226.



Image 68: Female MZMB 00229.



Image 69: Recaptured melanistic male *Podarcis lilfordi* from Illot de Ses Àguiles.



Image 70: Quarry of Lithica. Insert: Eleonora's Falcon (*Falco eleonorae*).

Saturday the 5th of May:

Maó - Sa Mesquida - Lithica - Binicodrells

Saturday - MICHAELs last chance to get some books, so we went to Maó in order to satisfy the bibliophile herpetologists among us. We started at the small museum “[Ateneu Científic, Literari i Artístic de Maó](#)”, Sa Rovellada de Dalt 25, 07703 Maó, where we found some historic maps with precise nautical details of the port of Maó (see: [VAN DEN BERG 2011, updated 2012](#)).

At our next stop, the bookshop “Moviente SL”, Carrer de Hannover, 14, 07703 Maó, MICHAEL was very pleased to find him copies of the recent books, “PÉREZ-MELLADO, V. (2005) - Amfibis i Rèptils. Enciclopedia de Menorca. - Obra Cultural de Menorca, Maó”, “PÉREZ-MELLADO, V. (2006) - Les Sargantanes de les Illes Balears. - Col.lecció Patrocinada de la Galeria Balear d'Espècies, 3. La Conselleria de Medi Ambient del Govern de les Illes Balears” (available online), and “PÉREZ-MELLADO, V. (2009) - Les Sargantanes de les Balears. - Edition Documenta Balear, Illes Balears”, in the shelves.



Unfortunately no copies for MIKE, so we had to do some sightseeing through all bookshops and "heladerias" we found, until there was another copy of the 2009 book at midday.

The next station was the port of Maó in order to check for possible populations of *Podarcis lilfordi* which might have survived the connection of the former island Illa dén Pinto to the mainland. As expected no lizards nor other reptiles.

Then to Sa Mesquida on the western coast of Menorca between Es Grau and Maó, with a little island connected to Menorca by a small bridge. We only found *Podarcis siculus* in low density, maybe because of the high temperatures at our arrival in the early afternoon.

In order to find some nice lizards we went to the quarry of **Lithica**, at the Camí Vell, near the town of Ciutadella, a historical sandstone quarry, recultivated with a botanical garden and acting as theater. This quarry houses many herpetofaunal elements of which we were unfortunately only able to spot *Teira perspicillata* and *Podarcis siculus*. There were big plates (by VALENTÍN PÉREZ-MELLADO and ANA PERERA) showing the herpetological richness of this area. Nevertheless, *Teira perspicillata* were abundant and many nice and typical menorcan plants could be observed on the naturetrail.

The last destination of this day was the south coast of Menorca, where we first made some inquiries at **Tritón diving center** (Cala Torret), in order to find a vessel to take us to Illa del Aire. Unfortunately due to the strong wind from the south (5 bft), and the weather forecast for the coming days, no diving trips were planned in the neighbourhood of Illa del Aire. A little disappointed we took a drink, made a small review of the journey, and tried to contact VALENTÍN PÉREZ-MELLADO. But as this had no success as well, we went for a last small look at the Binicodrell islets.

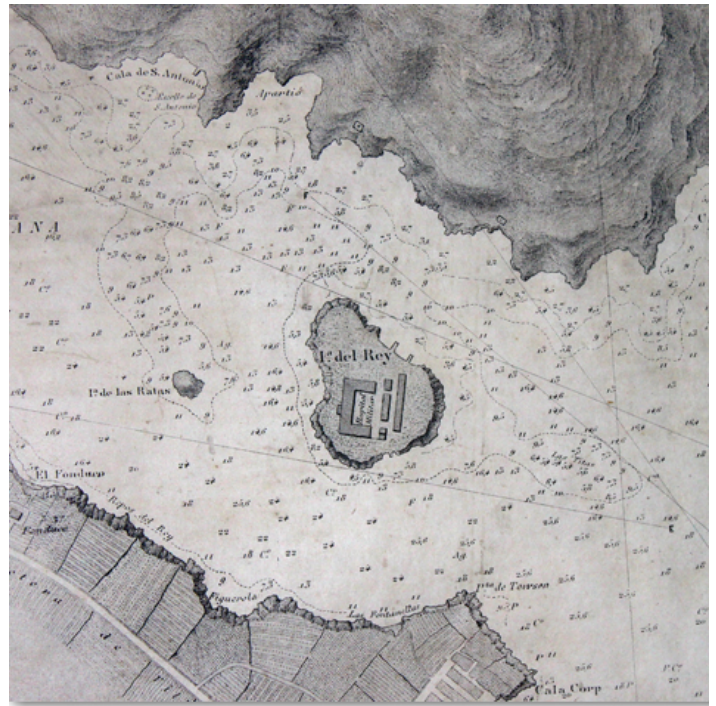


Image 71: Ancient map of Port de Maó.



Image 72: “Big” glass of beer at Tritón diving station, instead of transport to Illa del Aire.



Image 73: Sa Mesquida island with bridge.



Image 74: Other side of Sa Mesquida.



Image 75: Botanical garden at Lithica.



Image 76: Other view of Lithica.



Image 77: Lithica.



Image 78: No sign of *Emys orbicularis*.



Image 79: Male *Podarcis siculus siculus* at Lithica.



Image 80: Male *Teira perspicillata perspicillata* at Lithica.



Image 84: View on Illa del Rei..

Sunday the 6th of May:
Illa del Rei

On Sunday morning, when the volunteers of Amics de l’Illa de l’Hospital are working on the maintenance and renovation of the old hospital and visitors are guided on the island, we visited Illa del Rei, we might even say, as usual. The weather forecast for today was a long period of rain, and indeed, we didn’t kept dry. However, by turning a lot of stones, we were able to catch 2,4,3 specimens of *Podarcis lilfordi balearicus*, and added them to our data collection.



Image 85: Welcome to Illa del Rei.

Due to the renovation of the old hospital, and the many stones laying around, the *Loboptera* population was quite high. Quantities of 30 animals under one stone were not unusual. Restricted to one pile of stones a second cockroach species *Blatta orientalis* was found.

We also found a few specimens of the Dead horse arum lily (*Helicodictyon muscivorus*), which has a special relation to *Podarcis lilfordi* (see: PÉREZ-MELLADO et al. 2006), but we are under the impression, that the enthusiastic mowing, applied by the volunteers on Illa del Rei, might have a negative effect on this carnivorous plant.



Image 86: Male juvenile *Podarcis l. balearicus* MZMB 00233.



Image 87: Male juvenile MZMB 00233.



Image 88: Male *Podarcis lilfordi balearicus* MZMB 00234.



Image 89: Male MZMB 00234.



Image 90: *Helicodiceros muscivorus* - Dead horse arum lily.



Image 91: *Tarentola mauritanica* from Illa del Rei.



Image 92: Female *Podarcis lilfordi balearicus* MZMB 00235.



Image 93: Female MZMB 00235.



Image 94: Female *Podarcis lilfordi balearicus* MZMB 00236.



Image 95: Female MZMB 00236.



Image 96: Male *Podarcis lilfordi balearicus* MZMB 00237.



Image 97: Male MZMB 00237.

Most part of the afternoon rain was pouring, so no encouragement to do any fieldwork. However, late afternoon, when the skies were clearing, we left MIKE behind at the apartment, where he could finish his well deserved siësta undisturbed, and went for a hike in the park, along the s'Albufera des Grau.

Some specimens of *Tarentola mauritanica* were spotted, and one specimen of the False Smooth Snake (*Macroprotodon cucullatus*) escaped from under a turned stone. In the evening, after the rain ended, we were treated to a vociferous concert by *Hyla meridionalis*.



Image 98: s'Albufera des Grau.



Image 99: s'Albufera des Grau.



Image 100: Some impressions of s'Albufera des Grau.



Image 101: Colorful male *Podarcis lilfordi* from Illot d'en Mel.

Monday the 7th of May:
Illot d'en Mel



Image 102: Illot d'en Mel (captured Sunday late afternoon).



Image 103: Our companion CARMEN.

After dropping MICHAEL at the airport in the early morning, in the knowledge that he had missed *Euscorpius balearicus* during this trip, despite of the hundreds of turned stones (♣), we went from the “fisherman’s house” to Illot d'en Mel by rowing boat “Carmen”, now owned by the park. It’s a little less comfortable compared to kayaking, but it got us where wanted to be.

Again a very beautiful day, so with high hopes we placed our traps. But at the end of the day it turned out our yield was only a single male specimen, caught by hand, similar to the Ses Mones situation. At least we were able to take some pictures, including a particular colored male specimen (see image 101). Perhaps next time we have to bring along a fishing rod.

(♣): MIKE did find a specimen of *Euscorpius balearicus* on top of Ses Mones during this visit, and two specimens on Illa Llatzaret in the bay of Mahon on a previous trip.



Image 104: Marten trying to catch something.



Image 105: Mike next to his new vacation home.



Image 106: Pair of *Podarcis lilfordi* from Illot d'en Mel.



Image 107: Male *Podarcis lilfordi* from Illot d'en Mel.



Image 108: Male *Podarcis lilfordi* from Illot d'en Mel.



Image 109: *Tarentola mauritanica* from Illot d'en Mel.



Image 110: Female *Podarcis lilfordi* from Illot d'en Mel.



Image 111: Male *Podarcis lilfordi*. MZMB 00242.



Image 112: Male MZMB 00242.



Image 113: Male *Podarcis lilfordi brauni*.

Thursday the 8th of May:
Illa d'en Colom

For today RICARD BORRAS TEJEDOR had planned a cleaning operation on the beach of Illa d'en Colom, so we were invited to travel along with him and his colleagues. In the 3.5 hours we could spend on the island, from 10:00 till 13:30, we were able to expand our database with 10,5 specimens of *Podarcis lilfordi brauni*, which was a lot easier than on our previous visit in 2011.



Image 114: Getting ready.

Most specimens were caught in our traps, the more outstanding blue colored specimens were picked out and caught by hand. Between 10:00 and 11:00 we also spotted two specimens of the Ladder Snake (*Rhinechis scalaris*), one of them checking out one of our traps (with apple as bait). These special moments always seems to happen when you are not carrying your camera.



Image 115: Male *Podarcis lilfordi brauni*.



Image 118: Illa d'en Colom.



Image 116: Female *Podarcis lilfordi brauni*.



Image 119: Illa d'en Colom.



Image 117: Male *Podarcis lilfordi brauni*.



Image 120: Ricard and colleagues checking the lizards.



Image 121: Male *Podarcis lilfordi brauni* MZMB 00243.



Image 122: Male MZMB 00243.



Image 123: Male *Podarcis lilfordi brauni* MZMB 00255.



Image 124: Male MZMB 00255.



Image 125: Male *Podarcis lilfordi brauni* MZMB 00257.



Image 126: Male MZMB 00257.



Image 127: Subadult female from En Carbó. MZMB 00258.

Friday the 9th of May:

Illot d'En Carbó Grand and Petit

We were invited by ALBERTO ([Katayak Fornells](#)), who had opened a branch last year in Port d'Addaia, to use his kayaks in order to explore the Addaian islands. This turned out to be a big advantage compared to previous visits, because now we were able to do our field work from 10:00 until 19:00, a complete working day.

During our Friday visit to Illot d'En Carbó Gran and Petit we were able to add 6,1,1 specimens from Illot d'En Carbó Gran and 2,0,2 specimens from Illot d'En Carbó Petit to our database. All specimens were caught in our traps. Probably because of the relative high temperatures, the lizards were most of the time moving inside the shrubs, only occasionally basking, and therefore we didn't make a lot of "live" pictures.

The first catch of the day was a subadult female, MZMB 00258, with a very dark complexion (see image 127). This was our second encounter with a melanistic specimen on En Carbó, the first was photographed during the 2008 visit to the island ([VAN DEN BERG & ZAWADZKI 2010](#)), and we were very pleased to get a closer look on her. Also the finding of two more juveniles on the small island, together with the two (different) juveniles from last year, confirmed the vitality of this very small population.



Image 128: Illot d'En Carbó.



Image 129: Illot d'En Carbó Petit.



Image 130: Illot d'En Carbó.



Image 131: Male *Podarcis lilfordi carbonerae* from En Carbó.



Image 132: Female *Podarcis lilfordi carbonerae* from En Carbó.



Image 133: Male from En Carbó. MZMB 00259.



Image 134: Subadult female from En Carbó. MZMB 00258.



Image 135: Subadult female MZMB 00258.



Image 136: Male *Podarcis lilfordi* from En Carbó Petit.



Image 137: Subadult female MZMB 00258.



Image 138: Male from En Carbó. MZMB 00260.



Image 139: Male from En Carbó Petit. MZMB 00266.



Image 140: Male from En Carbó Petit. MZMB 00267.



Image 141: Juvenile from En Carbó Petit. MZMB 00269.



MZMB 00260

MZMB 00266

MZMB 00267

Image 142: Note the blue tones in the En Carbó Petit males (middle and right).



Image 143: *Hemidactylus turcicus* "spinalis" from Addaia Gran.

Saturday morning the 10th of May:
Illa Addaia Petit

We decided to go first to the smaller of the two Addaia islands, because on previous trips it had always been the final destination, resulting in lesser specimens added to our database. During the morning hours and first part of the afternoon we were able to catch 9,2 specimens of *Podarcis lilfordi addayae*, but none of them by our traps. This is a clear difference in behaviour compared with their cousins from Addaia Gran. However, their relation might not be as close as commonly believed. The channel dividing both islands is at the shallowest passage 1,8 m deep, which results in an estimated divergence time of 5100 years (VAN DEN BERG 2011).

The traps were checked out by the lizards, but none of them took the effort to get a really close look. They all seemed pretty satisfied with their usual food sources (image 137).



Image 144: Addaia Petit.



Image 144: Addaia Petit.



Image 145: This one looks tasty, but might be a little to big...



Image 146: Pair of *Podarcis lilfordi addayae* from Addaia Petit.



Video 3: This one might be to young to be interested...

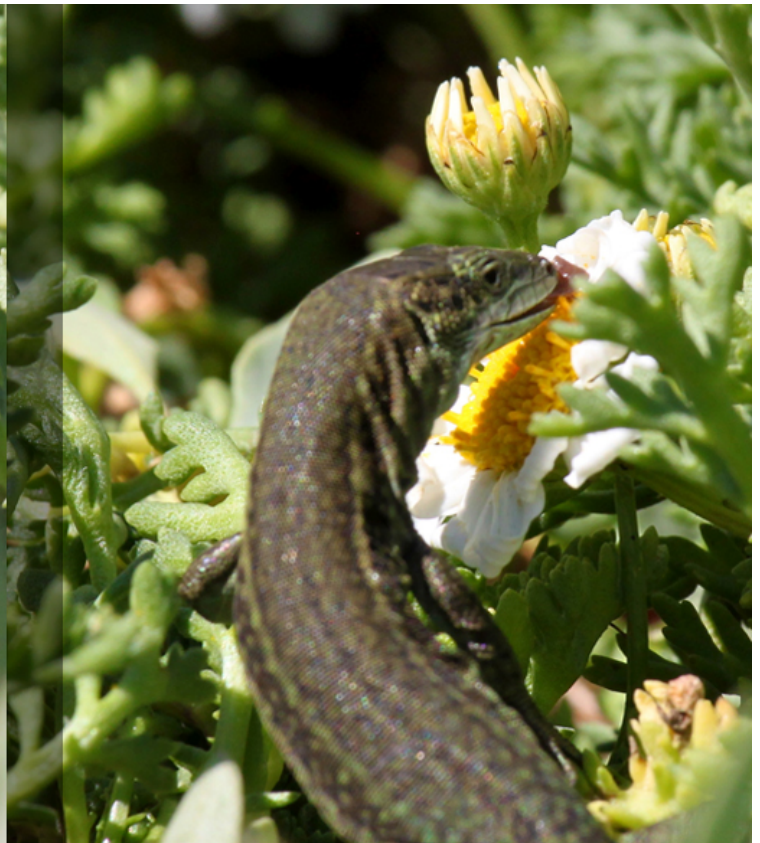


Image 147: Female *Podarcis lilfordi addayae* from Addaia Petit, nectar feeding on *Anthemis maritima*.



Image 148: Male from Addaia Petit. MZMB 00272.



Image 149: Male MZMB 00272.



Image 150: Female from Addaia Petit. MZMB 00274.



Image 151: Female MZMB 00274.



Image 152: Male from Addaia Petit. MZMB 00276.



Image 153: Male MZMB 00276.



Image 154: Male from Addaia Petit. MZMB 00279.



Image 155: Male MZMB 00279.



Image 156: The channel between Addaia Petit and Addaia Gran.



Image 157: Addaia Gran.



Image 158: Addaia Gran.

Saturday afternoon the 10th of May:
Illa Addaia Gran

After dropping MIKE on Addaia Gran, MARTEN went to Ses Àguiles by kayak, to have a closer look at the channel between Addaia Gran and Ses Àguiles, knowing MIKE needed some time to catch the very special striped Addaian subspecies of *Hemidactylus turcicus*, and he would not start taking the measurements on *Podarcis lilfordi*, before he had succeeded in this.

Luckily he caught his specimen quickly (see image 159), so he could resume his actual tasks, analyzing 5,5 specimens, all caught by trap within 15 minutes. We will discuss the subspecific status of *Hemidactylus turcicus spinalis* in the discussion section on page 71.



Image 159: *Hemidactylus turcicus* “*spinalis*” from Addaia Gran.



Image 160: Female from Addaia Gran. MZMB 00282.



Image 161: Female from Addaia Gran. MZMB 00283.



Image 162: Male from Addaia Gran. MZMB 00284.



Image 163: Male from Addaia Gran. MZMB 00288.



Image 164: Male MZMB 00288. Note the red mite infestation.



Image 165: Female from Addaia Gran. MZMB 00290.



Image 166: Female MZMB 00290.

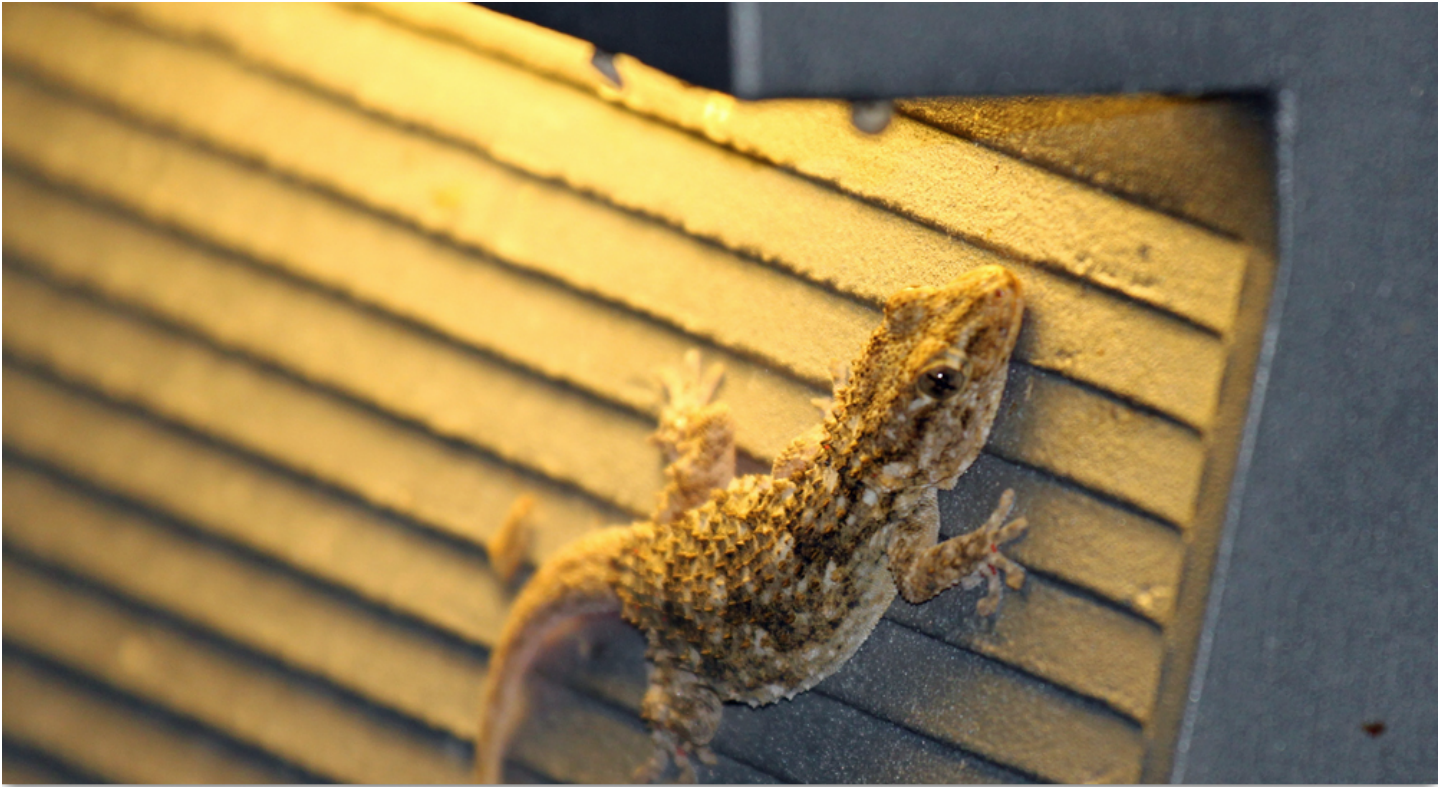


Image 167: *Tarentola mauritanica* at night.

Sunday the 11th of May
Ses Mones revisited

After dropping MIKE at the airport, I decided to give the Ses Mones population another try. It was even worse compared to our first visit the week before. Only a few specimens spotted and three pictures taken. The weather was not cooperating, clear blue sky, and a temperature of 28 °C in the shadow. Around noon I followed the lizards, laid down under some pine trees, and took a very long siesta.

Discussion - *Hemidactylus turcicus spinalis*

BUCHHOLZ (1954) made a preliminary description of *Hemidactylus turcicus spinalis*, based on 2,3 specimens deposited in the “Zoologisches Forschungsmuseum Alexander Koenig” in Bonn, collected by H. GRÜN on Addaia Gran the 2nd of January 1933. Although BUCHHOLZ wanted to research this species on the Balearics himself, other research assignments prevented this.

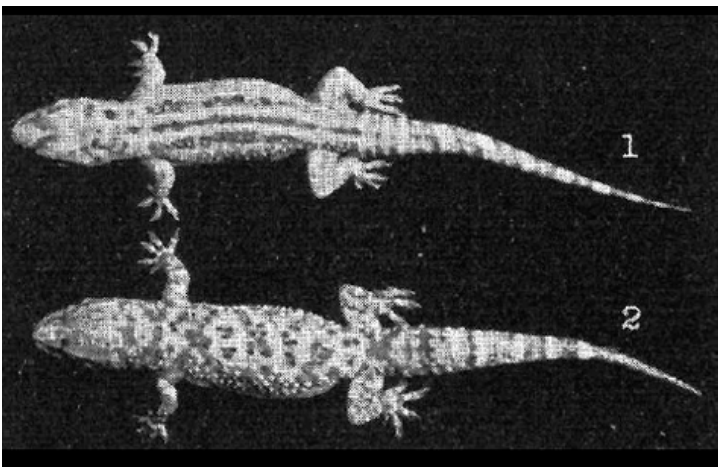


Image 168:
1 Female holotype of *Hemidactylus turcicus spinalis* from Addaia Gran.
2 *Hemidactylus turcicus* from Spain. (BUCHHOLZ 1954).

A single morphological characteristic, a complete or almost complete dark median stripe from head to the base of the tail, accompanied by two lighter lateral stripes, was enough to distinguish these specimens from other Spanish mainland *Hemidactylus turcicus*, and because this series of 5 specimens was very

uniform, he had enough reason to describe a new island race. A second characteristic, the complete number of adhesive lamellae of all toes, was argued as possible additional proof. MORAVEC et al. (2011) did not have access to tissue samples of the *Hemidactylus turcicus* population from Addaia Gran, but they declared that specimens from the type locality itself (Addaia Gran) should be tested first by molecular markers before any final taxonomic assignment.

It is unfortunate BUCHHOLZ didn't find the opportunity to study the *Hemidactylus turcicus* population on Addaia Gran for himself in vivo, perhaps he had subsequently drawn an other conclusion. Recently some pictures of *Hemidactylus turcicus* from Addaia Gran have been published on-line. The specimen from WILSON (2010) shows a little the described characteristic, but the specimen from DESCHANDOL (2011) and our specimen are clearly lacking this characteristic. In order to compare the images we present them as original and as grayscale, for enhanced contrast (see images 169-172).



Image 169: Female holotype of *Hemidactylus turcicus spinalis* ZFMK 33227 (collected by H. GRÜN) at "Zoologisches Forschungsmuseum Alexander Koenig" (© MICHAEL FRANZEN).



Image 170: *Hemidactylus turcicus* from Addaia Gran (modified from WILSON 2010). The described pattern is slightly present.

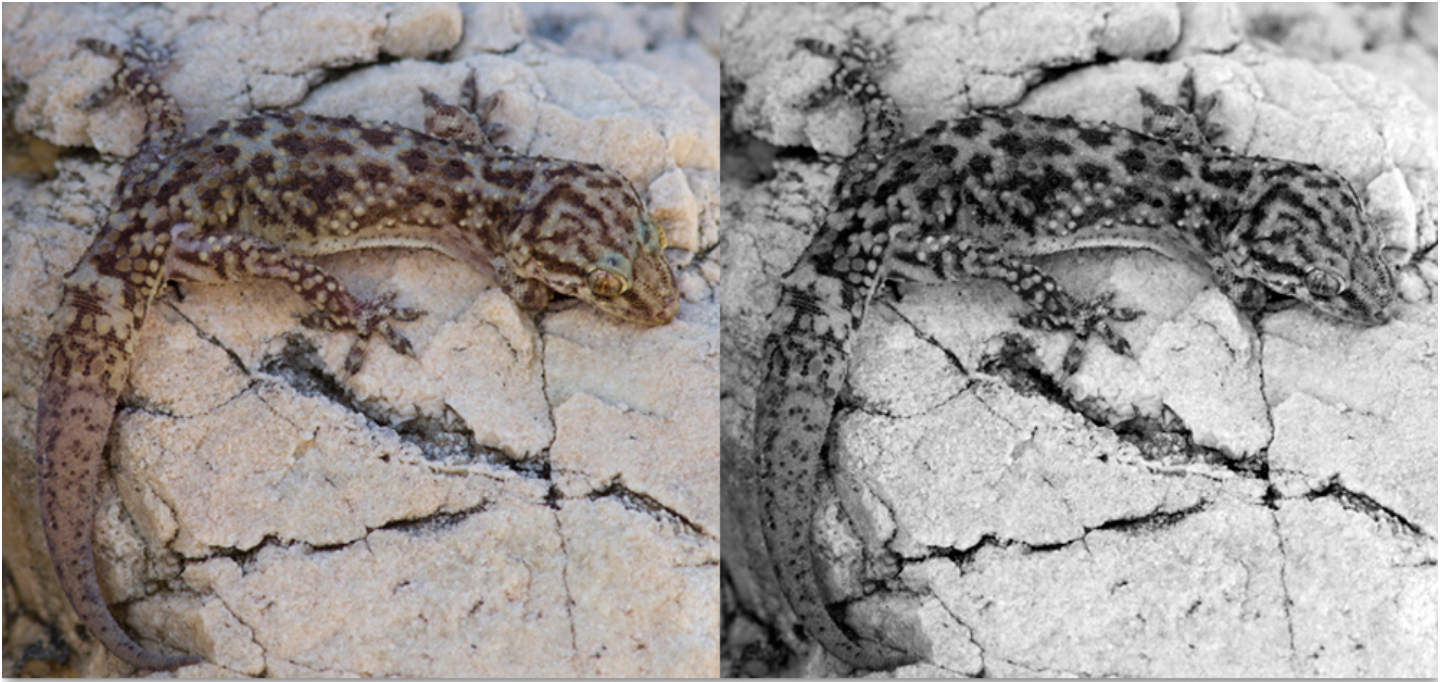


Image 171: *Hemidactylus turcicus* from Addaia Gran (modified from DESCHANDOL 2011). Note the median spots instead of a clear stripe.



Image 172: Our specimen of *Hemidactylus turcicus* captured on Addaia Gran. No clear pattern whatsoever.

To our opinion the description of *Hemidactylus turcicus spinalis*, based on a very small series, of which the specimens might have been closely related, a single morphological characteristic, which turned out to be not present in all specimens, is at least questionable. Until other prove becomes available, we reject the subspecific status of the population of *Hemidactylus turcicus* on Addaia Gran.

Discussion - *Podarcis lilfordi* : “To be distinct, or not to be distinct”

A polytypic species has two or more subspecies, races or more generally speaking, populations, that need a separate description (MAYR, 1970). These are separate groups that are clearly distinct from one another and do not generally interbreed (although there may be a relatively narrow hybridization zone), but which would interbreed freely if given the chance to do so. In the case of *Podarcis lilfordi*, isolation is not an issue, gene flow is not to be expected on a large scale. However, are the different populations clearly distinct from one another, that is the question.

The type descriptions of the 10 Menorcan subspecies and notifications of the 4 “undescribed” populations of *Podarcis lilfordi*, are in chronological order:

- Podarcis lilfordi lilfordi* (GÜNTHER, 1874)
- Podarcis lilfordi balearicus* (BEDRIAGA, 1879)
- Podarcis lilfordi brauni* (MÜLLER, 1927)
- Podarcis lilfordi rodriguezi* (MÜLLER, 1927)
- Podarcis lilfordi fenni* (EISENTRAUT, 1928a)
- Podarcis lilfordi addayae* (EISENTRAUT, 1928a)
- Podarcis lilfordi sargantanae* (EISENTRAUT, 1928b)
- Podarcis lilfordi carbonerae* PÉREZ-MELLADO & SALVADOR, 1988
- Podarcis lilfordi codrellensis* PÉREZ-MELLADO & SALVADOR, 1988
- Podarcis lilfordi porrosicola* PÉREZ-MELLADO & SALVADOR, 1988
- Illot de Ses Àguiles population (PÉREZ-MELLADO & SALVADOR 1988)
- Illa Ses Mones population (PÉREZ-MELLADO 1989)
- Illot d'en Mel population (TRIAIY 1998)
- Illot d'en Carbó Petit population (VAN DEN BERG & ZAWADZKI 2010)

In extension of what we observed regarding the *Hemidactylus turcicus* situation, the older descriptions of *Podarcis lilfordi* were mostly based on few characteristics from small series. Later EISENTRAUT (1950) extended the descriptions, and PÉREZ-MELLADO & SALVADOR (1988) made a first attempt to elevate the subspecific status of the different Menorcan populations of *Podarcis lilfordi* to scientific level, with the introduction of statistical methods. The introduction of modern genetics in herpetology, resulting in some genetics based studies on the Balearic lizards (PRETUS et al. 2004 ; BROWN et al. 2008 ; TERRASA et al. 2009 ; BUADES et al. 2013), didn't gave broader support to the validity of the present subspecies, actually it raised in some cases even more questions. Ongoing research with the use of polymorphic microsatellite loci (BLOOR et al. 2010) might prove to be of more significance in this case. To discuss this is beyond the scope of this article, but we intend to adress each of the Menorcan populations, giving an historical overview, discussing the historic and present data in detail, somewhere in the near future. We like to share our collection of data we gathered so far, therefore our database is accessible on-line at: www.pityusensis.nl. We invite everybody to have a closer look at the images and data of all investigated lizards.

Acknowledgment

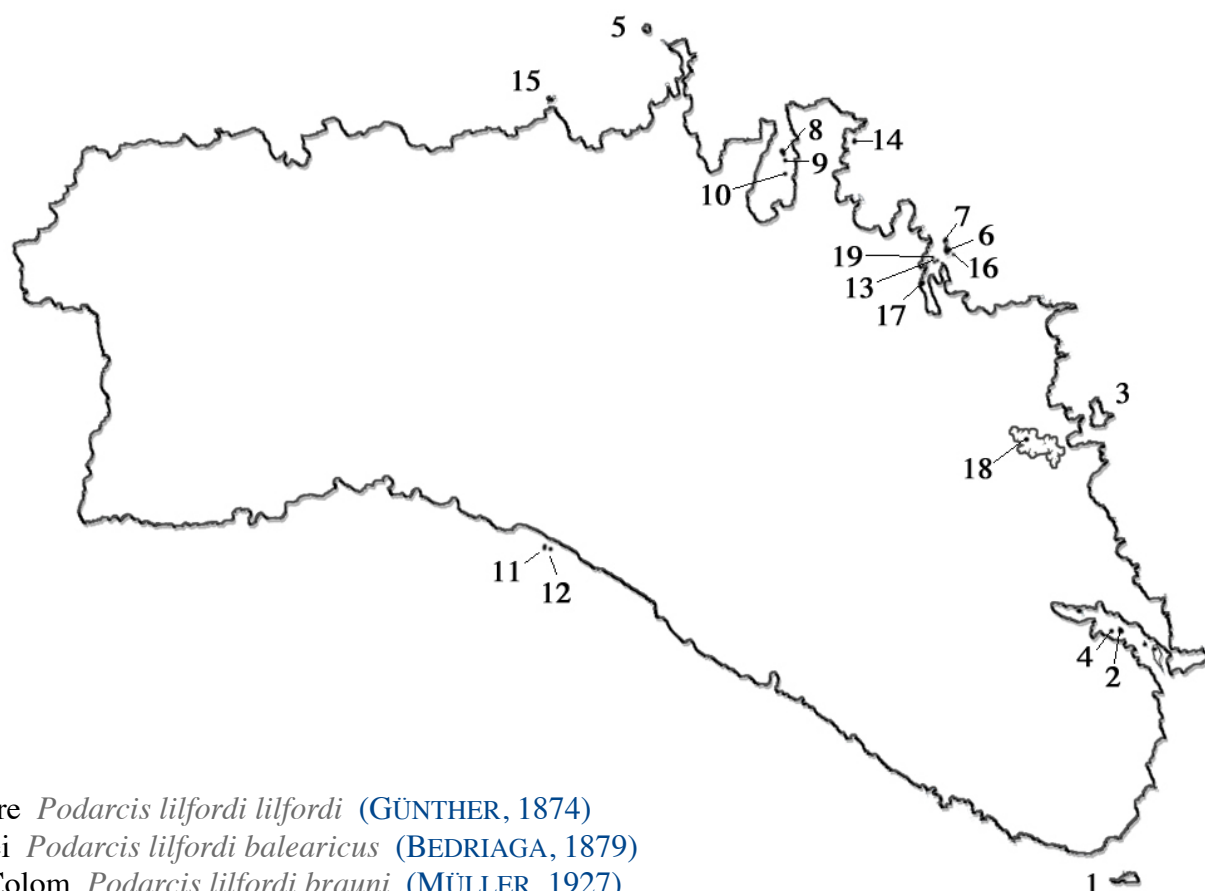
We want to express our gratitude to IVAN RAMOS TORRENS for providing permission by the Govern de les Illes Balears to conduct research on *Podarcis lilfordi*, the staff of the National Park of S'Albufera des Grau, especially RICARD BORRAS TEJEDOR, for their hospitality and in providing assistance on this trip, ALBERTO from [Katayak Fornells](http://www.katayak.com) for providing his assistance and the use of his kayaks, and FRANK DESCHANDOL, MICHAEL FRANZEN and MATT WILSON for sharing their pictures.

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Appendix

Populations of *Podarcis lilfordi* around Menorca:



1. Illa del Aire *Podarcis lilfordi lilfordi* (GÜNTHER, 1874)
2. Illa del Rei *Podarcis lilfordi balearicus* (BEDRIAGA, 1879)
3. Illa d'en Colom *Podarcis lilfordi brauni* (MÜLLER, 1927)
4. Illa Ratas (destroyed in 1935). *Podarcis lilfordi rodriguezi* (MÜLLER, 1927)
5. Illa Poros.. *Podarcis lilfordi fenni* (EISENTRAUT, 1928a)
6. Illa Gran d'Addaia *Podarcis lilfordi addayae* (EISENTRAUT, 1928a)
7. Illa Petit d'Addaia *Podarcis lilfordi addayae* (EISENTRAUT, 1928a)
8. Illa Sargantana *Podarcis lilfordi sargantanae* (EISENTRAUT, 1928b)
9. Illa Ravells *Podarcis lilfordi sargantanae* (EISENTRAUT, 1928b)
10. Illot de Porros *Podarcis lilfordi porrosicola* PÉREZ-MELLADO & SALVADOR, 1988
11. Escull de Binicofrell Gran *Podarcis lilfordi codrellensis* PÉREZ-MELLADO & SALVADOR, 1988
12. Escull de Binicofrell Petit *Podarcis lilfordi codrellensis* PÉREZ-MELLADO & SALVADOR, 1988
13. Illot d'en Carbó *Podarcis lilfordi carbonerae* PÉREZ-MELLADO & SALVADOR, 1988
14. Illot d'en Tosqueta *Podarcis lilfordi sargantanae* (EISENTRAUT, 1928b)
15. Illa de Ses Bledes *Podarcis lilfordi sargantanae* (EISENTRAUT, 1928b)
16. Illot de Ses Àguiles Illot de Ses Àguiles population (PÉREZ-MELLADO & SALVADOR 1988)
17. Illa Ses Mones Illa Ses Mones population (PÉREZ-MELLADO 1989)
18. Illot d'en Mel Illot d'en Mel population (TRIAI 1998)
19. Illot d'en Carbó Petit Illot d'en Carbó Petit population (VAN DEN BERG & ZAWADZKI 2010)