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Estimation of lizard density in *Podarcis pityusensis* island populations over time, with special attention to the correct naming of the islets

Antònia M. Cirer & Marten van den Berg, March 2025

Abstract:

In this study we compile data regarding lizard densities of the island populations of the Ibiza wall lizard, *Podarcis pityusensis*, which can serve as a baseline for future research and control of the invasive snakes, and in particular the horseshoe whip snake *Hemorrhois hippocrepis*, in the Pityusic Islands. Special attention has been given to the correct official spelling of 96 locations of which 89 are real rocks, islets and islands. For each island a short description, toponymy, faunal and floral aspects and some herpetological history is given, and a lizard density value was assigned. The results are very disturbing, with two confirmed- and three most likely extinct island populations of *Podarcis pityusensis*, and we call for coordinated action.

Keywords: Lizard density, *Podarcis pityusensis*, Pityusic Islands, *Hemorrhois hippocrepis*, extinction events.

Cover image: Natural park area of ses Salines d'Eivissa with a lizard density value of 4 (photo: Sebastian Candela).

Introduction

Our current knowledge of the Pityusic lizard started in 1883 with the description of *Lacerta muralis var. Pityusensis* by the physician and naturalist Eduard Boscà i Casanoves, from Valencia. He was one of the initiators of herpetological studies in Spain, and later professor of natural history at the University of Valencia, where he founded an extensive museum collection.

The first island population addition to *Podarcis pityusensis* is due to another Spanish naturalist, Salvador Maluquer, who donated four specimens, via Dr. F. Haas, to the Senckenbergische Museum. Publication of this subspecies, *Podarcis pityusensis maluquerorum,* probably created an extraordinary interest in the Pityusic lizard, particularly in the then flourishing and uncontroversial pet trade.

Before the other island populations of *Podarcis pityusensis* were described in the first half of the 20th century, these populations were already known to the pet trade, and an infrastructure to acquire these lizards had already been set up. One of the most important exponents was the Berlin-based zoological wholesaler and reptile specialist Scholze & Pötzschke, which maintained a network with local residents in the areas where the goods were taken from nature, including Eivissa. Communicating in German was an advantage, and that combination could also be found on Eivissa. In our case, this (these) subcontractor(s) often used local fishermen to obtain the lizards, and their personal role was primarily to handle the logistics towards Germany.

During this period, interested German naturalists also took the train and boat in the direction of the Balearic Islands, to make their contribution, first in Mallorca and later also on Menorca and Eivissa.

With all this new interest in the different looking beautiful lizards of the Balearic Islands, zoologists came into the picture, most likely a little bit encouraged by the pet trade, which had an interest in an official name for all these new goods. Taxonomy and the possibility of increasing the list of trinomials occupied all the attention of these scientists. Having been to the site of such a new subspecies yourself was not a requirement in those days, and that was understandable; traveling was different then, than it is today.

The descriptions that these zoologists made in a relative short timespan were initially done on the basis of living lizards (Mertens, Müller and Eisentraut), usually from existing pet trade channels, sometimes from the physical pet store itself. Eisentraut also made two trips to the Balearic Islands in 1928 and 1930 out of his personal interest in evolutionary processes.

Later, new subspecies of the Balearic and Pityusic lizards were also described on the basis of preserved museum specimens (Buchholz, Salvador and Pérez-Mellado). The

Image 1: Cover of the 25th anniversary Scholze & Pötzschke catalog (1930).

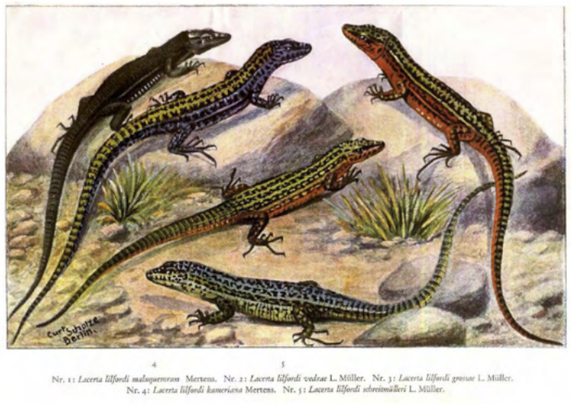


Image 2: Some of the Pityusic lizards offered in the Scholze & Pötzschke catalog (1930).

latter turned out not to be such a good idea. While some of the terra typica of the lizards studied alive were already a mess, in the case of the preserved lizards it was a real mess or total disaster (Zawadzki & van den Berg 2015). We will discuss this aspect in detail here.

In the seventies of the 20th century, all herpetologists who approached the species firstly had to clarify the situation of each population in its terra typica, including Antònia Cirer in preparation of her dissertation Revisión taxonómica de las subespecies del lacértido *Podarcis pityusensis* Boscá, 1883 (Cirer 1987).

An attempt was made to visit as many islands as possible, with or without known lizard populations, as it was necessary to verify this. Places with island names, but now connected to Eivissa or Formentera, were also visited. During these surveys the populations of illa de sa Sal Rossa and illot des Canaret were discovered, not previously described, which received the trinomial *Podarcis pityusensis martinezi* and *Podarcis pityusensis canaretensis*

respectively (Cirer 1980).

To assess the ecological state of each islet and, therefore, the possibility of sustaining a stable population of lizards, it is convenient to know some features of its history, especially of anthropogenic uses. Until the 1980s, the people of Eivissa used some of these islets for various purposes: Collecting wood, stone, salt and other materials, animal pens, collecting seabird eggs, fishing, storage of various materials, leisure area, fish drying, etc., activities that quickly disappeared with the arrival of tourism and the emergence of new ways of obtaining wealth from the territory.

At that time in Eivissa, almost everyone had a reference for everything, they knew the customs of each place and there was a certain familiarity in asking whoever went out to sea to transport you to this or that other islet. This trust with acquaintances ceased to exist very quickly and, during the 21st century, no one would think of asking for it, much less doing it. But, at that time, we could afford it.

Thus, planning the taxonomic study of the species involved knowing what means of transport we could count on to carry out each of the visits. The islets near the coast can be accessed by walking and swimming. If there was a nearby beach with scooters or kayaks for rent, the problem was solved. In the vicinity of the port of Eivissa, we went there with a small sailboat from the Club Nàutic.

For the islets that were difficult to access, we chose the closest place from where private fishing boats left, which are usually kept in the "escars", or boat houses, that border the Pityusic coast. There, in the morning, we could ask the fishermen who anchored the "llaüts" (the traditional fishing boat of the Balearic Islands) if they could drop us off at this or that islet. Generally, they did so willingly if we happened to be passing by. They would drop us off on the islet before sunrise, promising to pick us up again when they were done fishing, which was usually around noon. No one ever forgot to come and pick us up.

However, studies that now seem fundamental to the biology of the species were relegated, such as the reproductive cycle, the establishment of hierarchies and territoriality, the social meaning of body color, diet, predation, and, above all, the population densities that existed on each islet. Something that we now deeply regret when we see how lizards are rapidly disappearing from areas where the horseshoe whip snake, *Hemorrhois hippocrepis*, has arrived (Hinckley et al. 2017, Montes et al. 2022), which in a short time has brought the *Podarcis pityusensis* lizard population of the island of Eivissa to the risk of extinction (van den Berg & Zawadzki 2023b, Bowles 2024), a risk to which all populations of island lizards in the Pityusic Islands are subject at any time. *Hemorrhois hippocrepis* can reach any island, as it is a snake that swims very well and usually hides inside boats that winter on the mainland. When the boat is launched during spring, the snake leaves the boat and begins to swim towards the nearest piece of land, be it an islet or a beach full of people.

Material and methods

The need for standardization of location names of populations is evident. The official names as shown on the website of the Institut Cartogràfic i Geogràfic de les Illes Balears of the Conselleria d'Habitatge, Territori i Mobilitat will be leading. In the event that this is not sufficient, it will be motivated amended based on current Catalan place names according the l'Enciclopèdia d'Eivissa i Formentera and other specialized literature (Ribes-Marí 1993, 2006, 2023, Ferrer-Mayans & Ribes-Marí 2023, Marí-Planells & Ribes-Marí 2023, Ribes-Marí & Tetteh 2023). The results are shown in tables 1 to 3, as well as in a detailed description for each island, including estimated divergence time (EDT) (van den Berg 2015) which says something about the past and the height of the island, which can tell us something about the future. Surface area measurements used are according to Mayol (2020).

Because a standardized research method was followed during the preparation of, among other things, Cirer's dissertation (Cirer 1980, 1981, 1987, 1989, Guillaume & Cirer 1985, Cirer & Guillaume 1986) a lizard density value was assigned to each islet. In field observations carried out by Antònia Cirer in the 21st century, using the same bait as during the collecting expeditions in the 1980s (very ripe tomatoes or apples), spread within a radius of 5 meters around the stationary observer, lizards could be counted within a period of 30 minutes. The same lizard density scale of 1 to 4 could be assigned (see table 4), but without any capture or manipulation of lizards. These results were previously published in Cirer (2024) and now we take an extra step.

By adding Marten van den Berg's experiences gained during fieldwork to these data (van den Berg 2009, 2010, van den Berg & Zawadzki 2010, 2023a, van den Berg et al. 2014a, 2014b, 2015a, 2015b, 2016, Zawadzki & van den Berg 2017, Zawadzki et al. 2022, 2023) and adding field observations of García-Roa, de la Cruz & Uller (pers. comm. 2025) obtained in 2022 and 2023, we can present a comprehensive overview of lizard density over the past 40 years (see table 7).

We must make a reservation regarding the qualifications of van den Berg and García-Roa et al. in relation to the lizard density data of Cirer (2024). To give an example, in the case of a population with a low lizard density qualification by van den Berg, escull d'en Terra de sa Punta de ses Portes, it would be impossible to fit this into Cirer's scheme, because during two visits to this island it took two hours for the first lizards to show up. Other variables such as weather conditions, time of year and observer background also play a role, making it impossible to really merge the different data. We have matched these qualifications as closely as possible to Cirer's lizard density value, but we emphasize

Taxon	Terra typica	Present official name	Collector, collection date
Lacerta muralis var. pityusensis Boscá, 1883 *Podarcis pityusensis pityusensis* (Boscá, 1883) [1]	Isla de Íbiza.	Eivissa.	Boscá, III 1881.
Podarcis pityusensis maluquerorum Mertens, 1921 *Podarcis pityusensis maluquerorum* Mertens, 1921	Isla de las Bledas bei Jviza, Pityusen.	Bleda na Plana.	S. Maluquer, 1918.
Lacerta pityusensis kameriana Mertens, 1927 *Podarcis pityusensis kamerianus* (Mertens, 1927) [2]	Insel Esparto (Esparta oder Espartal), Westküste von Ibiza, Pityusen.	s'Espartar.	Z. Kamer, 1926.
Lacerta lilfordi kochi Müller, 1927 *Podarcis pityusensis carlkochi* (Mertens & Müller, 1940) [3,4]	Conichera (Cunillera), westl. von Ibiza.	sa Conillera.	C. Koch, 1927.
Lacerta lilfordi tagomagensis Müller, 1927 *Podarcis pityusensis tagomagensis* (Müller, 1927)	Insel Tagomago, östl. von Ibiza.	Tagomago.	Scholze & Pötschke, 1927.
Lacerta lilfordi schreitmülleri Müller, 1927 *Podarcis pityusensis schreitmülleri* (Müller, 1927)	Insel Malvin bei Ibiza.	es Malví Gros.	W. Schreitmüller, 1927
Lacerta lilfordi affinis Müller, 1927 *Podarcis pityusensis schreitmülleri* (Müller, 1927) [5]	Insel Guardia bei Ibiza.	es Malví Pla.	Scholze & Pötschke, 1927.
Lacerta lilfordi hedwig-kamerae Müller, 1927 *Podarcis pityusensis hedwigkamerae* (Müller, 1927) [6]	Insel Margalida (Margarita), nordw. Santa Inés auf Ibiza, Pithyusen.	sa Margalida.	H. Kamer, 1927.
Lacerta lilfordi vedrae Müller, 1927 *Podarcis pityusensis vedrae* (Müller, 1927)	Insel Vedrá, westlich der Südwestspitze von Ibiza (bei Cabo Jueu), Pithyusen.	es Vedrà.	Z. & H. Kamer, 1927.
Lacerta lilfordi gorrae Eisentraut, 1928 *Podarcis pityusensis gorrae* (Eisentraut, 1928)	Isla Bleda Gorra (Bleda Porros). Dritte Insel der drei größeren Bledas. (Reihenfolge: Plana-Bosque-Gorra.)	Bleda na Gorra.	M. Eisentraut, 20. VII. 1928.
Lacerta lilfordi muradae Eisentraut, 1928 *Podarcis pityusensis muradae* (Eisentraut, 1928)	Isla Murada an der Westküste von Ibiza, nördlich der Isla Margarita.	Illa Murada.	M. Eisentraut, VII. 1928.
Lacerta lilfordi grisea Eisentraut, 1928 [7] *Podarcis pityusensis formenterae* (Eisentraut, 1928) [5]	Isla Trocados, nördlich von Formentera.	es Trucadors (Formentera).	M. Eisentraut, VII. 1928.
Lacerta lilfordi formenterae Eisentraut, 1928 *Podarcis pityusensis formenterae* (Eisentraut, 1928)	Formentera.	Formentera.	M. Eisentraut, VII. 1928.
Lacerta lilfordi gastabiensis Eisentraut, 1928 *Podarcis pityusensis gastabiensis* (Eisentraut, 1928)	Isla Gastabi (eine der vielen Inseln zwischen Ibiza und Formentera, Südwestl. von Espalmador).	Illa de Casteví.	M. Eisentraut, VII. 1928.
Lacerta lilfordi intermedia Eisentraut, 1928 *Podarcis pityusensis negrae* (Eisentraut, 1928) [8]	Isla Negra, westl. von Ahorcados, zwischen Ibiza und Formentera.	Illeta Negra Grossa.	M. Eisentraut, VII. 1928.

Table 1 (part 1): Terra typica of described subspecies of *Podarcis pityusensis*.

Column 1: Taxon as described in black. Present name in green (Salvador 1984, 1986, 2002, 2006, 2009, 2015, Uetz 2025).
Column 2: Terra typica in original language and spelling.
Column 3: Present official location name with link to detail page.
Column 4: Collector and collection date.

Taxon	Terra typica	Present official name	Collector, collection date
Lacerta lilfordi espardellensis Eisentraut, 1928 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [5]	Isla Espardell, östl. der Isla Espalmador, zwischen Ibiza und Formentera.	s'Espardell.	M. Eisentraut, VII. 1928.
Lacerta lilfordi redonae Eisentraut, 1928 *Podarcis pityusensis redonae* (Eisentraut, 1928)	Isla Redona, östl. von St. Eulalia, Ibiza.	Illa Redona de Sta. Eulària.	M. Eisentraut, VII. 1928.
Lacerta lilfordi calae saladae Müller, 1928 [9] *Podarcis pityusensis calaesaladae* (Müller, 1928) [10, 11]	Isla der Cala Salada (Cala Salada ist eine Meeresbucht an der Westküste von Ibiza).	Illeta de Cala Salada.	Z. Kamer, 1928.
Lacerta lilfordi caldesiana Müller, 1928 [9] *Podarcis pityusensis pityusensis* (Boscá, 1883) [5]	Insel Caldés an der Nordküste von Ibiza.	Illa d'Encalders.	Z. Kamer, 1928.
Lacerta lilfordi vedranellensis Müller, 1928 *Podarcis pityusensis vedrae* (Müller, 1927) [12]	Insel Vedranell an der Westküste von Ibiza.	es Vedranell.	Z. Kamer, 08. IX. 1928.
Lacerta lilfordi zenonis Müller, 1928 [9] *Podarcis pityusensis kamerianus* (Mertens, 1927) [5]	Escollo von Esparta an der Westküste von Ibiza.	s'Escull de s'Espartar.	Z. Kamer, 1928.
Lacerta lilfordi ratae Eisentraut, 1928 *Podarcis pityusensis ratae* (Eisentraut, 1928)	Islas Ratas, südwestlich vom Hafen von Ibiza.	Illa de ses Rates.	M. Eisentraut, VII. 1928.
Lacerta lilfordi canensis Eisentraut, 1928 *Podarcis pityusensis canensis* (Eisentraut, 1928)	Isla Caná, an der Ostseite der Insel Ibiza, nördlich der Insel St. Eulalia.	Illa des Canar.	M. Eisentraut, 23. VII. 1928.
Lacerta lilfordi frailensis Eisentraut, 1928 *Podarcis pityusensis frailensis* (Eisentraut, 1928)	Isla del Fraile, dem Westzipfel der Insel Esparto an der Westküste Ibizas vorgelagert.	s'Espardell de s'Espartar.	H. Grün, X. 1928.
Lacerta lilfordi miguelensis Eisentraut, 1928 *Podarcis pityusensis pityusensis* (Boscá, 1883) [5]	Isla del Bosque de San Miguel, an der Nordküste Ibizas in der Bucht von San Miguel.	Illa des Bosc de Sant Miquel.	H. Grün, X. 1928.
Lacerta lilfordi espalmadoris Müller, 1928 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [5]	Insel Espalmador, südl. Ibiza.	s'Espalmador.	Z. Kamer, VI. 1928.
Lacerta lilfordi formenterae Müller, 1928 [13] *Podarcis pityusensis formenterae* (Eisentraut, 1928)	Formentera.	Formentera.	H. Grün, 15. VI. 1928.
Lacerta lilfordi grueni Müller, 1928 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [5]	Isla dos Trocados bei Espalmador, Pithyusen.	es Trucadors (Formentera).	H. Grün, 15. VI. 1928.
Lacerta lilfordi frailensis Müller, 1928 [13] *Podarcis pityusensis frailensis* (Eisentraut, 1928)	Westlich von der Pityusen Insel Esparta gelegen Felsen-inselchen Fraile.	s'Espardell de s'Espartar.	Z. Kamer, Herbst 1928.
Lacerta lilfordi grossae Müller, 1929 *Podarcis pityusensis redonae* (Eisentraut, 1928) [5]	Insel La Grossa (Sta. Eulalia), die der Ostküste von Ibiza, unweit des Ortes Sta. Eulalia vorgelagert ist.	Illa Llarga de Sta. Eulària.	Z. Kamer, 03. VIII. 1929.
Lacerta pityusensis ahorcadosi Eisentraut, 1930 *Podarcis pityusensis ahorcadosi* (Eisentraut, 1930)	Ahorcados.	Illa des Penjats.	M. Eisentraut, 18. VII. 1928.

Table 1 (part 2): Terra typica of described subspecies of *Podarcis pityusensis*.

Column 1: Taxon as described in black. Present name in green (Salvador 1984, 1986, 2002, 2006, 2009, 2015, Uetz 2025).
Column 2: Terra typica in original language and spelling.
Column 3: Present official location name with link to detail page.
Column 4: Collector and collection date.

Taxon	Terra typica	Present official name	Collector, collection date
Lacerta pityusensis algae von Wettstein, 1937 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [14]	Isla Alga (= Isla Pouet) nördlich von Formentera.	Illa d'en Forn (Formentera).	M. Hartmann, 1931.
Lacerta pityusensis isletasi Hartmann, 1953 *Podarcis pityusensis pityusensis* (Boscá, 1883) [5]	Von der großen Las Isletas (Mallorca).	Illa de sa Torre (Mallorca).	M. Hartmann, 1931? (see Zawadzki et al. (2018)
Lacerta pityusensis gastabiensis (Eisentraut 1949) *Lacerta pityusensis torretensis* Buchholz, 1954 *Podarcis pityusensis torretensis* (Buchholz, 1954)	Isla Torretas. Isla Torretas.	Illa de sa Torreta.	H. Grün, 20. IX. 1929. H. Grün, 15. V. 1930.
Lacerta pityusensis puercosensis Buchholz, 1954 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [5]	Isla Puercos, unmittelbar an der Nordspitze von Espalmador.	Illa des Porcs.	J. Jokisch, 5. IX. 1932.
Lacerta pityusensis subformenterae Buchholz, 1954 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [14]	Conejo de Formentera.	Illa des Conills.	H. Grün, 11. VII. 1930.
Lacerta pityusensis sabinae Buchholz, 1954 *Podarcis pityusensis formenterae* (Eisentraut, 1928) [14]	Isla Sabina.	Illa de la Savina.	J. Jokisch, 5. IX. 1932.
Lacerta pityusensis gastabiensis (Eisentraut 1949) *Lacerta pityusensis caragolensis* Buchholz, 1954 *Podarcis pityusensis caragolensis* (Buchholz, 1954)	Isla Negretta. Caragolé.	en Caragoler Gros.	H. Grün, 20. IX. 1929. H. Grün, 12. VII. 1930.
Lacerta pityusensis purroigensis Buchholz, 1954 *Podarcis pityusensis pityusensis* (Boscá, 1883) [15]	Isleta de Purroige, der größeren von "Las Isletas" zwischen Cap Llentrisca und Punta Roig.	Illeta Grossa de Porroig.	H. Grün, 20. VII. 1930.
Lacerta pityusensis hortae Buchholz, 1954 *Podarcis pityusensis hortae* (Buchholz, 1954)	Isla de Hort, nordwestlich von Tagomago, unmittelbar an der Küste von Ibiza.	Illot de s'Ora.	J. Jokisch, X. 1935.
Lacerta pityusensis characae Buchholz, 1954 *Podarcis pityusensis pityusensis* (Boscá, 1883) [16]	Insel Characa, an der Nordküste von Ibiza, in der Bucht Cala Characa.	Illot de sa Mesquida.	H. Grün, 14. VIII. 1930.
Podarcis pityusensis canaretensis Cirer, 1980 *Podarcis pityusensis pityusensis* (Boscá, 1883) [17]	L'illot d'es Canaret.	Illot d'es Canaret.	A. Cirer, 1979
Podarcis pityusensis martinezi Cirer, 1980 *Podarcis pityusensis pityusensis* (Boscá, 1883) [18]	Illot de sa Sal Rossa.	Illot de sa Sal Rossa.	A. Cirer, 1979

Table 1 (part 3): Terra typica of described subspecies of *Podarcis pityusensis*.

Column 1: Taxon as described in black. Present name in green (Salvador 1984, 1986, 2002, 2006, 2009, 2015, Uetz 2025).
Column 2: Terra typica in original language and spelling.
Column 3: Present official location name with link to detail page.
Column 4: Collector and collection date.

Taxon	Terra typica	Present official name	Collector, collection date
Lacerta lilfordi kochi (Müller 1927a) *Podarcis pityusensis pityusensis* (Boscá, 1883)	Die Form von Del Bosque, das wie mir Herr Koch schreibt, früher wohl mit Conichera zusammenhing, ist mit der von Conichera völlig identisch.	Illa des Bosc de sa Conillera.	No collection, at least not what ended up in the ZSM collection.
Lacerta lilfordi maluquerorum (Koch 1928) *Podarcis pityusensis gorrae* (Eisentraut, 1928)	Nebosque	Bleda na Bosc.	Koch, 1928.
Lacerta pityusensis maluquerorum (Eisentraut 1930) *Lacerta pityusensis gorrae* (Eisentraut 1930) *Podarcis pityusensis maluquerorum* Mertens, 1921	Escui de vermey 150 m nördl. von Bleda Plana.	Escull Vermell.	H. Grün, 1929. Eisentraut, 1930.
Lacerta lilfordi lilfordi, later corrected to *Lacerta pityusensis* by L. Müller (Michael Franzen pers. comm. 2023). ZSM 2239 (lost). Original 7 specimens. *Lacerta pityusensis pityusensis* (Eisentraut 1930) Unjustly listed as without lizards.	Isla de Falucho bei Ibiza.[19] Vechel de Gorra.[19]	es Vaixell.	H. Grün, VI. 1928. 51 specimens translocated by Eisentraut, 1930.
Lacerta pityusensis pityusensis (Eisentraut 1930) Listed as without lizards.	Escui de tremontaña.[19]	Escull de Tramuntana.	24 specimens translocated by Eisentraut, 1930.
Lacerta pityusensis pityusensis (Eisentraut 1930) Listed as without lizards.	Galera.[19]	sa Galera de Tramuntana.	20 specimens translocated by Eisentraut, 1930.
Lacerta pityusensis maluquerorum (Eisentraut 1930) *Podarcis pityusensis pityusensis* (Boscá, 1883)	Negra de Este.[19]	Illa Negra de Llevant.	50 specimens translocated by Eisentraut, 1930.
Lacerta pityusensis gorrae (Eisentraut 1930) *Lacerta pityusensis pityusensis* (Eisentraut 1930) Listed as introduced population.	Dado grande.[19]	es Dau Gros.	8 ♂♂ von Escui de vermey, 20 ♀♀ von Ibiza translocated by Eisentraut, 1930.
Lacerta pityusensis pityusensis (Eisentraut 1949) Was unjustly listed as without lizards.	Isla Portinatx de San Juan an der Nordküste Ibizas östlich von Isla Caldes.	S'Escullat de Portinatx.	H. Grün, 1929.
Lacerta pityusensis gastabiensis (Eisentraut 1949) *Podarcis pityusensis formenterae* (Eisentraut, 1928)	Isla Lalge, westlich von Espalmador.	Illa de s'Alga.	Eisentraut, 26. VII. 1928.
Podarcis pityusensis formenterae (Rodríguez Ruiz 1976) *Podarcis pityusensis formenterae* (Eisentraut, 1928)	Isla Redona.	Illa des Conills.	Rodríguez Ruiz, 26. VII. 1972 & 11. IV. 1973.

Table 2: Terra typica of additional populations of *Podarcis pityusensis* described in the 20th century.

Column 1: Original designation and reference in black. Present name in green (Salvador 1984, 1986, 2002, 2006, 2009, 2015).
Column 2: Terra typica in original language and spelling.
Column 3: Present official location name with link to detail page.
Column 4: Collector or translocator and collection or translocation date.

Taxon	Terra typica	Present official name	Collector, collection date
Podarcis pityusensis formenterae (van den Berg 2010) Is not mentioned.	Illa de Ses Perreres.	Illa de ses Parreres.	**ZBK**, 2011-05-29.
Podarcis pityusensis formenterae (van den Berg 2010) Is not mentioned.	Illa d'es Fonoll Mori.	Illa des Fonoll Marí.	**ZBK**, 2011-05-29.
Podarcis pityusensis (van den Berg & Zawadzki 2010) Is not mentioned.	Escull de Figueretes.	Illa des Pas Estret.	**ZBK**, June 2000. No collection. Images only.
Podarcis pityusensis (van den Berg & Zawadzki 2017) Is not mentioned.	Escull d'en Terra.	Escull d'en Terra de sa Punta de ses Portes.	**ZBK**, 2017-04-11 **ZBK**, 2017-04-12
Podarcis pityusensis (van den Berg & Zawadzki 2023a) Is not mentioned.	Escull a Punta de Llevant.	Illa Blanca (Badia Xarraca).	**ZBK**, April 2017. No collection. Video only.

Table 3: Terra typica of populations of *Podarcis pityusensis* described in the 21st century.

Column 1: Taxon as described in black. Present name in green (Salvador 1984, 1986, 2002, 2006, 2009, 2015).
Column 2: Terra typica in original language and spelling.
Column 3: Present official location name with link to detail page.
Column 4: Collector and collection date. In ZBK the Z refers to Mike Zawadzki, the B refers to Marten van den Berg and the K refers to Michael Kroniger. In case the character is in boldface this person was involved in collection or observation. The ZBK collection is not a physical collection, but a digital database of metric and morphological measurements including images, partly enhanced with buccal swab DNA samples.

Notes to tables 1 and 2	
1	Since 1973, all wall lizards have been included in their own genus *Podarcis* (Arnold 1973).
2	Although Böhme (1997) regarded the grammatical gender of *Podarcis* to be masculine, Arnold (2000) and Lanza & Boscherini (2000) retained it as feminine. See Böhme & Köhler (2005) and Speybroeck & Crochet (2007) for confirmation of gender as masculine. For this reason, the ending in the termination *Podarcis pityusensis kameriana* is adjusted to *kamerianus*.
3	*Lacerta pityusensis carl-kochi* Mertens & Müller, 1940 nomen novum pro *Lacerta lilfordi kochi* Müller, 1927 (Mertens & Müller 1940).
4	*Lacerta pityusensis carlkochi* Mertens & Müller, 1940 name correction for *Lacerta lilfordi carl-kochi* Mertens & Müller, 1940 (Mertens & Wermuth 1960).
5	Made synonymous by Salvador (1984).
6	*Lacerta lilfordi hedwigkamerae* Müller, 1927 name correction for *Lacerta lilfordi hedwig-kamerae* Müller, 1927 (Mertens & Wermuth 1960).
7	*grisea* is preoccupied by *Lacerta agilis grisea* Hermann, 1804 therefor *Lacerta lilfordi grisea* Eisentraut, 1928 should be treated as synonym of *Lacerta lilfordi grueni* Müller, 1928 (Eisentraut 1928b).
8	*intermedia* is preoccupied by *Lacerta viridis intermedia* Méhely, 1905 therefor *Lacerta lilfordi negrae* Eisentraut, 1928 is nomen novum pro *Lacerta lilfordi intermedia* Eisentraut, 1928 (Eisentraut 1928b).
9	It is remarkable that in case of the taxa *caldesiana*, *zenonis* and *calae saladae* that are referred to Müller (1928a) there is a priority issue regarding the author (Zawadzki pers. comm. 2024)

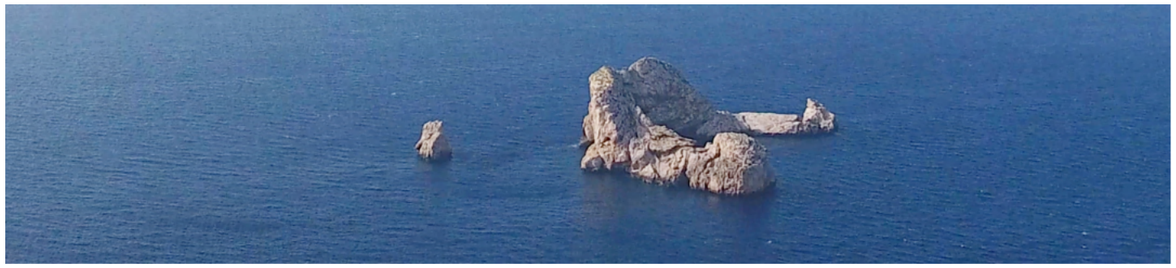


Image 3: Ses Margalides to the northwest of Eivissa.

that this can only be an estimate of a possible situation (see table 4).

This lizard density study does not include the lizard populations of the two main islands, Eivissa and Formentera, as these islands deserve a separate study due to their size and complexity, with the exception of the populations of illa Plana, illa Grossa, illa Botafoc, illa des Bosc de Sant Miquel, es Trucadors, illa d'en Forn and illa de la Savina.

Antònia Cirer		Marten van den Berg	García-Roa, de la Cruz & Uller (pers. comm. 2025)
Lizard density value	Lizards accounted for in 30 minutes	Qualification	Qualification
0	none	No lizards	No lizards
1	1 - 5	Low density	Low and very low density
2	6 - 15	Moderate density	Normal density
3	16 - 30	Abundant density	High density
4	> 30	Very high density	Very high density

Table 4: Lizard density scale of *Podarcis pityusensis* lizards. The qualifications of van den Berg and García-Roa et al. are based on field observations without following a protocol and should be interpreted as such. We have matched these qualifications as closely as possible to Cirer's lizard density value, but we emphasize that this can only be an estimate of a possible situation.

Notes to tables 1 and 2	
10	*Lacerta lilfordi calae-saladae* Müller, 1928 name correction for *Lacerta lilfordi calae saladae* Müller, 1928 (Eisentraut 1930).
11	*Lacerta lilfordi calaesaladae* Müller, 1928 name correction for *Lacerta lilfordi calae-saladae* Müller, 1928 (Mertens & Wermuth 1960).
12	Made synonymous by Eisentraut (1930).
13	Homonym.
14	Made synonymous with *Podarcis pityusensis pityusensis* and *formenterae* by Lilge (1975). Made synonymous only with *Podarcis pityusensis formenterae* by Rodríguez Ruiz (1976).
15	Made synonymous by Lilge (1975).
16	Made synonymous by Kroniger & Zawadzki (2002).
17	Made synonymous by Cirer (1987).
18	Made synonymous by Cirer (1981, 1987).
19	These rows are related to the islands where Martin Eisentraut performed his translocation experiments (Eisentraut 1930, Böhme & Eisentraut 1981).

Location: Illot de sa Sal Rossa is located right in front of the old salt charger of sa Sal Rossa or de la Xanga. It has an oval shape and low height with a rocky cracked soil. In the area there are remains of a Carthaginian purple dye factory that was made from the viscera of the *Murex* sea snail. Therefore, human visits have certainly been abundant for more than 2500 years; this is evidenced by the ceramic remains found on the islet. It is to be expected that introductions have occurred, which would distort and mask the situation we currently observe.

You can almost reach the island by walking through the water, as the separation from Eivissa is a shallow channel (0.7 m.), but there is a very dense reef with *Posidonia* that makes it unpleasant.

We changed the beginning of the name compared to the official name (illa de sa Sal Rossa), because the small size of the islet (4.451 m^2) makes illot more appropriate.

Toponymy: The area between Sant Francesc and platja d'en Bossa on Eivissa is called Sal Rossa because a type of salt, slightly brown, was produced there.

Synonyms: Illot de la Xanga, Illot d'en Pelleu.

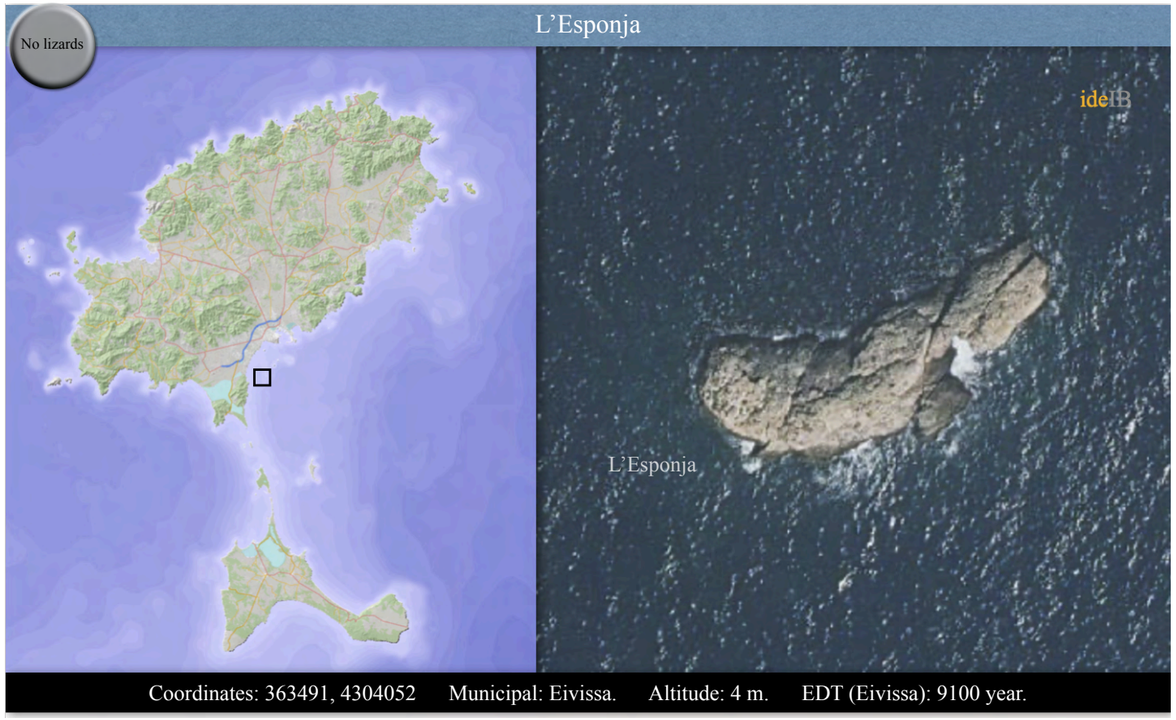
Floral aspects: Mastic bushes (*Pistacia lentiscus*), sea carrot (*Daucus carota*), sea fennel (*Crithmum maritimum*), statice (*Limonium* sp.), *Allium* sp., *Silene* sp., red thumb (*Cynomorium coccineum*), *Lotus cytisoides* and Mediterranean beach daisy (*Pallenis maritima*).

Faunal aspects: To be expected normal complex of invertebrates and some nesting yellow-legged gulls (*Larus michahellis*).

Herpetological history: Population described as *Podarcis pityusensis martinezi* Cirer, 1980. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Cirer (1981, 1987).

Lizard density: Abundant (2016).

Image 4 (top): Male *Podarcis pityusensis* (photo: Michael Kroniger).
Image 5 (center): Illot de sa Sal Rossa as seen from the south.
Image 6 (bottom-left): Vegetation on illot de sa Sal Rossa.
Image 7 (bottom-right): Female specimen (photo: Michael Kroniger).



Location: Small rocky islet (1.000 m²) located about 2 km from platja d'en Bossa, halfway between illot de sa Sal Rossa and es Malvins. Due to its low height and lack of protection from waves, it is completely flooded during a storm.

Toponymy: L'Esponja is called sponge because of its perforated surface.

Synonyms: None.

Floral aspects: Scarce occurrence of statice (*Limonium* sp.) on the higher parts.

Faunal aspects: No terrestrial fauna.

Herpetological history: Boscá (1883) and Salvador (2015) consider l'Esponja without lizards.

Lizard density: No lizards.

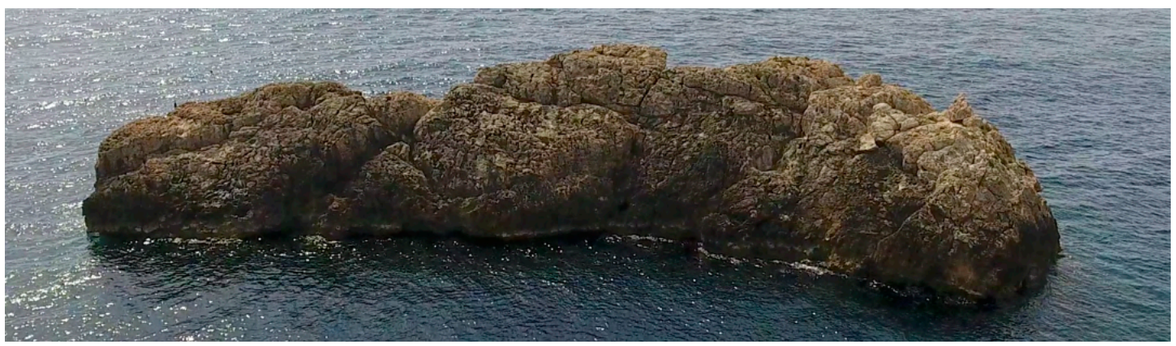


Image 8: L'Esponja as seen from the north.

Location: Es Malví Gros is the southernmost island in the es Malvins group, located about 2 km from platja d'en Bossa with a surface of 5.656 m². It has an altitude of 16 meters and the bushes in the center of the island reach more than a meter in height, constituting a small leafy maquis. The plant biodiversity is very rich, with a good number of species of restricted distribution and high biogeographic value.

Toponymy: The bulky Malvin island. Es Malvins derives from the Catalan common name of *Malva arborea*.

Synonyms: Es Malví Sud (south), es Malví Redó (round), es Malví Alt (high).

Floral aspects: Rich plant biodiversity.

Faunal aspects: Normal complex of invertebrates and nesting yellow-legged gulls (*Larus michahellis*).

Herpetological history: Population described as *Lacerta muralis* var. *Pityusensis* (Boscá 1883). Subspecies described as *Lacerta lilfordi schreitmülleri* Müller, 1927, with a doubtful terra typica of Insel Malvin bei Ibiza, whose position Müller could not determine with certainty. In Mertens & Müller (1928) this became Insel Malvin Grande bei Ibiza with the explanation of: To distinguish it from Malvin Pequeno, this island located east of Ibiza must be called Malvin Grande. This improvement was also not correct as es Malví Gros is not the larger of the two (pequeno translates into little). Present name: *Podarcis pityusensis schreitmülleri* (Müller, 1927).

Lizard density: Very high (2022).

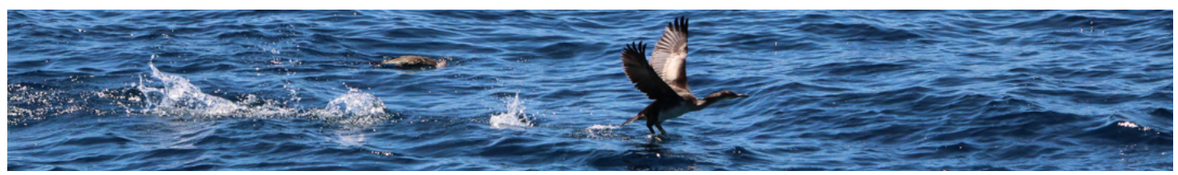


Image 9: Great Cormorant (*Phalacrocorax carbo*) passing by es Malví Gros (photo: Michael Kroniger).

es Malví Gros

Image 10: Female *Podarcis pityusensis* on es Malví Gros (photo: Michael Kroniger).

Image 11: Maquis on es Malví Gros.

sa Xella Grossa

Location: Ses Xelles are three small rocks located between es Malví Gros and es Malví Pla. We will only discuss sa Xella Grossa (669 m^2) because sa Xella Petita is too small and has no vegetation. The relative EDT between the ses Xelles and es Malví Gros is 6025 year.

Toponymy: Unknown.

Synonyms: None.

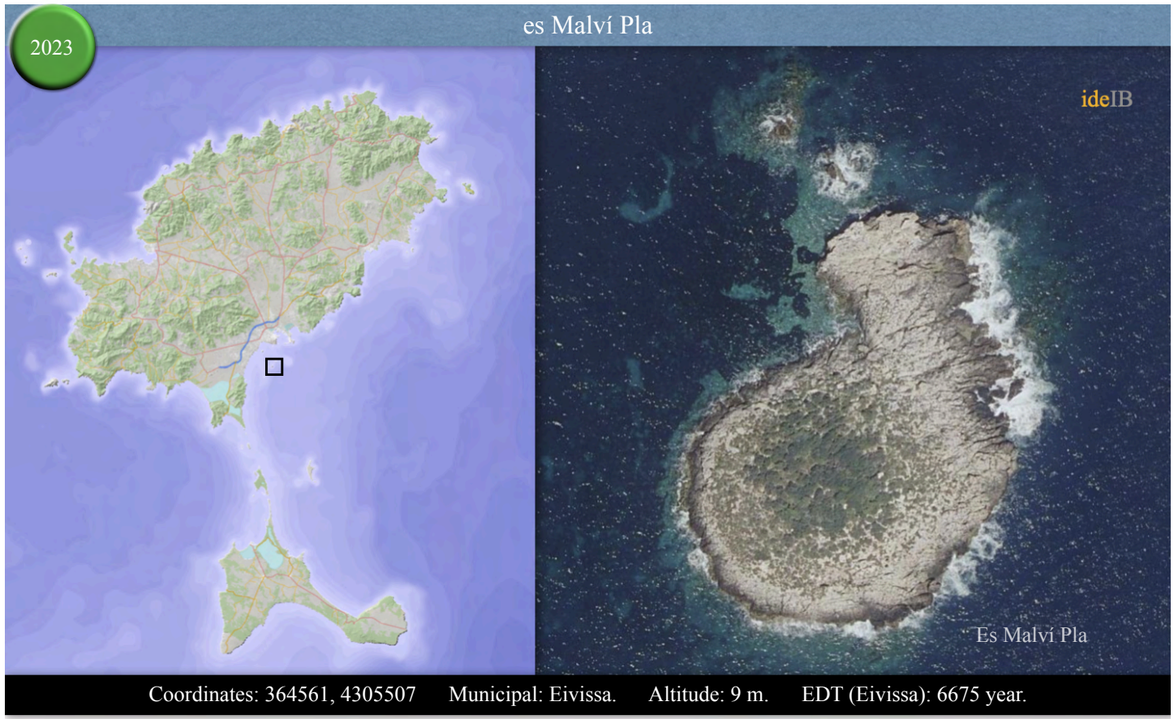
Floral aspects: Scarce occurrence of *Salicornia fruticosa* or *Suaeda vera* on the higher parts.

Faunal aspects: Not investigated.

Herpetological history: Too small and too exposed to the sea for lizards to exist (Boscá 1883). According Mike Zawadzki (pers.comm. 2023) there was a small lizard population on sa Xella Grossa in 2001.

Lizard density: No lizards, until proven otherwise.

Image 12: Sa Xella Grossa (bottom-left), es Malví Pla (middle), sa Xella Petita (bottom-right) and es Dau Gros (top-right).



Location: Malví Pla is the northernmost island in the es Malvins group and has the largest surface area (2.240 m^2). It reaches 9 meters in height and is more exposed to wind and waves. It has a poorer vegetation cover than Malví Gros, but with a similar richness of species and a similar density of lizards.

Toponymy: The flat Malvin island. Es Malvins derives from the Catalan common name of *Malva arborea* (Malva, Malvera).

Synonyms: Malví Nord (north), Malví Petit (small).

Floral aspects: Rich plant biodiversity.

Faunal aspects: Normal complex of invertebrates and nesting yellow-legged gulls (*Larus michahellis*).

Herpetological history: Population described as *Lacerta muralis* var. *Pityusensis* (Boscá 1883). Subspecies described as *Lacerta lilfordi affinis* Müller, 1927, with a completely wrong terra typica of Insel Guardia bei Ibiza, whose position Müller could not determine with certainty. That's what you get when you buy your lizards from a pet store.

We have to remember that of the describers in table 1, Boscá, Mertens, Müller, Eisentraut, von Wettstein, Hartmann, Buchholz and Cirer, only Boscá, Eisentraut, Hartmann and Cirer personally have been present to collect lizards on the Pityusic Islands. Cirer even counts as a resident. Personal presence may be considered an advantage in terms of knowledge about the local topography and conditions.

Of the mentioned collectors we can confidently say that they too were present on the Pityusic Islands themselves, only in the case of Herman Grün we are convinced that he was not personally involved in the capture of the lizards in all cases. It appears that a large part of his contributions consisted of subcontracted work to local fisherman, what resulted in cryptic names of islands of origin in the entry catalogs of the collections of Bonn and Munich, like Marotsch grande, Conejo de Formentera, Isla de la Sierra, Marotsch pequeña and Isla de la Salinas.

The terra typica "Insel Guardia bei Ibiza" could lead to great confusion, because an island with such a name usually refers to an island situated in front of a harbor or anchorage. In our case that would rather relate to illa Negra de Llevant or illa

Image 13: Vegetation on es Malví Pla.

Image 14: Pair of *Podarcis pityusensis* on es Malví Pla.

des Botafoc, which are actually located in front of the harbor of Eivissa. This was corrected in Mertens & Müller (1928): "Die in der Originalbeschreibung angegebene Terra typica: „Guardia" erwies sich als falsch. Nachforschungen ergaben, daß die der Beschreibung vorgelegenen Exemplare von der Insel Malvin Pequeño, östlich von Ibiza stammen." Unfortunately, the nature of these investigations are not given and we just have to trust that they were right. Present name: *Podarcis pityusensis schreitmülleri* (Müller, 1927), made synonymous by Salvador (1984).

Lizard density: Very high (2023).

Location: Illa de ses Rates is located in front of Figueretas about 400 m. east of the Punta de Sa Mata. The small surface area of the islet (12.086 m^2) was not an obstacle to auctioning it at the beginning of the seventies to build a building on it, which was not finished due to major objections among the residents of Eivissa. The cement structure was demolished at the end of the nineties. For a while, fireworks were set off from there for the festivities of August 15.

Toponymy: In the past there might have been rats on this island.

Synonyms: None.

Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Pallenis maritima, Artemisia* sp., *Capparis spinosa*, *Daucus carota*, *Sedum sediforme*, *Convolvulus cantabrica*, *Drimia maritima* and *Limonium* sp.

Faunal aspects: Normal complex of invertebrates and nesting yellow-legged gulls (*Larus michahellis*).

Herpetological history: Population described as *Lacerta lilfordi ratae* Eisentraut, 1928.

Lizard density: Abundant (2022).

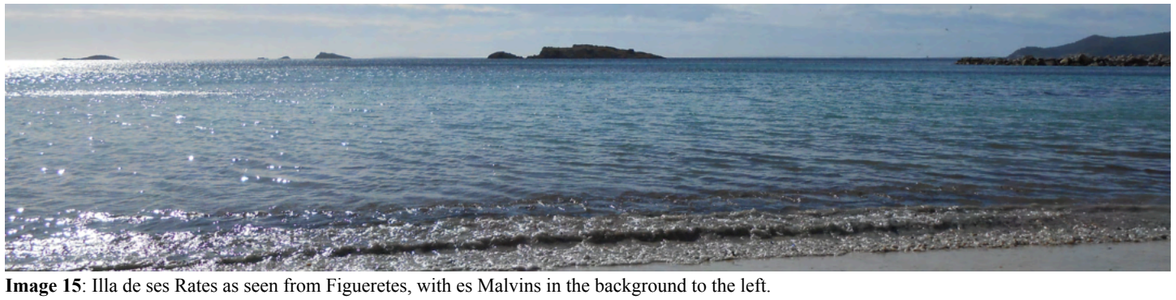
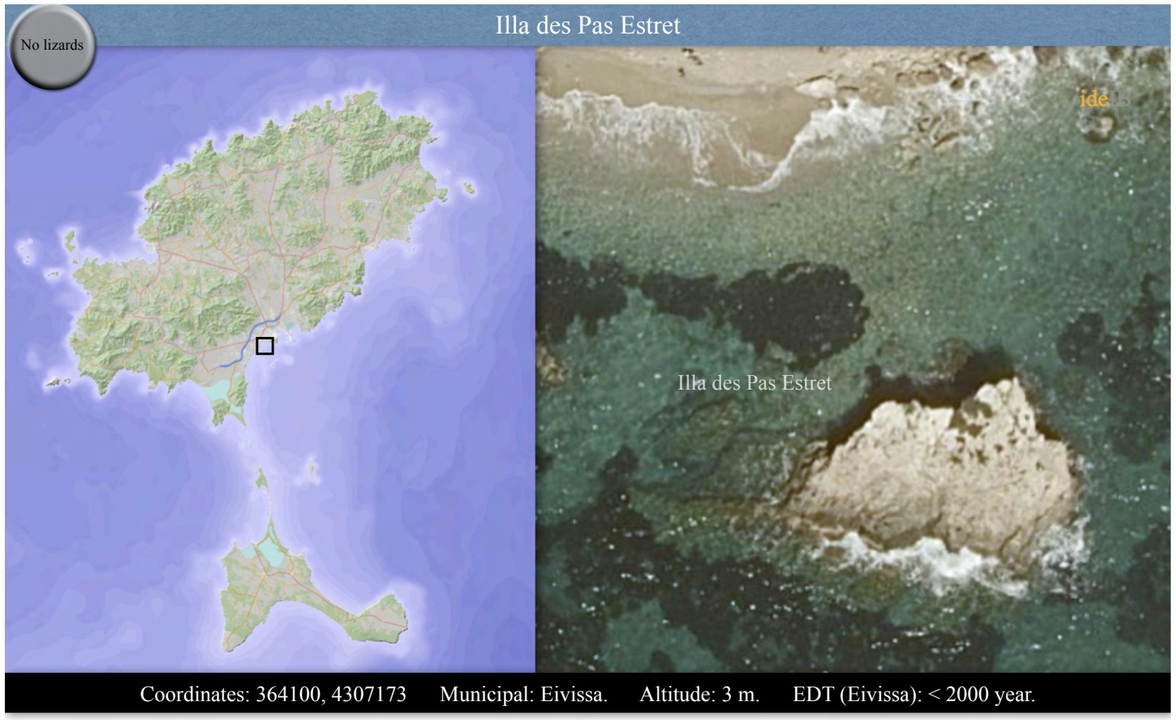


Image 15: Illa de ses Rates as seen from Figueretes, with es Malvins in the background to the left.

Image 16: Illa de ses Rates.

Image 17: Male (top) and female (bottom) *Podarcis pityusensis* on illa de ses Rates (photos: Michael Kroniger).



Location: Illa des Pas Estret is a small islet located about 20 m. of the coast, just in front of a sandy beach, called es Pas Estret due to its difficulty of access, which is located under the rocky cliff of Puig des Molins.

Toponymy: Pas Estret derives from narrow passage.

Synonyms: es Britjot.

Floral aspects: Only a few small, scattered bushes of sea fennel, statice, asparagus, *Limbarda crithmoides* and *Lotus Cytisoides.*

Faunal aspects: Only *Formicidae*.

Herpetological history: Population described as *Podarcis pityusensis* (van den Berg & Zawadzki 2010) with a incorrect terra typica of Escull de Figueretes, supported by two photos of *Podarcis pityusensis*. During the 21st century Antònia Cirer conducted more than 10 visits to this islet without encountering a single lizard.

Lizard density: Non-existent population, description probably due to an introduction (see also sa Corbeta).

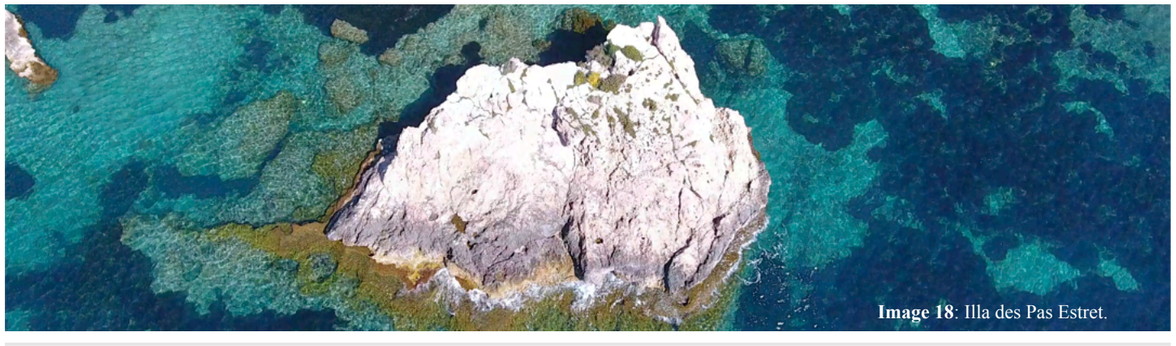
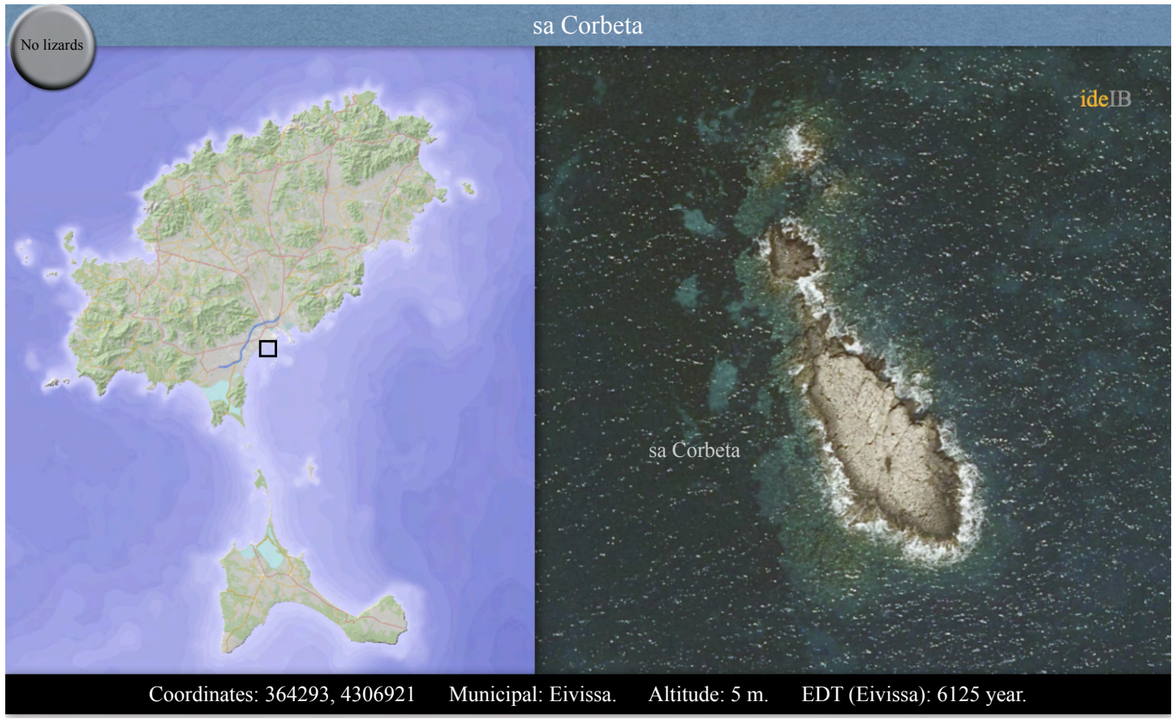


Image 18: Illa des Pas Estret.



Location: Sa Corbeta is located about 200 m. away from the bathing area known as es Salt de s'Ase, very frequented by the population of the city of Eivissa. During the 20th century the islet was regular visited by young people who went swimming there. Currently this is less frequent due to the danger of motorized boats that pass through the area. It has very small dimensions (1.218 m^2) that do not allow a stable population of lizards. There have never been lizards, except for the introductions resulting from childsplay, of which Antònia Cirer is aware of during more than 10 visits.

Toponymy: The silhouette of sa Corbeta looks like a corvette, colloquially the term for a small type of frigate.

Synonyms: Illa Negra de Ponent, illa des Salt de s'Ase (island of the donkey jump.

Floral aspects: Some scarce vegetation probably *Salicornia fruticosa* or *Arthrocaulon macrostachyum*.

Faunal aspects: No terrestrial fauna.

Herpetological history: Sa Corbeta is according Martínez-Rica & Cirer (1982) without lizards.

Lizard density: No lizards.

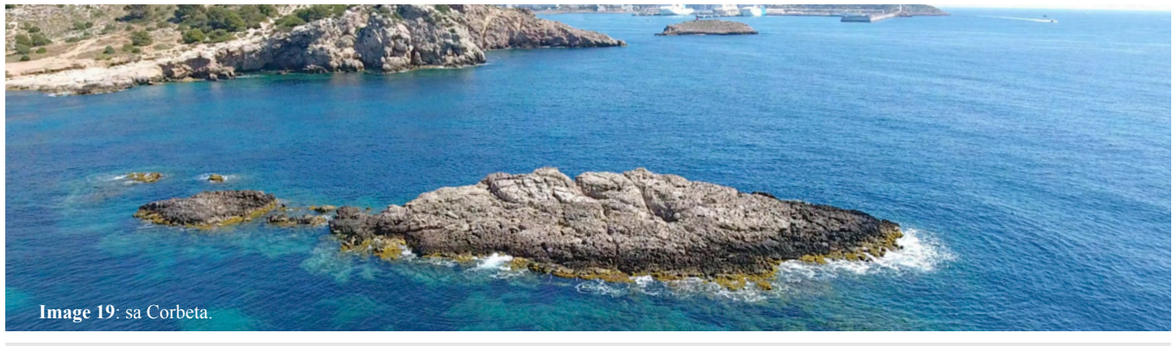


Image 19: sa Corbeta.

Location: Es Daus are two rocks and a reef at the entrance to the port of Eivissa. Es Dau Gros, the closest of the rocks to the mainland, is battered by the storm and it seems that there can be no sign of terrestrial life. It has had a navigation beacon since 1915. To the southeast is Es Dau Petit (relative EDT to es Dau Gros of 8325 year) and a little further Baix des Daus, where the merchant ship Don Pedro was wrecked in July 2007, with no apparent serious consequences for the islets and neighboring coasts. Es Dau Petit has no plant presence, while Es Dau Gros, which emerges vertically from the seabed, formed by a rocky substrate blackened by marine weathering due to the intense splashing of the sea over its entire small (791m^2) surface, is supporting a single plant species, *Suaeda vera*.

Toponymy: Dau translates to dice.

Synonyms: None.

Floral aspects: Only one plant species, *Suaeda vera*, which is unique for an island with a *Podarcis pityusensis* population. Usually we encounter at least 3 plant species on islands with a *Podarcis pityusensis* population.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*) and European storm petrel (*Hydrobates pelagicus*).

Herpetological history: There was no lizard population on es Dau Gros until Eisentraut (1930) released 8 melanistic males from escull Vermell and 20 greenish females from Eivissa in 1930. Five years later, 3 males and 3 females were collected on es Dau Gros by Jost Jokisch, and not by Hermann Grün as mentioned in Böhme & Eisentraut (1981). These specimens are kept in the Zoologischen Forschungsmuseums Alexander Koenig (ZFMK) in Bonn. Cirer (2021) suggested a possible deliberate reintroduction on es Dau Gros based on her findings in 1981, which was contradicted in Zawadzki et al. (2022). All published visits to es Dau Gros regarding *Podarcis pityusensis* are listed in table 5.

Lizard density: Assuming that we still observe remnants of the original introduction today, we can state that after an initial decline in the population size, a turnaround occurred in the early 21st century. This could be explained by the lizards improving their own habitat by eating the leaves of the *Suaeda vera* and then excreting them. In the 1980s there were only a few *Suaeda vera* thickets present, growing from a number of rock crevices. Now a much larger area is covered with this plant, which is now rooted in a real humus layer, that was not present before. Abundant lizard density (2022).

Image 20: *Suaeda vera* on es Dau Gros.

Year	Number of lizards	Reference
1930	8 male *P. p. maluquerorum* and 20 female *P. p. pityusensis* were released.	Eisentraut (1930, 1949)
1935	6 lizards (3,3) extracted by Hermann Grün.	Böhme & Eisentraut (1981)
1962	1 lizard	Martinez-Rica & Cirer (1982)
1978	1 lizard (1,0)	Mayol (2004b)
1979	“no lizards”	Salvador (1984, 1986)
1981	Relatively dense melanic population and surprisingly recent mummified corpses of large lizards in plain sight or between the cracks of the rocks. (estimated population size: 6-15 specimen)	Cirer (1987, 2021)
1983	3 lizards (1,2)	Zawadzki et al. (2022)
1983	6 lizards (estimated population size: 10 specimen)	Unidad de Vida Silvestre (1984)
1998	5 lizards (2,1 investigated, estimated population size: 5 specimen)	Mayol (2004b)
1998	3 lizards (2,1)	Perez-Mellado et al. (2017)
2001	9 lizards (3,6 investigated, estimated population size: 12-15 specimen)	Zawadzki & Kroniger (2002)
2006	4 lizards (2,2)	Perez-Mellado et al. (2017)
2010	1 lizard (0,1)	Perez-Mellado et al. (2017)
2013	21 lizards (6,15)	Perez-Mellado et al. (2017)
2014	12 lizards (6,6 investigated, estimated population size: 30 specimen)	van den Berg et al. (2014b) Zawadzki et al. (2022)
2014	21 lizards (8,13)	Perez-Mellado et al. (2017)
2022	17 lizards investigated, lizard density high.	Tobias Uller (pers. comm. 2025)

Table 5: Timetable with an overview of the number of lizards seen on es Dau Gros.

Es Dau Gros

Image 21: Female (top) and male (bottom) *Podarcis pityusensis* on es Dau Gros.

Image 22: Es Dau Gros on a stormy day (left, foto: Sebastian Candela) and juvenile *Podarcis pityusensis* on es Dau Gros (right).

Illa Negra de Llevant

Location: L'illa Negra de Llevant is in front of the citadel of Eivissa. Since 2004 there has been a light-beacon on the island to indicate the entry of the port of Eivissa. Small (3.483 m^2) rocky island, with sparse vegetation which allows a certain presence of terrestrial invertebrates and also lizards. Official this island is listed as Illa Negra, but to avoid confusion we will call this illa Negra de Llevant to distinguish it from the other illa Negra's around Eivissa.

Toponymy: Black island of the east.

Synonyms: None.

Floral aspects: *Daucus carota, Limonium* sp.*, Malva arborea, Asparagus horridus* and *Mesembryanthemum nodiflorum*.

Faunal aspects: Normal complex of invertebrates.

Herpetological history: In the 1920s, it was assumed that there was no lizard population on illa Negra de Llevant. For this reason chose Martin Eisentraut in 1930 this islet to carry out an experiment by introducing 50 specimens from Bleda Na Plana. With a Lamarckian vision, he wanted to check whether the melanistic lizards ceased to be so after a few generations and became more similar to those from the neighboring islets of es Malvins, or Eivissa. That is, to check if they lost their melanism, since the environmental conditions were different from their place of origin. Visits, observations and opinions are listed in table 6.

Lizard density: Moderate (2023).

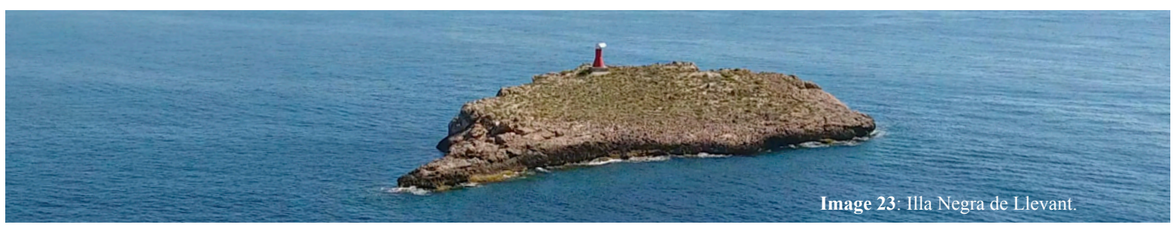


Image 23: Illa Negra de Llevant.

Illa Negra de Llevant		
Year	Observation	Reference
1883	It is assumed that the island “La Negra” is not home to any lizards due to its small size.	Boscá (1883)
1928	The Isla Negra del Este, located close to the harbor entrance, is a sloping rock of only about 1000 m2 in area and covered with sparse vegetation, and is not home to any lizards.	Eisentraut (1930, 1949)
1930	On March 7, 1930, 50 Plana lizards were released for experimental purposes on the small island of Negra del Este.	Eisentraut (1930, 1949)
1951	Sighting of some uncolored lizards, which could not be caught due to the heavily jagged rocks.	Meyer (1951)
1979	Small population of lizards. The animals are not numerous and are also very shy, retreating into hiding places at the slightest disturbance. On June 28, 1979, four males and three females were caught. Due to their similarity to the lizards of Ibiza, they were classified as the nominate form *Podarcis pityusensis pityusensis*.	Cirer (1981), Martinez-Rica & Cirer (1982)
1984	Indicates that it is a young population that differs only slightly from that of Ibiza. Notable features mentioned are a slightly larger head-body length, relatively shorter hind legs and a broader pileus (material: 6 males, 3 females). The animals are said to resemble the lizards of Ibiza in terms of coloration.	Salvador (1984)
1979	The island is said to have had no lizard population of its own before Eisentraut’s release. In 1979, a very small population was discovered, although Ibizan sailors and fishermen assured that they had never seen lizards on the island in previous years.	Cirer (1987)
2001	During a short stay, a small population is encountered, of which 6 specimen (2.4) can be examined. The animals show similarities to those from Ibiza.	Zawadzki et al. (2023)
2010	The males of the Illa Negra de Llevant show great similarities in coloration and markings with lizards from the main island of Ibiza and differ significantly from the melanistic Bleda Plana lizards in this respect. However, adult males of the Illa Negra de Llevant are significantly larger than those of Ibiza. In the mitochondrial phylogeny tree, however, the samples from the Illa Negra de Llevant specimens cluster with those of melanistic lizards from other islands.	Rodriguez et al. (2013)
2014	The lizards are not melanistic, but have the typical coloring and markings of the nominate form of Ibiza. For the first time, animals from the Illa Negra de Llevant are being depicted.	van den Berg et al. (2014b)
2017	The current population of Illa Negra de Llevant appears to contain individuals of different origins. This means that neither an additional introduction of lizards from Ibiza to Illa Negra de Llevant at an unknown time can be ruled out, nor that a lizard population may have already existed on the island before Eisentraut's release experiment.	Perez-Mellado et al. (2017)
2023	One possible explanation for the disappearance of the melanistic coloration type on the Illa Negra de Llevant is probably due to the different reproduction rates of the two original forms. Our data from 20 years of keeping in terrariums show that in *P. p. pityusensis* both the number of clutches per year and the clutch size are on average larger than in *P. p. maluquerorum*. The green to brown colored Ibiza females lay almost twice as many eggs per year as the melanistic females of *P. p. maluquerorum*, at least under terrarium conditions. This difference in the reproduction rate could have led to the population on the Illa Negra de Llevant becoming increasingly lighter over time, despite the three possible mating constellations ("green x green", "black x black" and "green x black"), because the proportion of purely melanistic and intermediate specimens became increasingly smaller. The fact that the melanistic lizards have nevertheless left their genetic legacy can be seen from the results of Rodriguez et al. (2013). And the conclusion of Perez-Mellado et al. (2017) that the current population of the Illa Negra de Llevant appears to contain individuals of different origins could also be explained in this way. It is therefore possible that only the differences in the reproduction rate have led to the fact that no visible traces of black lizards can be found on the Illa Negra de Llevant today. The secret of the lizards of the Illa Negra de Llevant is that, despite their uniform light coloring, which makes them similar to the animals of Ibiza, they still appear to carry traces of the black lizards that were released at that time.	Zawadzki et al. (2023)

Table 6: Timetable with an overview of the visits and observations on illa Negra de Llevant published in literature.

Illa Negra de Llevant

Image 24: Illa Negra de Llevant.

Image 25: Male *Podarcis pityusensis* on illa Negra de Llevant (photo: Michael Kroniger).

Location: The Phoenicians knew this location as an island, but sedimentation has softened the marshland area of the bay of the port of Eivissa and Talamanca and has united it naturally. The name "Illa" has remained as an echo from the past. Currently, it is urbanized as a neighborhood of the city of Eivissa, and has always had a population of lizards. The arrival of the horseshoe whip snake affects them in the same way as the rest of the island of Eivissa.

Toponymy: Flat island.

Synonyms: None.

Floral aspects: Not investigated.

Faunal aspects: City dwellers, including many cats.

Herpetological history: No specific history.

Lizard density: Low (2020) and declining.


Image 26: "Illa" Plana (image from internet).

Location: Ancient island artificially joined to illa Plana and illa des Botafoc with dikes built at the end of the 19th century with the aim of protecting the bay of Eivissa from rising seas. Before the union it was owned by Manuel Valarino, hence the alternative name of the island. Later some villas were built and at the highest point, 41 meters, an artillery emplacement during the Civil War. The construction of the port expansion in 2001 has completely changed the appearance of the island.

Toponymy: Bulky island.

Synonyms: Illa d'en Valarino.

Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Pallenis maritima, Malva arborea, Drimia maritima, Sedum sediforme, Convolvulus cantabrica* and *Limonium* sp.

Faunal aspects: Normal complex of invertebrates. not further investigated.

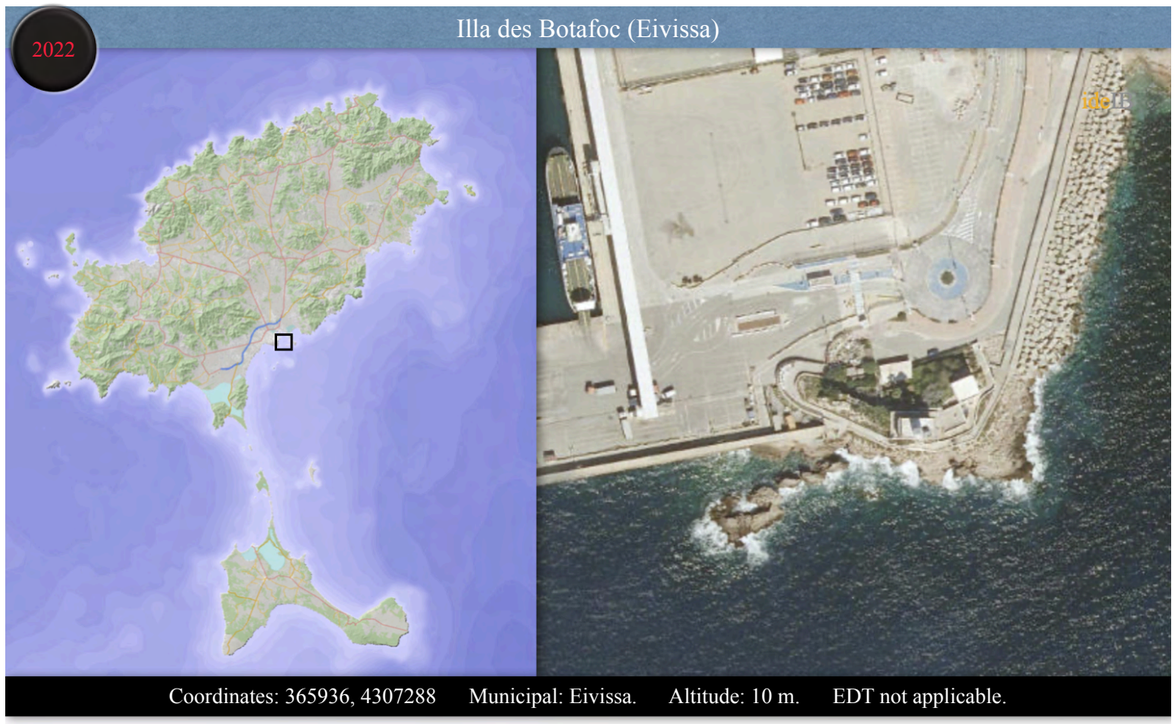
Herpetological history: Population described as *Lacerta muralis* var. *Pityusensis* (Boscá 1883), further no specific history.

Lizard density: Illa Grossa always had a good population of lizards until the decline due to *Hemorrhois hippocrepis*. In the summer of 2020 Antònia Cirer observed that the density of lizards was lower than expected. During two surveys in 2024 Antònia Cirer was unable to observe a single lizard anymore.


Image 27: "Illa" Grossa.

Image 28: Green female *Podarcis pityusensis* on "illa" Grossa, what was the norm on this part of Eivissa.

Image 29: "Illa" des Botafoc as seen from "illa" Grossa.



Location: An old island artificially connected to illa Grossa with a breakwater since the end of the 19th century. In early 2001, to facilitate the reception of large cruise ships, the new es Botafoc breakwater and quays were built, which has left the island as a simple rockery with a lighthouse on top.

Toponymy: Island of fireworks.

Synonyms: None.

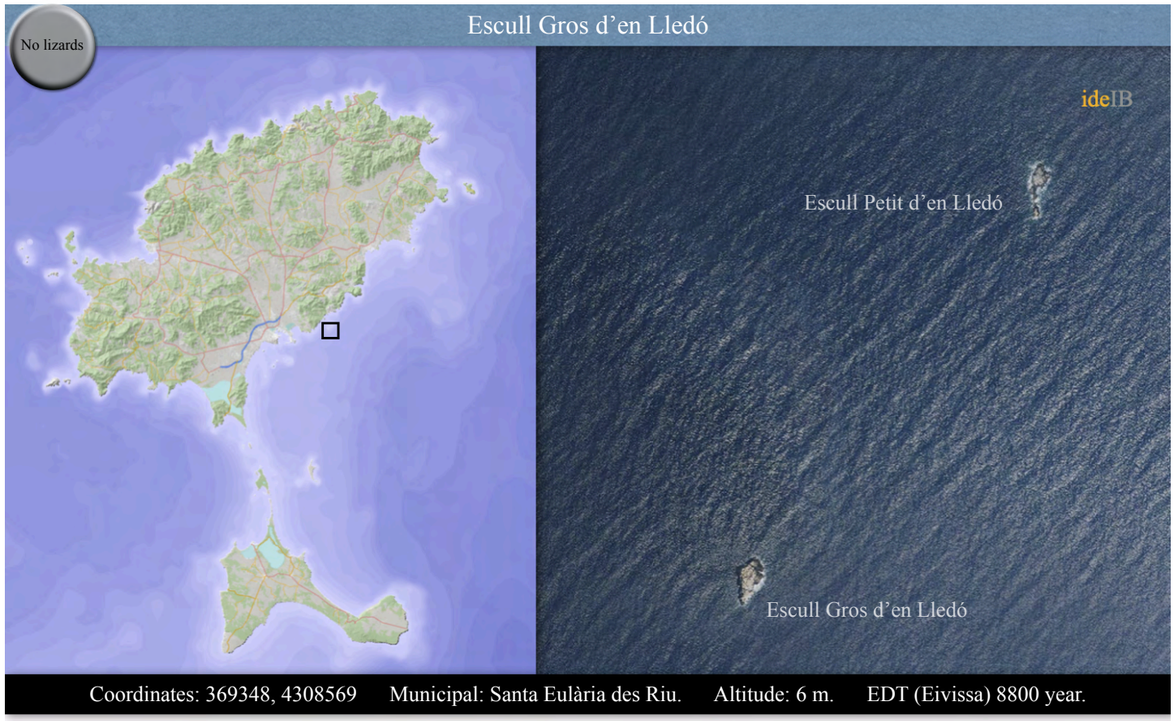
Floral aspects: Not investigated.

Faunal aspects: City dwellers, including many cats.

Herpetological history: No specific history.

Lizard density: No lizards (2022).

Image 30: Male *Podarcis pityusensis* on "illa" des Botafoc.



Location: The esculls d'en Lledó are located in front of s'Estanyol. Escull Petit d'en Lledó is too small and to low (3 m.) and has no vegetation. Unlike its northern counterpart, escull Gros d'en Lledó does have vegetation, but to a modest extent, and only with a single plant species: Solsera.

Toponymy: Called after an old aristocratic family Lledó from Eivissa.

Synonyms: Esculls d'en Martinet or esculls d'en Xic.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*.

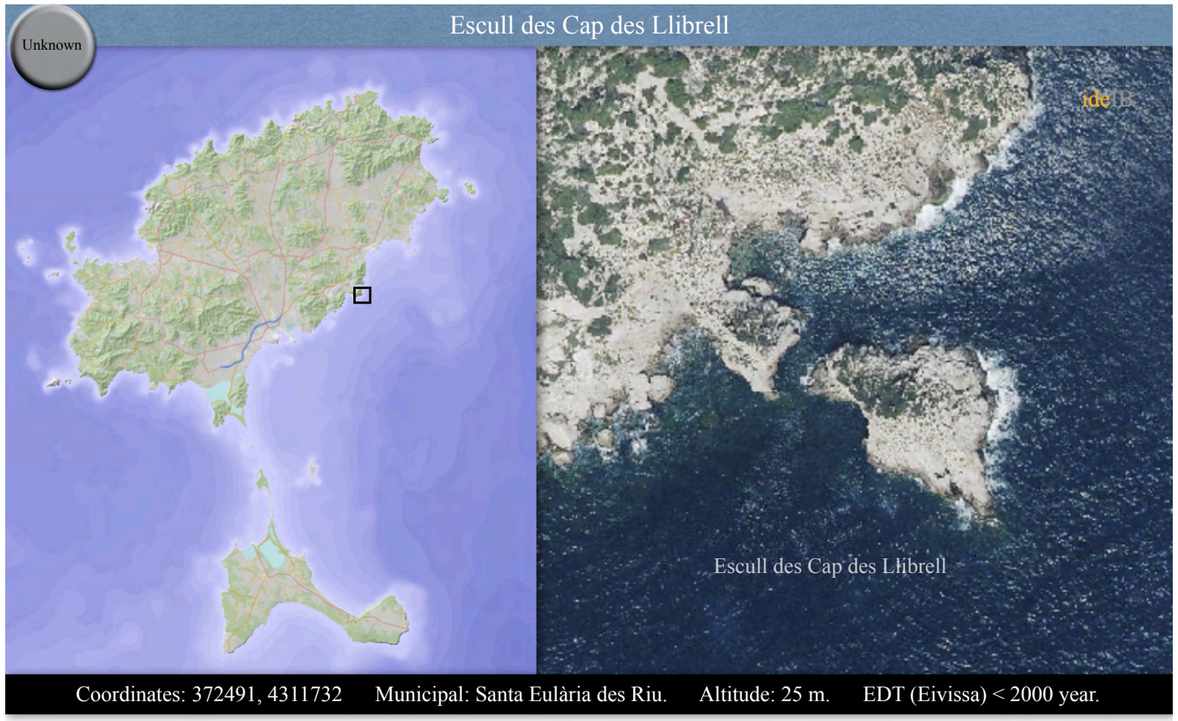
Faunal aspects: Not investigated.

Herpetological history: Without lizards (Salvador 2015).

Lizard density: No lizards.

Image 31: Escull Petit d'en Lledó.

Image 32: Escull Gros d'en Lledó.



Location: This small rock (2.136 m^2) is of recent origin and located in front of Cap des Llibrell.

Toponymy: Originates from a terracotta barrel. At the top of Cap des Llibrell there is an important punic archaeological site, with a lot of terracotta barrel pieces.

Synonyms: None.

Floral aspects: Not investigated.

Faunal aspects: Not investigated.

Herpetological history: Considered without lizards (Mayol 2004a, Salvador 2015).

Lizard density: Even though we have not been able to make a good assessment of the local vegetation, we assume that this island is not hopeless when it comes to a possible *Podarcis pityusensis* lizard population.

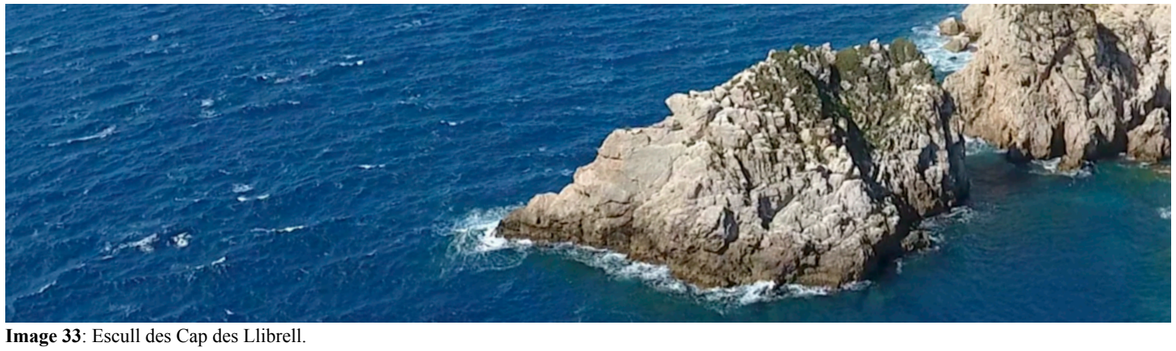
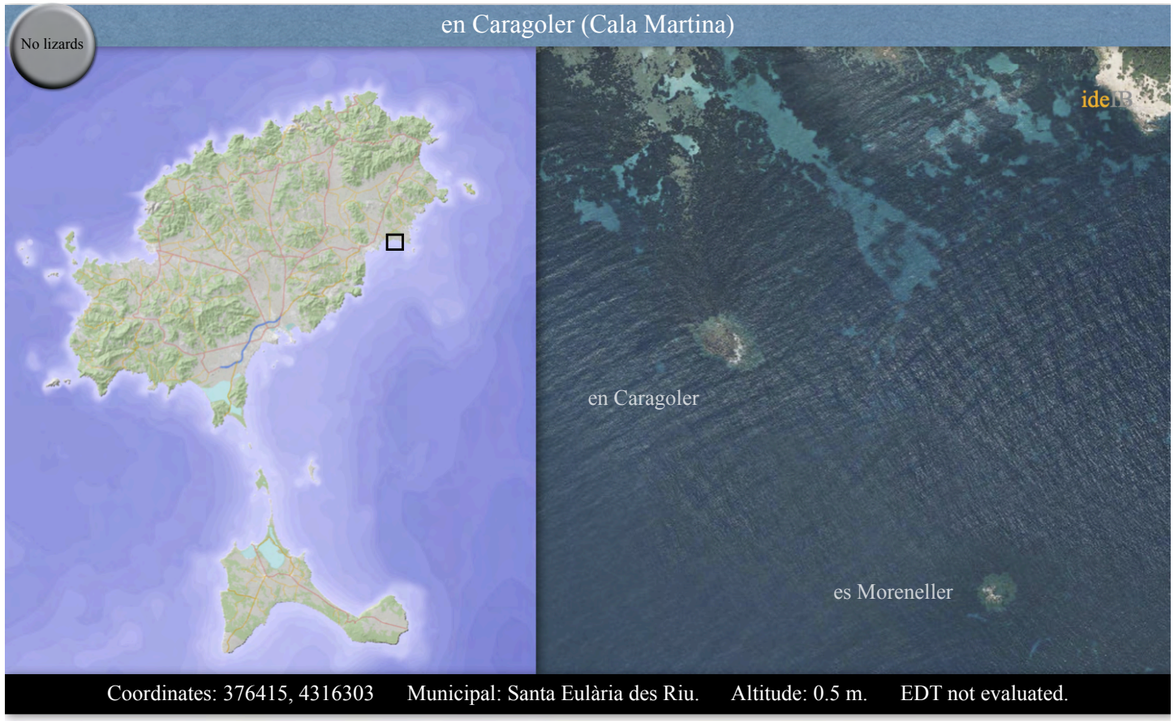


Image 33: Escull des Cap des Llibrell.



Location: In front of Cala Martina at s'Argamassa there are three rocks, from west to east: Illot d'en Marcús, not much more than the end of a jetty, en Caragoler, which also barely rises above the water, and es Moreneller, which is just a very small rock. En Caragoler should not be confused with en Caragoler Gros of the es Freus Islands, which does have a very interesting population of lizards.

Toponymy: Snail rock.

Synonyms: None.

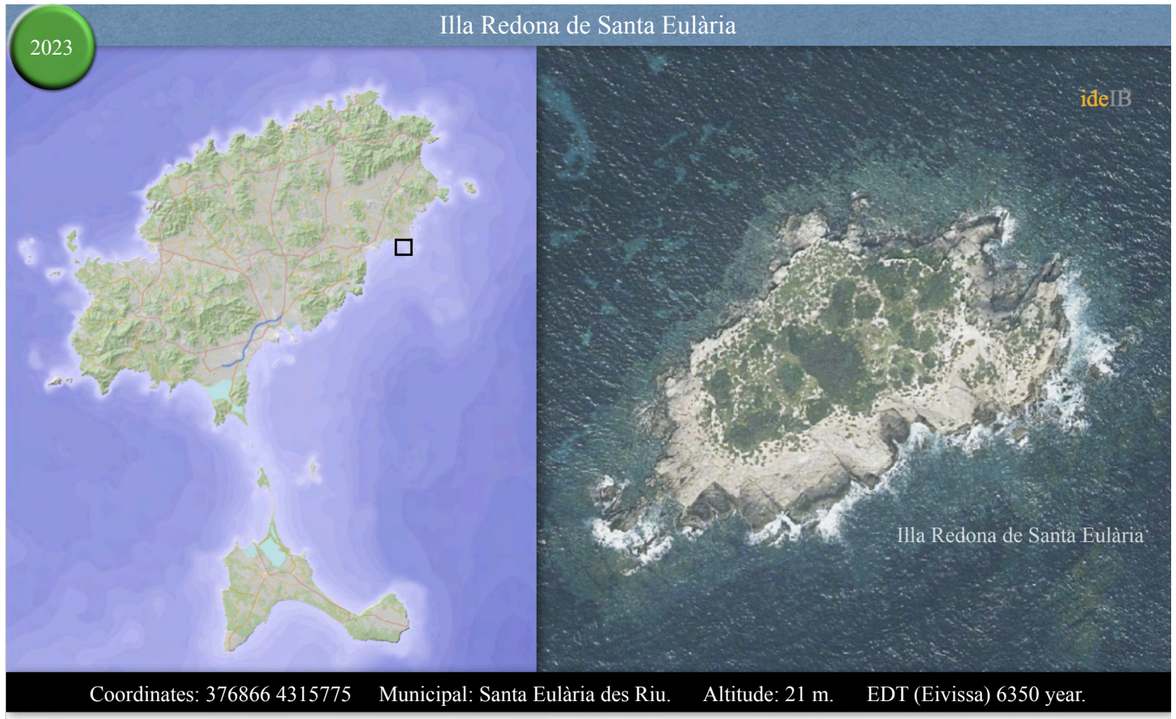
Floral aspects: Non-existent.

Faunal aspects: No terrestrial fauna to be expected, just some resting birds like the Great Cormorant (*Phalacrocorax carbo*).

Herpetological history: None.

Lizard density: No lizards.

Image 34: En Caragoler (Cala Martina) in front of illot d'en Marcús, just the end of a jetty.



Location: Illa Redona is located south of Punta Arabí, it reaches a height of 21 m. above sea level and is similar to close by illa Grossa, but smaller (8.014 m^2) and with a better state of conservation of the plant structure. It is like a smaller replica of illa Grossa (relative EDT 6300 year), with the same type of vegetation, which consists of shrubby maquis of mastic and Mediterranean buckthorn, *Rhamnus alaternus*, that cover almost the entire surface of the islet and provides good shelter for lizards, which always have had a high lizard density.

Toponymy: Round island.

Synonyms: None.

Floral aspects: *Pistacia lentiscus, Rhamnus alaternus, Daucus carota, Crithmum maritimum, Salicornia fruticosa* or *Arthrocaulon macrostachyum, Limonium* sp., *Drimia maritima, Anagallis arvensis, Convolvulus cantabrica* and *Helichrysum stoechas*.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population described as *Lacerta muralis* var. *Pityusensis* (Boscá 1883). Subspecies described as *Lacerta lilfordi redonae* Eisentraut, 1928.

Lizard density: Very high (2023).

Image 35: Es Moreneller as seen from illa Redona de Santa Eulària.

Illa Redona de Santa Eulària

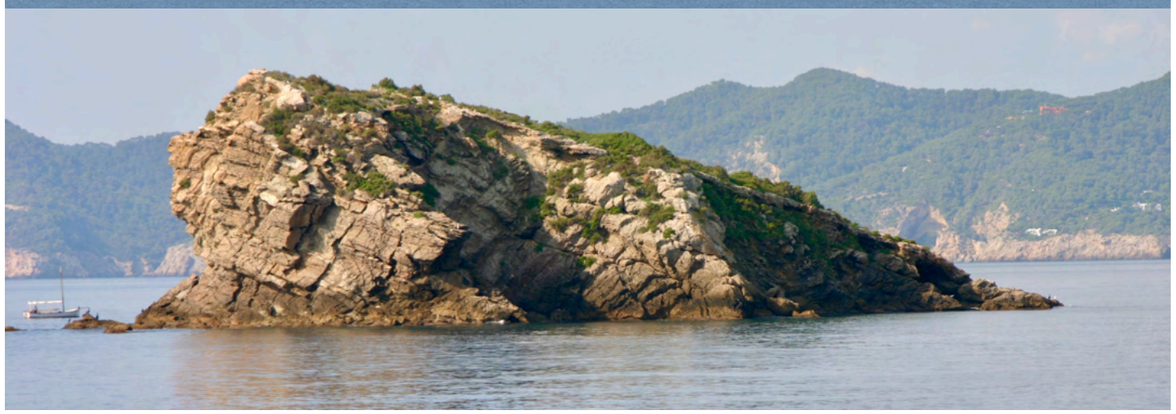


Image 36: Illa Redona de Santa Eulària.

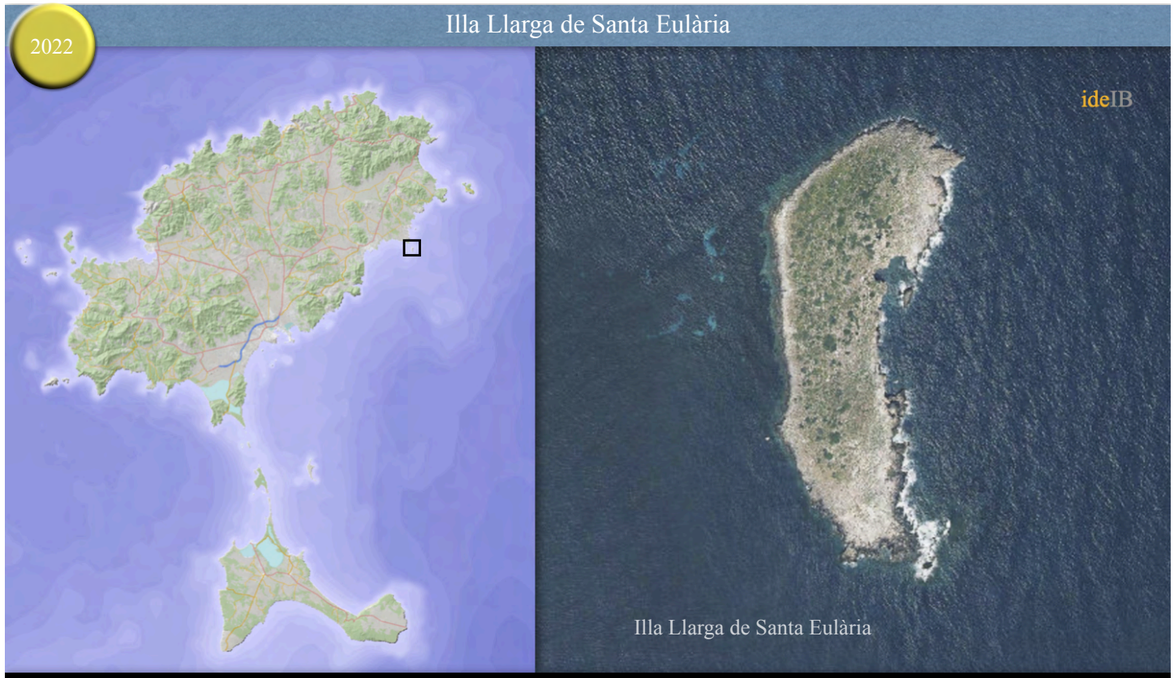
Image 37: Female *Podarcis pityusensis* on illa Redona de Santa Eulària (photo: Michael Kroniger).

Image 38: Male *Podarcis pityusensis* on illa Redona de Santa Eulària (photo: Michael Kroniger).

Illa Redona de Santa Eulària

Image 39: Color variation on illa Redona de Santa Eulària.

Image 40: Maquis on illa Redona de Santa Eulària.



Location: Illa Llarga is the largest (46.433 m^2) of the islands of Santa Eulària, located in front of Punta Arabí, east of illa Redona. It is about 500 meters long by 100 meters wide, but its height and orientation allow it some protection from the storm and a high plant diversity.

Toponymy: Long island.

Synonyms: Illa Grossa de Santa Eulària.

Floral aspects: *Pistacia lentiscus, Rhamnus alaternus, Daucus carota, Crithmum maritimum, Salicornia fruticosa* or *Arthrocaulon macrostachyum, Limonium* sp.*, Drimia maritima,, Malva arborea, Erodium malacoides*, *Convolvulus cantabrica, Senecio* sp. and *Diplotaxis ibicensis*.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population described as *Lacerta muralis* var. *Pityusensis* (Boscá 1883). Subspecies described as *Lacerta lilfordi grossae* Müller, 1929. Made synonymous with *Podarcis pityusensis redonae* (Eisentraut, 1928) by Salvador (1984).

Lizard density: Moderate (2022). Cofib caught 43 snakes in 2024 on this island (Romero 2025).

Image 41: Illa Llarga de Santa Eulària as seen from illa Redona.

Image 42: Habitat on illa Llarga de Santa Eulària.

Image 43: Juvenile on illa Llarga de Santa Eulària.

Image 44: Reddish male on illa Llarga de Santa Eulària.

Image 45: Intermediate colored male.

Image 46: Bluish female on illa Llarga de Santa Eulària.

Location: Sa Galera des Canar is a small (1.831 m^2) islet located in front of platja des Canar, about 300 meters from sa Punta de ses Calderes, southwest of illa des Canar. Despite reaching about 5 meters in altitude, there is no terrestrial life. The official name of sa Galera we have extended with des Canar to avoid confusion with other islands of the same name

Toponymy: Galera translates into galley.

Synonyms: None.

Floral and faunal aspects: Non-existent.

Herpetological history: Sa Galera des Canar has not been addressed in literature, however, we find this island on a map of Jost H. Jokisch under Isla Cana larga (see discussion).

Lizard density: No lizards.

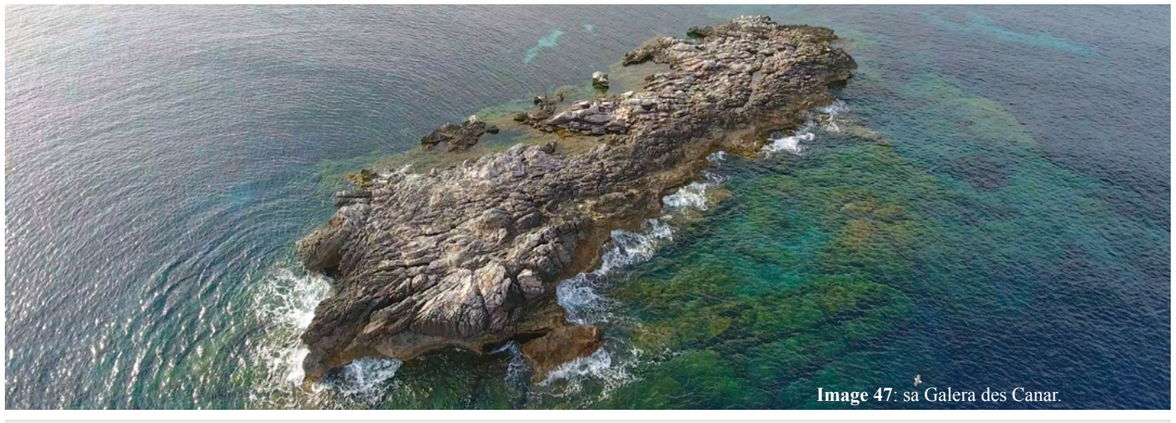
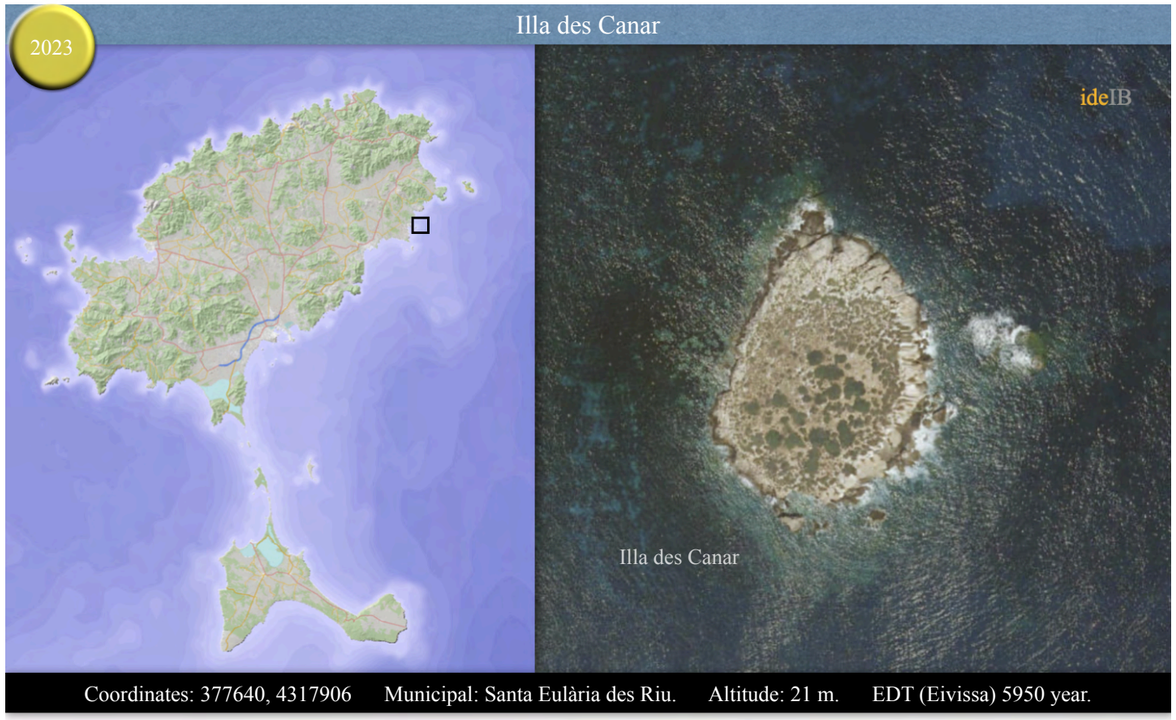


Image 47: sa Galera des Canar.



Location: Illa des Canar (9.612 m^2) is located between es Canar and Cala Nova, about 400 meters from sa Punta de Ses Calderes In general, illa des Canar shares the same characteristics as the other islands of Santa Eulària, illa Redona and illa Llarga, but with some small differences. It reaches a height of 21 meters and has big plant cover, with tall, leafy bushes that provide food and shelter for a population of lizards that has always had a fairly high density.

Toponymy: In the past, the area of es Canar consisted of reed fields (*Arundo donax*). The name Canar refers to that.

Synonyms: None.

Floral aspects: *Pistacia lentiscus, Daucus carota, Crithmum maritimum, Senecio* sp., *Salicornia fruticosa* or *Arthrocaulon macrostachyum, Limonium* sp.*, Drimia maritima, Asparagus horridus,* and *Allium* sp.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population described as *Lacerta lilfordi canensis* Eisentraut, 1928.

Lizard density: Moderate (2023), and seems to be in decline.

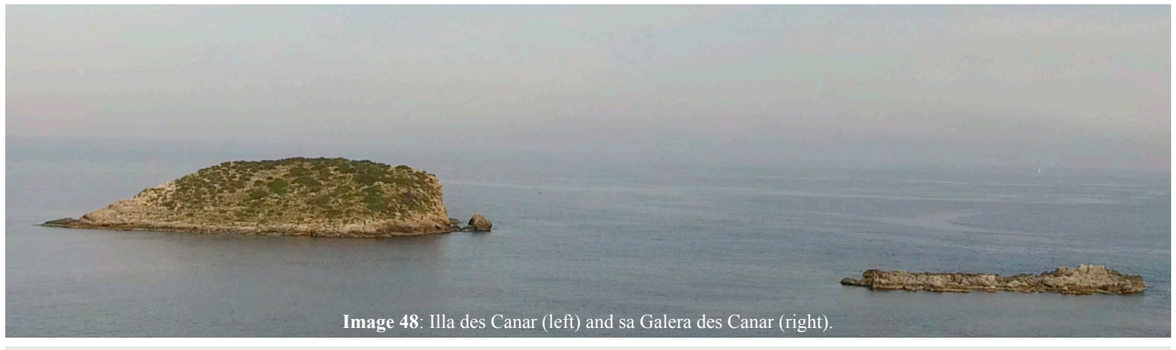
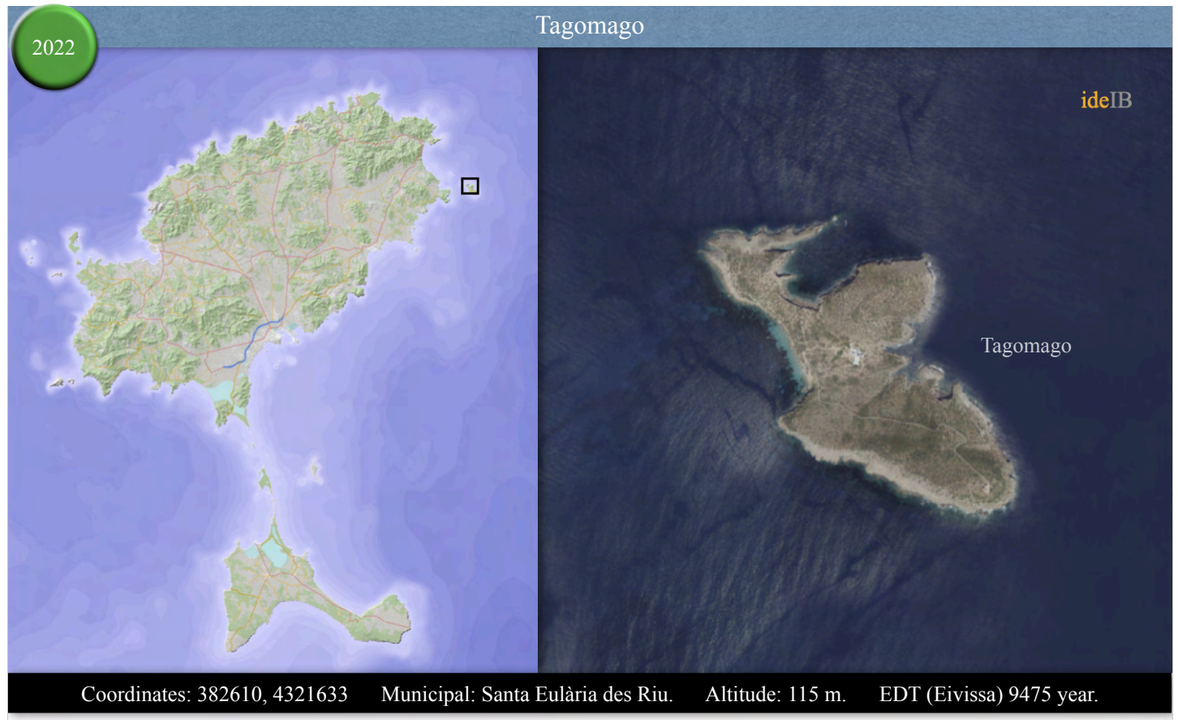


Image 48: Illa des Canar (left) and sa Galera des Canar (right).

Image 49: Habitat illa des Canar.

Image 50: Male *Podarcis pityusensis* on illa des Canar.

Image 51: Juvenile *Podarcis pityusensis* on illa des Canar.



Location: Tagomago is the fifth largest island in the Pityusic Islands (596.978 m^2), measuring 1525 meter long, 115 meter wide and 115 meter high. It has been privately owned since time immemorial. In the central part there was a small original house, Can Domingo, which intermittently housed a family of farmers with livestock that exploited the island. Recently, all the facilities have been expanded and remodeled in depth to convert it into a luxury summer residence, which requires a prior invitation from the owners to visit it. From the pier on the coast of es Blancar, a road leads to an octagonal lighthouse tower located at Cap de Xaloc, 78 meters above sea level, which has been in operation since 1913.

Toponymy: Rock of Magó, which refers to Magó Barca, the brother of Carthaginian general and politician Hannibal Barkas (= Barca).

Synonyms: None.

Floral aspects: There are up to 204 plant taxa located in Tagomago, some of high biogeographic value, due to their peculiar distribution, or their rarity, or for being Pityusic endemisms. On the coast the *Limonietum-ebusitani* association is established, in the most sheltered area from the sea there is a maquis of junipers, mastic trees and white pine with a well-developed herbaceous layer.

Faunal aspects: The terrestrial fauna of Tagomago is characterized by three endemisms, the lizard *Podarcis pityusensis*, the tenebrionid *Asida mater gasulli* and the gastropod *Trochoidea ebusitana ortizi*. The Great Cormorant (*Phalacrocorax carbo*), the seagull *Larus michahellis*, the falcons *Falco peregrinus* and *F. eleonorae* and the common kestrel *F. tinunculus* are abound. The shearwater *Puffinus mauretanicus* nests on the cliffs, where it constitutes, together with s'Espardell, es Vedrà and la Mola, the main breeding ground of this native bird of the Balearics.

The abundance of birds that can interact with the lizards does not seem to prevent the lizard density from always being very high and with a very trusting behavior towards humans (see image 53).

Herpetological history: Population described as *Lacerta lilfordi tagomagensis* Müller, 1927. In the jetty area there is a clear presence of translocated lizards originating from Eivissa.

Lizard density: Very high (2022).

Tagomago

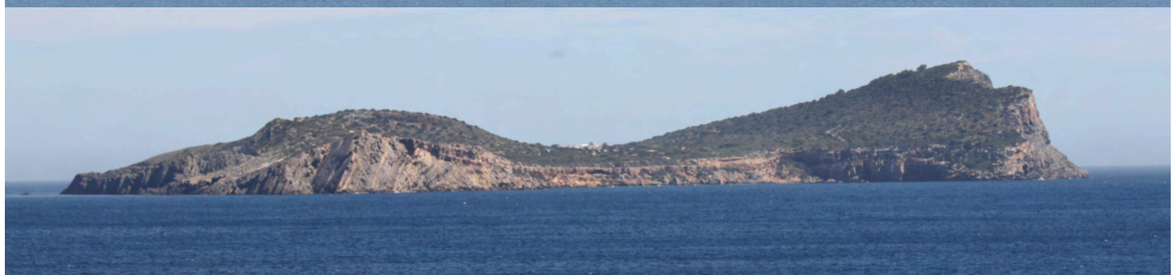


Image 52: Tagomago as seen from illot de s'Ora.

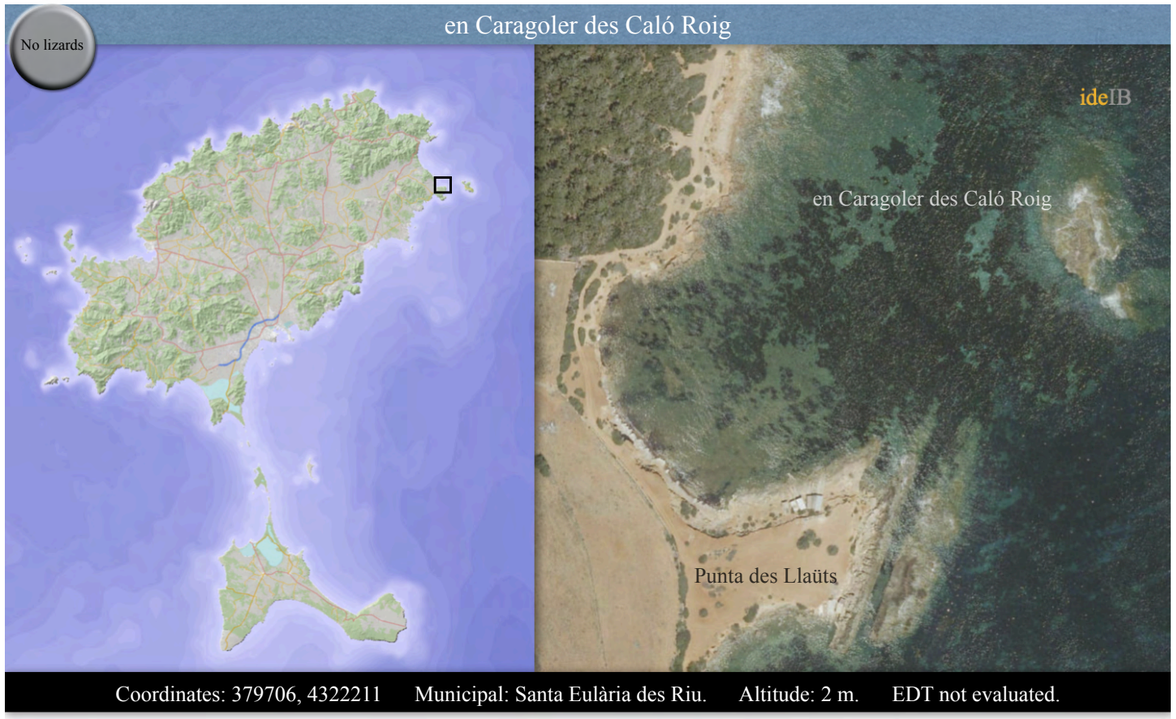
Image 53: Lizard of Tagomago confident in our presence.

Image 54: Three males of *Podarcis pityusensis* on Tagomago (photos: Michael Kroniger).

Tagomago

Image 55: Mansion on Tagomago (photo: Michael Kroniger).

Image 56: Three males and one female (top-left) on Tagomago (photos top-left and bottom: Michael Kroniger).



Location: It is the largest (992 m^2) rock in the Pou des Lleó area, just in front of Punta des Llaüts, where a mysterious ditch is dug into the sea, possible of Phoenician origin. It is a very flat and low islet, just over 2 meters high, which is flooded at high seas. It has never housed a population of lizards. We added des Caló Roig to the official name, to be able to distinguish.

Toponymy: Another snail island.

Synonyms: None.

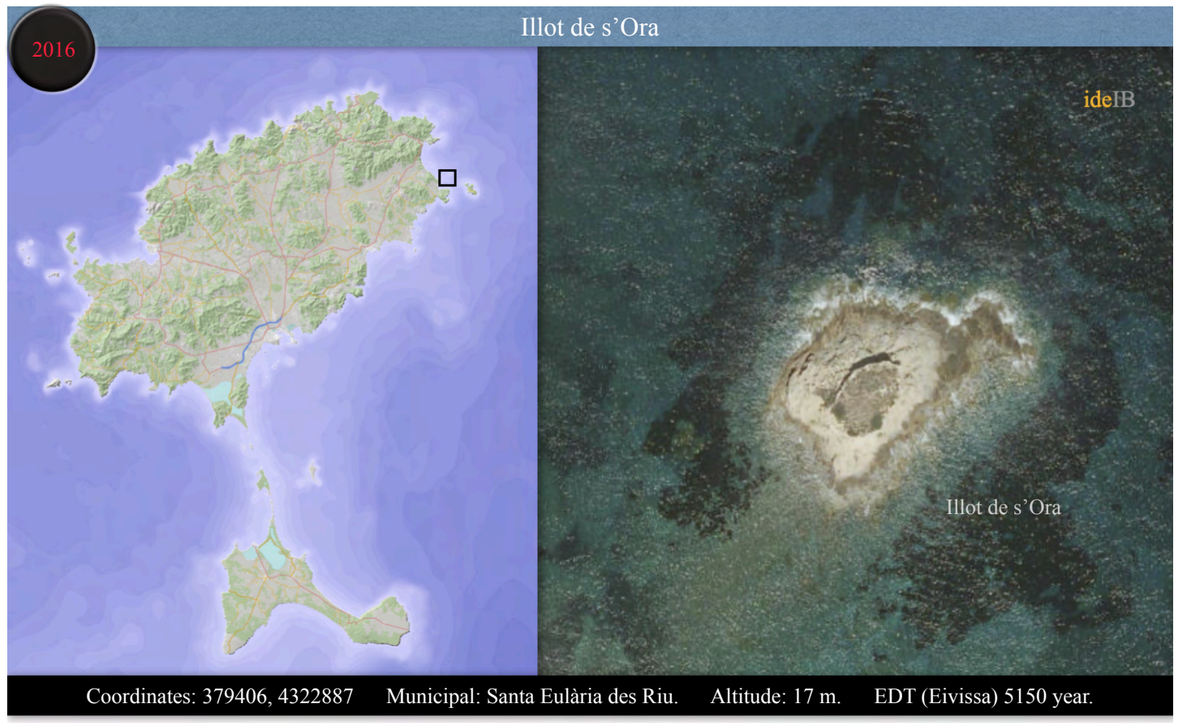
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

Image 57: en Caragoler des Caló Roig (image from internet).



Location: Illot de s'Ora is a small (4.327 m^2) islet protected by Punta Roja, located in front of the cliffs of the Serra d'en Llamp, which is between es Pou des Lleó and es Figueral. At a height of 17 meter, it has a flattened area of just over 40 by 25 meters where the *Limonietum-ebusitani* alliance is established with abundant geophytes and bushes.

Toponymy: Illot de s'Ora means "illot d'aquí a prop" or islet nearby.

Synonyms: Illot de s'Or and maybe illot de s'Hort. It could be that in the 1930s, when Spanish still was the official language, illa d'Hort was used. Now the only two locations which contains "Hort" on Eivissa are Cala d'Hort and escull de Cala d'Hort, a bay and its rock in the south-west of Eivissa. S'Ora with the a-ending is the Eivissa way of writing it. Yes, there are local differences between Eivissa and Mallorca regarding pronunciation.

Floral aspects: *Pistacia lentiscus, Daucus carota, Crithmum maritimum, Salicornia fruticosa* or *Arthrocaulon macrostachyum, Limonium* sp., *Drimia maritima, Asparagus horridus, Senecio* sp., *Erodium* sp., *Mesembryanthemum nodiflorum* and *Allium* sp.

Faunal aspects: Among a normal complex of invertebrates, the endemic snail *Trochoidea ebusitana hortae* and breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population described as *Lacerta pityusensis hortae* Buchholz, 1954.

Visits made during the 20th century provide data on a lizard population with many specimens despite the small usable surface area of the islet. There was always a good presence of seagulls on the vertical walls of the islet. But everything changed when a horseshoe whip snake (*Hemorrhois hippocrepis*) was detected swimming near the islet in 2016. During the 2019 and 2023 visit, no specimens of the lizard were recorded, not even traces on top of the fine sediment nor fecal traces. No evidence of a snake was observed either. It is most likely that the snake preyed on the lizards until they became extinct, while the seagulls fled the area. When there was no longer any food left, the snake disappeared probably by just moving on. In 2023 the seagulls were breeding again in the familiar places.

Lizard density: Illot de s'Ora had always a fairly high density of lizards, but the lizard population became extinct in or after 2016. This is forever a disgrace, but fortunately we still have some data, the photos and DNA samples.

Illot de s'Ora

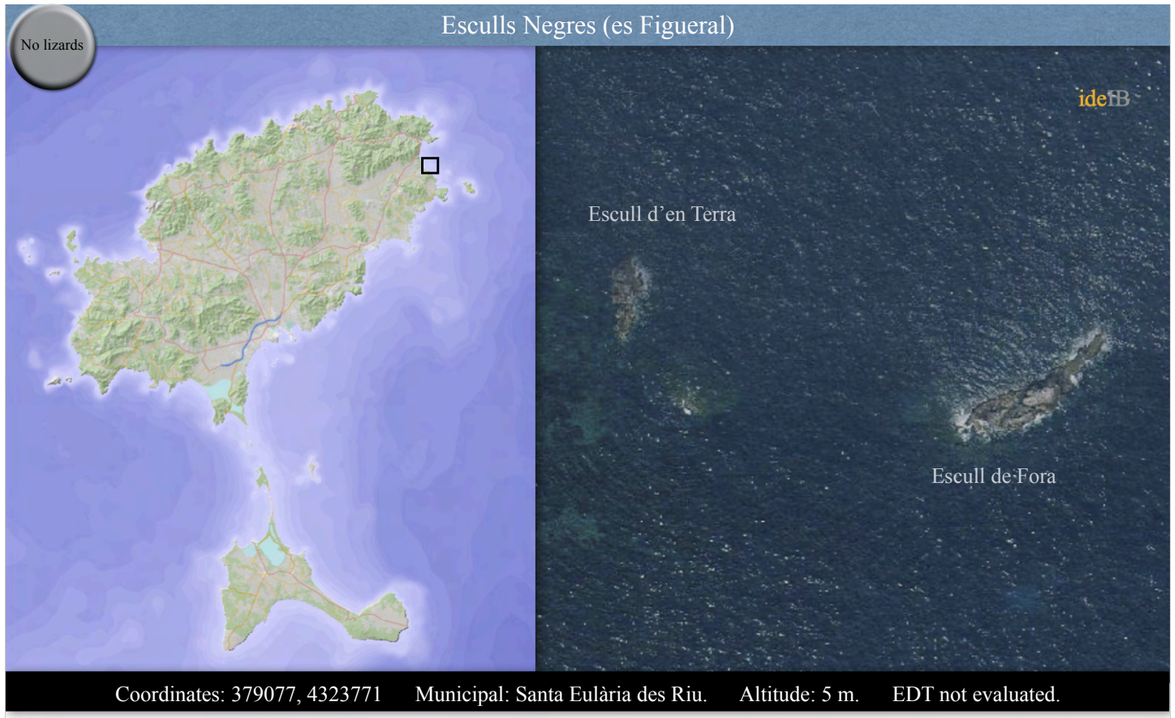
Image 58: Illot de s'Ora in front of Punta Roja.

Image 58: Habitat on illot de s'Ora.

Illot de s'Ora

Image 59: Juvenile *Podarcis pityusensis* on illot de s'Ora.

Image 60: Male *Podarcis pityusensis* on illot de s'Ora.



Location: There are several rocks in front of platja des Figueral, among them the esculls des Gorg and the esculls Negres. In the esculls Negres is escull de Fora the biggest and highest, but all nearby rocks are to small and to low to support vegetation or terrestrial life.

Toponymy: Another group of black rocks (Negres), close to the mainland (d'en Terra) and to the outside (de Fora) rock.

Synonyms: None.

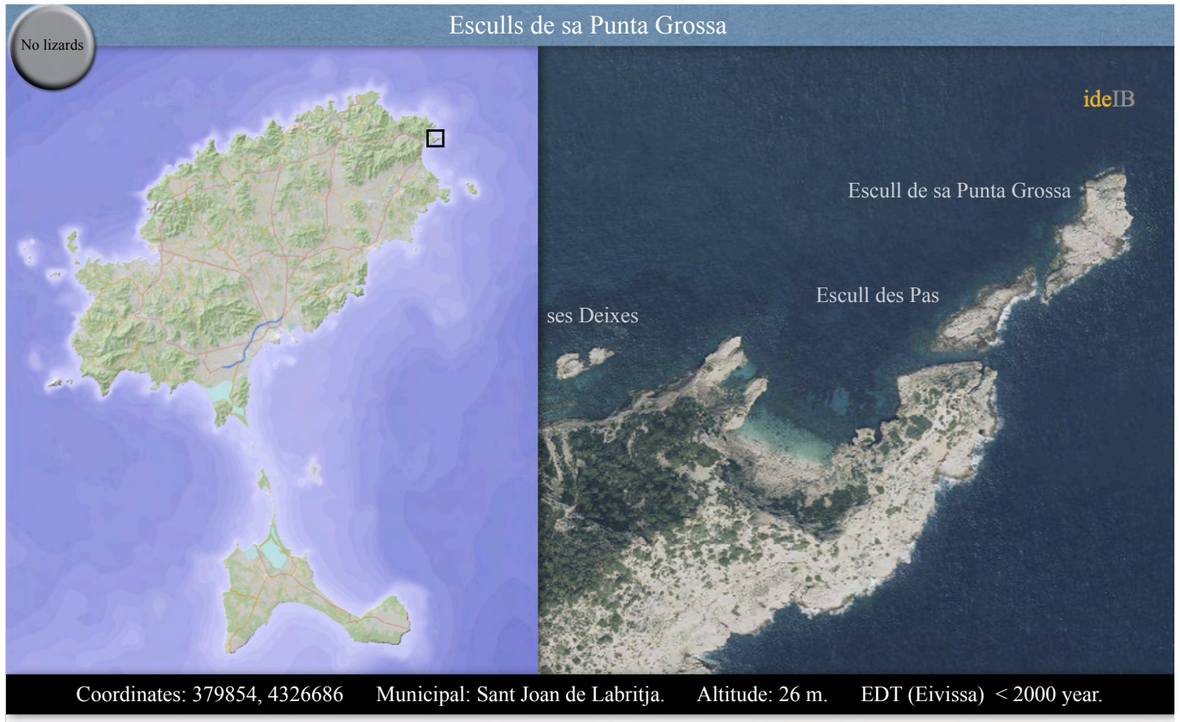
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

Image 61: Escull d'en Terra and escull de Fora in front of es Figueral.



Location: The northeastern tip of the island of Eivissa is home to the old Punta Grossa lighthouse, which operated between 1867 and 1913. In front there are two rocks, the one closest to land is called escull des Pas (3.971 m^2) and is 7 meter high. The rock located further from the coast is called escull de sa Punta (5.917 m^2) and reaches a height of 24 meter. Between Punta Grossa and Penya Blanca we find ses Deixes (1.212 m^2, 17 meter high), they look like two reefs, but they are joined at the base.

Toponymy: In the middle of the path that I have to cross (des Pas), ses Deixes owes its name to the remains of the erosion of the layered cliff on the coast of Eivissa.

Synonyms: Escull Petit or d'en Terra (escull des Pas) and escull Gros or de Fora (escull de sa Punta Grossa).

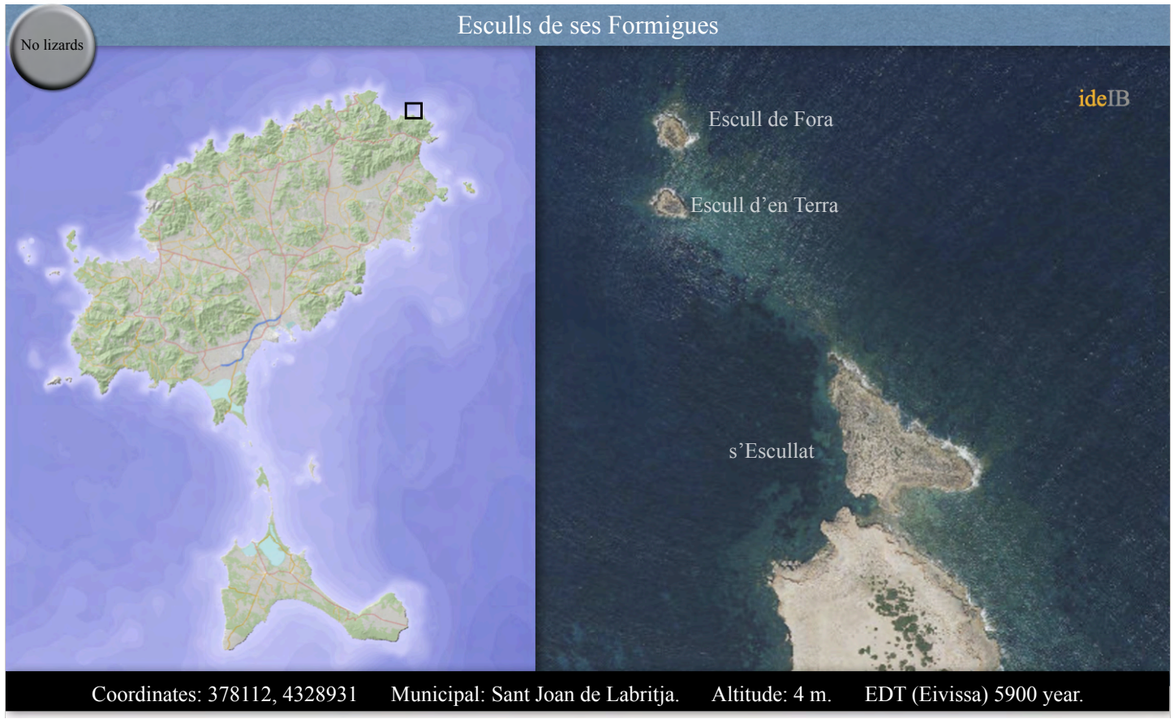
Floral aspects: On escull des Pas are no plants, on ses Deixes some plants on top (1 m^2) and on the higher part of escull de sa Punta Grossa a relatively dense growth of *Limonium* sp.

Faunal aspects: Not investigated.

Herpetological history: No lizards according Martínez-Rica & Cirer (1982), Mayol (2004a) and Salvador (2015).

Lizard density: No lizards.

Image 62: Escull de sa Punta Grossa and escull des Pas in front of the old Punta Grossa lighthouse, and more to the west ses Deixes.



Location: At Punta de ses Formigues is s'Escullat, a flat area of 6.192 m^2 and 5 meter high, very roughened by the sea with numerous salt filled pits and no terrestrial fauna, separated from Eivissa by a narrow crack that does not quite separate it from the mainland. In front there are two rocks, the esculls de ses Formigues, of which escull d'en Terra is the smaller and escull de Fora the larger.

Toponymy: Cape of the ants (punta de ses Formigues), close to the mainland (d'en Terra) and to the outside rock (de Fora).

Synonyms: None.

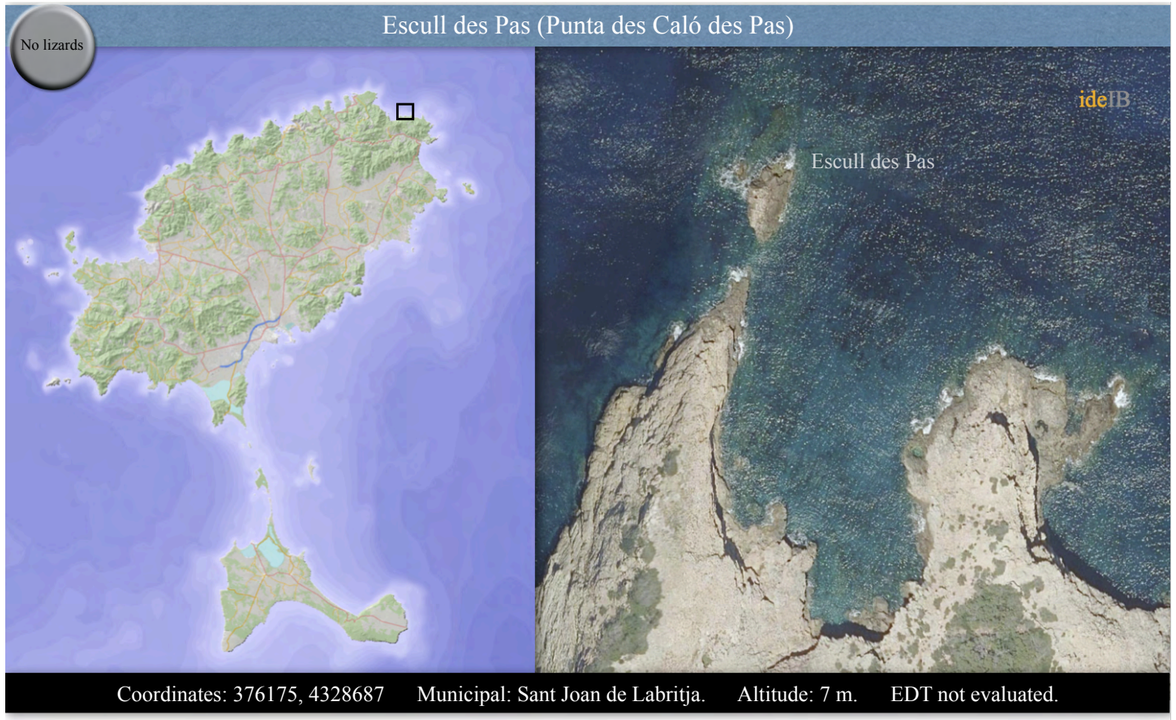
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: Both esculls de ses Formigues (Martínez-Rica & Cirer 1982, Salvador 2015) and s'Escullat (Cirer 1981, Martínez-Rica & Cirer 1982, Salvador 2015) are considered to be without lizards.

Lizard density: No lizards.

Image 63: Esculls de ses Formigues and s'Escullat at punta de ses Formigues (image from internet).



Location: At punta des Caló des Pas there is another rock with the name escull des Pas. No vegetation or terrestrial life is to be expected on this rock, but this was not investigated.

Toponymy: In the middle of the path that I have to cross (des Pas).

Synonyms: None.

Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

Image 64: Escull des Pas at punta des Caló des Pas.

Location: Next to Port de ses Caletes in the north of Eivissa, we find a rock called s'Illot and an island called illa de ses Caletes.

s'Illot is just a bare rock that is frequently flooded by the sea.

On the other hand, the island, illa de ses Caletes, is of high-altitude (30 meter) with steep and difficult to climb banks. Not so long ago, illa de ses Caletes was a peninsula which very recently diverged from Eivissa. The vegetation is comparable to the adjacent mainland of Eivissa and more than sufficient to support a lizard population.

Toponymy: Caletes translates into coves.

Synonyms: None.

Floral aspects: Dense and diverse plant coverage, including *Pinus halepensis*, *Pistacia lentiscus*, *Helichrysum stoechas, Asparagus horridus, Limonium* sp., *Senecio* sp. and *Drimia maritima.*

Faunal aspects: A lot of breeding yellow-legged gulls (*Larus michahellis*).

Herpetological history: Illa de ses Caletes has not been addressed before in literature.

Lizard density: We viewed this island up close with an aerial drone in 2017 and 2018, but we could not observe any lizards on the video images. Despite this, we are convinced that *Podarcis pityusensis* lizards must be, or have been, present on illa de ses Caletes.

During the drone flight expeditions we could still find lizards on the mainland in 2017, but in 2018 we no longer saw a single *Podarcis pityusensis* lizard in the Port de ses Caletes area. The influence of the horseshoe whip snake (*Hemorrhois hippocrepis*) was apparently already felt in this region, but we thought that illa de ses Caletes was comparatively safe from this snake, as the walls of the island are not only difficult for us to climb, but also for them. Considering the very recent separation of illa de ses Caletes and the difficult accessibility, illa de ses Caletes was considered as a refuge for the northern mainland Eivissa population of *Podarcis pityusensis*. Given the current situation on illa Murada we must now reject that.

Image 65: Illa de ses Caletes, an island that is not easy to get to.

Image 66: Habitat on top of illa de ses Caletes as seen from the east.

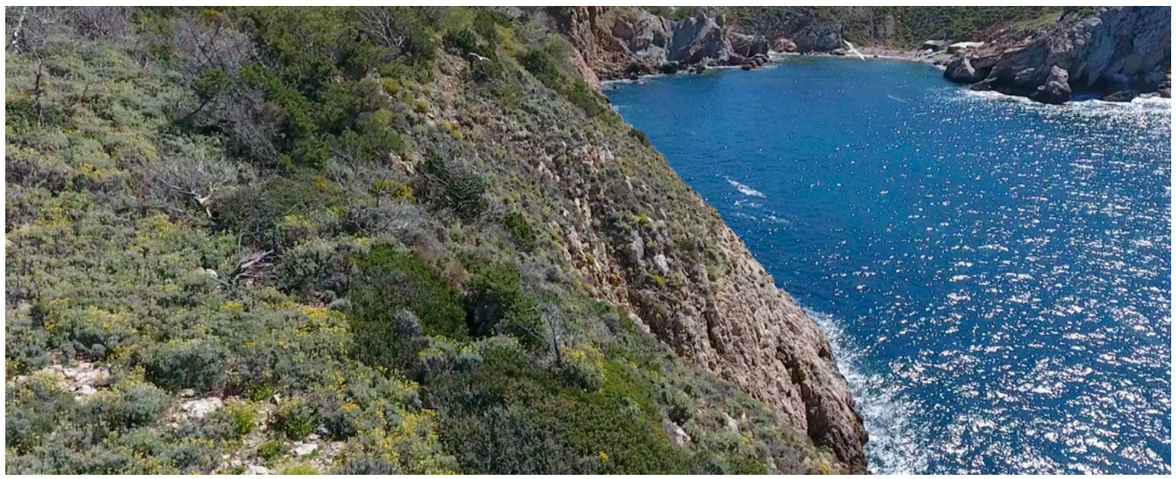
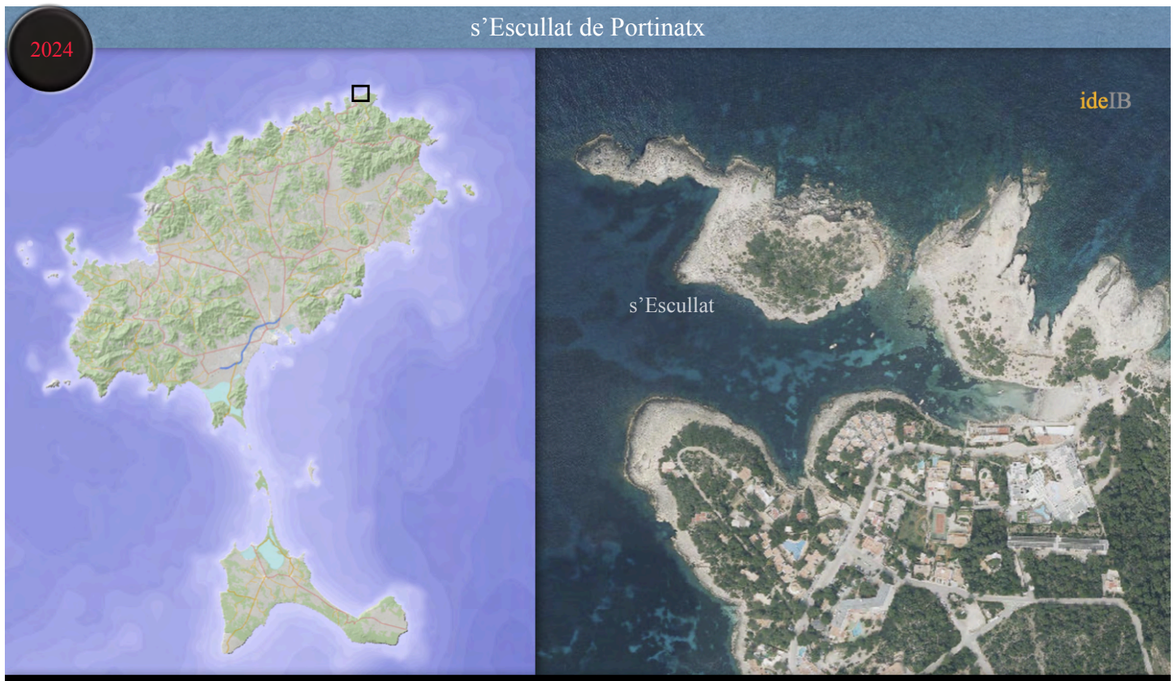


Image 67: Habitat of the west slope of illa de ses Caletes as seen from the north.



Location: S’Escullat (39.012 m²) is an area located north of Portinatx de Dins, separated from Eivissa by a landslide of semi-submerged rocks that do not allow the passage of any boat, called pas de sa Guardiola. It was not considered an island in the true sense, which is why the lizards of s’Escullat de Portinatx were not included in the taxonomic studies of the entire species (Cirer 1987), even though they are separated by an arm of sea from the population of Eivissa and cannot hybridize with it. It has been visited regularly and has always presented a modest density of lizards, similar to the densities observed on the north coast of Eivissa.

Toponymy: Place full of esculls.

Synonyms: Sa Guardiola, Punta Galera.

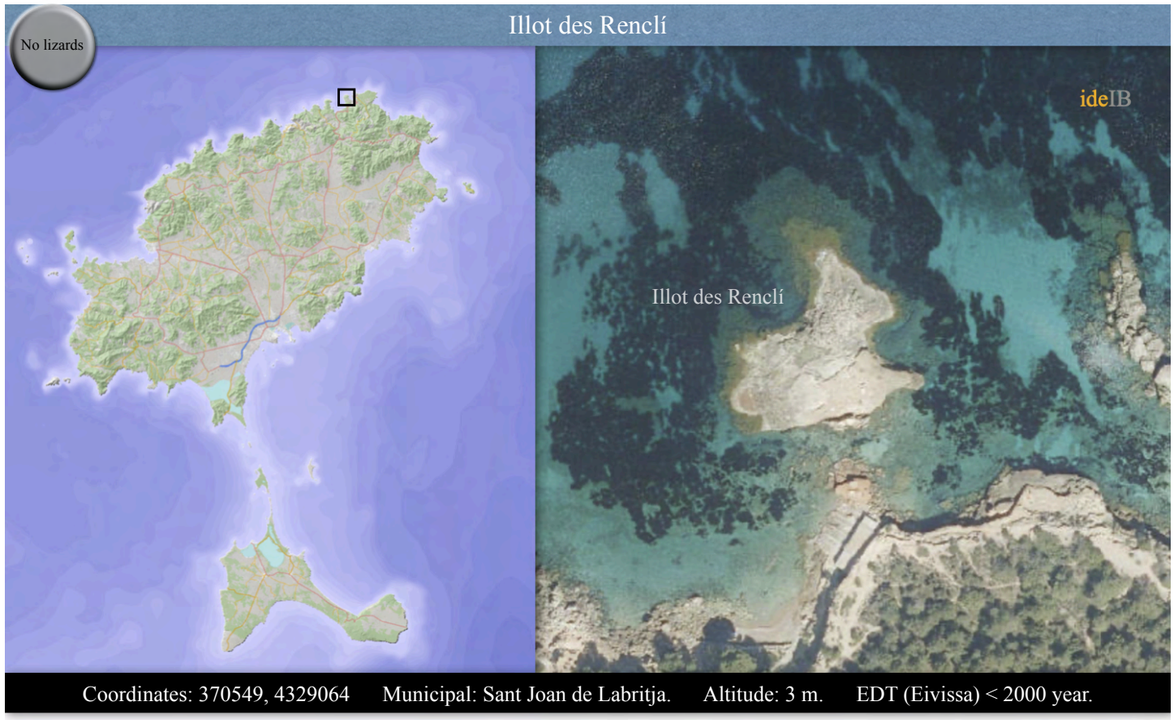
Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Rosmarinus officinalis*, *Erica multiflora*, *Asparagus horridus*, *Helichrysum stoechas*, *Mesembryanthemum nodiflorum, Pallenis maritima* and *Limonium* sp.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population described as *Lacerta pityusensis pityusensis* (Eisentraut 1949) with a doubtful terra typica of Isla Portinatx de San Juan an der Nordküste Ibizas östlich von Isla Caldes (collector H. Grün 1929), which is undoubtedly identical with s’Escullat de Portinatx, but Eisentraut (1949) was unaware of this. Also unaware is Alfredo Salvador. According Salvador (1984, 1986, 2002a, 2006a, 2009a, 2015a) there are no *Podarcis pityusensis* lizards on Punta Galera, an island that we now call s’Escullat de Portinatx. This is not correct. Besides the description of Eisentraut (1949), we can find in the ZSM and ZFMK catalogs the following entries: Isla de la Sierra, 1930-08-14, leg. Jokisch, 10 specimens (ZFMK) and Isla de la Sierra, Herbst 1930, leg. H. Grün, original 1 specimen, but lost (ZSM). Isla de la Sierra refers to the Serra plateau around Portinatx and is equal to s’Escullat de Portinatx (see also the discussion). More recent observations are reported by Kroniger & Zawadzki (2002) and van den Berg et al. (2015a).

Lizard density: A modest population size was normal in the past. Observations in recent years indicated a decline in the presence of lizards. In 2024, an exhaustive survey was conducted and their absence was confirmed. No lizards were observed after three consecutive surveys. We must assume that this population has been extinct at least since 2024, more or less parallel to the mainland population. A horseshoe whip snake would have had no trouble in reaching this island.

Image 67: Overview (top), habitat (middle) and former residents (bottom) of s’Escullat de Portinatx (Lizard photos: Michael Kroniger).



Location: Illot des Renclí (3.730 m^2) is almost attached to the land that is located to the west of the so-called caló des Forn. It is an area denuded by the extraction of sandstone that has left a tabular relief full of pits from which salt was formerly extracted. There is almost no vegetation, only a few specimens of *Limonium ebusitanum*. There is no possibility of supporting terrestrial fauna.

Toponymy: Renclí means devastated, because the islet is very eroded or devastated by rock extraction.

Synonyms: None.

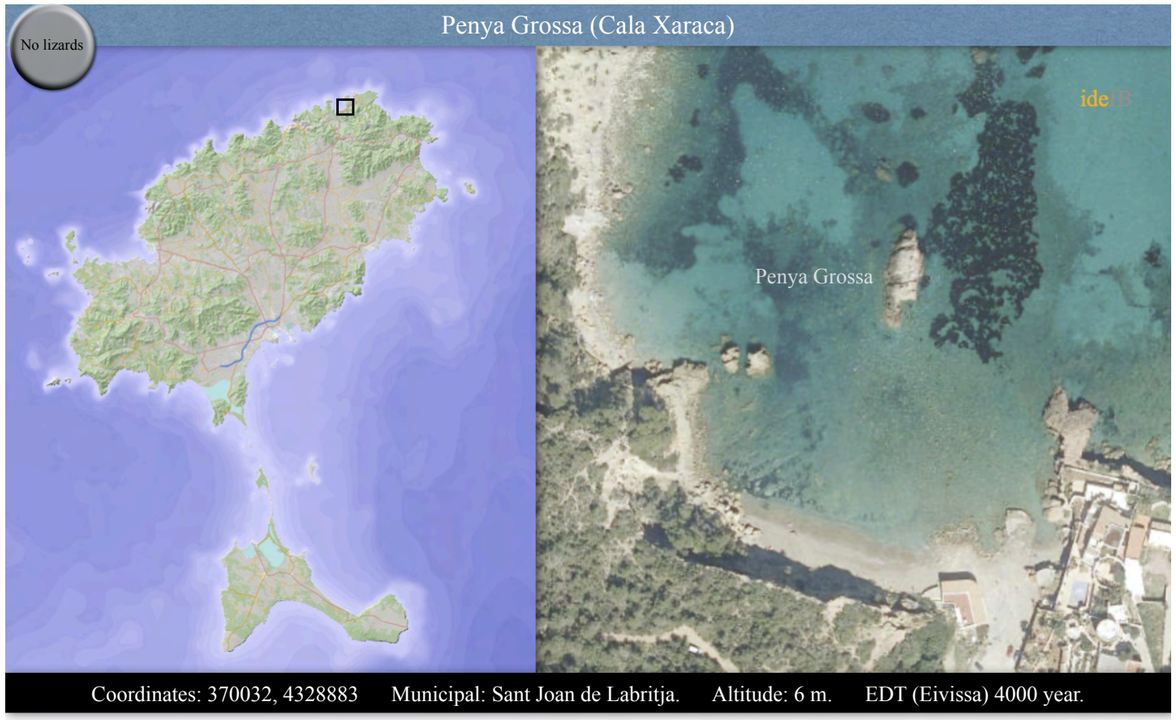
Floral aspects: *Limonium ebusitanum*.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

Image 68: Illot des Renclí.



Location: Penya Grossa is a small islet (278 m^2) located in front of platja de Xarraca that reaches 6 meter in height. It has never supported lizards. Not to be confused with what in some publications is called Insel Characa, which actually refers to illot de sa Mesquida, the terra typica of *Lacerta pityusensis characae* Buchholz, 1954.

Toponymy: Big rock. Xarraca (Charraca) is a very old name, from before the arrival of the Catalans.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*.

Faunal aspects: Audouin's gull (*Ichthyaetus audouinii*).

Herpetological history: None.

Lizard density: No lizards.

Image 69: Penya Grossa in cala Xarraca, with Audouin's gull.

Location: Illot de sa Mesquida (4.908 m^2) is located southwest in badia Xarraca, separated from Eivissa by about 100 meters where the esculls de sa Mesquida line up. It is a karst islet, where we can find a cave in the middle of the island with the entrance covered by vegetation. The cave was an undoubted hiding place for smuggled goods until recently.

Toponymy: Mesquida is of unknown origin, but ancient in use.

Synonyms: Illot de sa Mesquita.

Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Senecio* sp., *Helichrysum stoechas, Crithmum maritimum, Allium* sp., *Drimia maritima, Malva* sp. and *Limonium* sp.

Faunal aspects: *Xerocrassa ebusitana mesquidae* and a lot of breeding yellow-legged gulls (*Larus michahellis*).

Herpetological history: Population described as *Lacerta pityusensis characae* Buchholz, 1954, with a doubtful terra typica of Insel Characa. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Kroniger & Zawadzki (2002).

Lizard density: No lizards (2022), probably extinct.

Image 70: Illot de sa Mesquida in badia Xarraca.

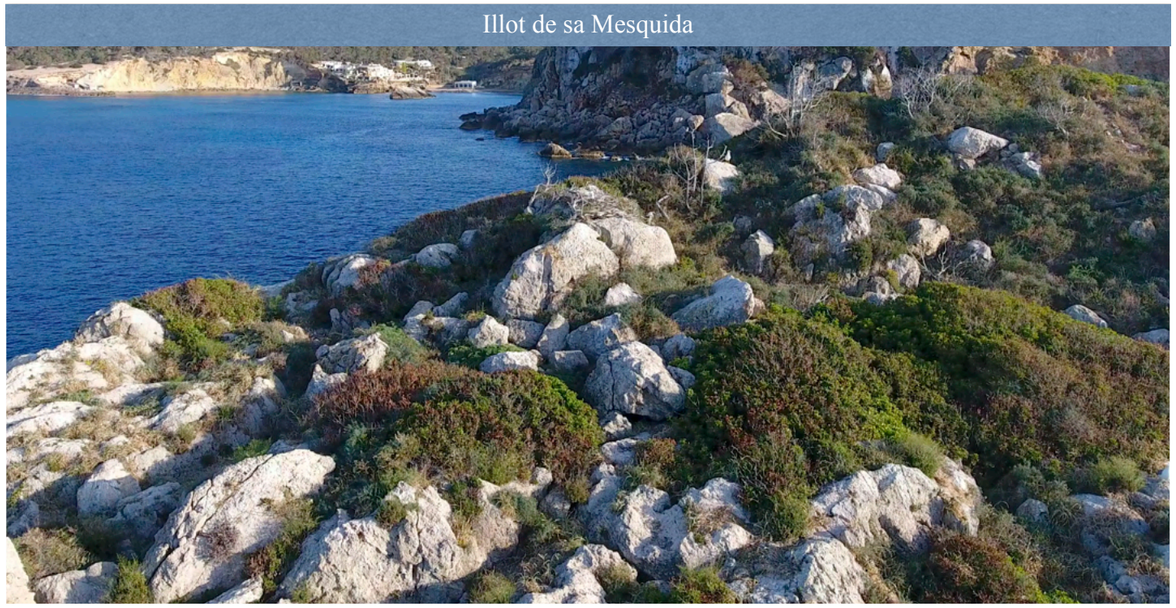
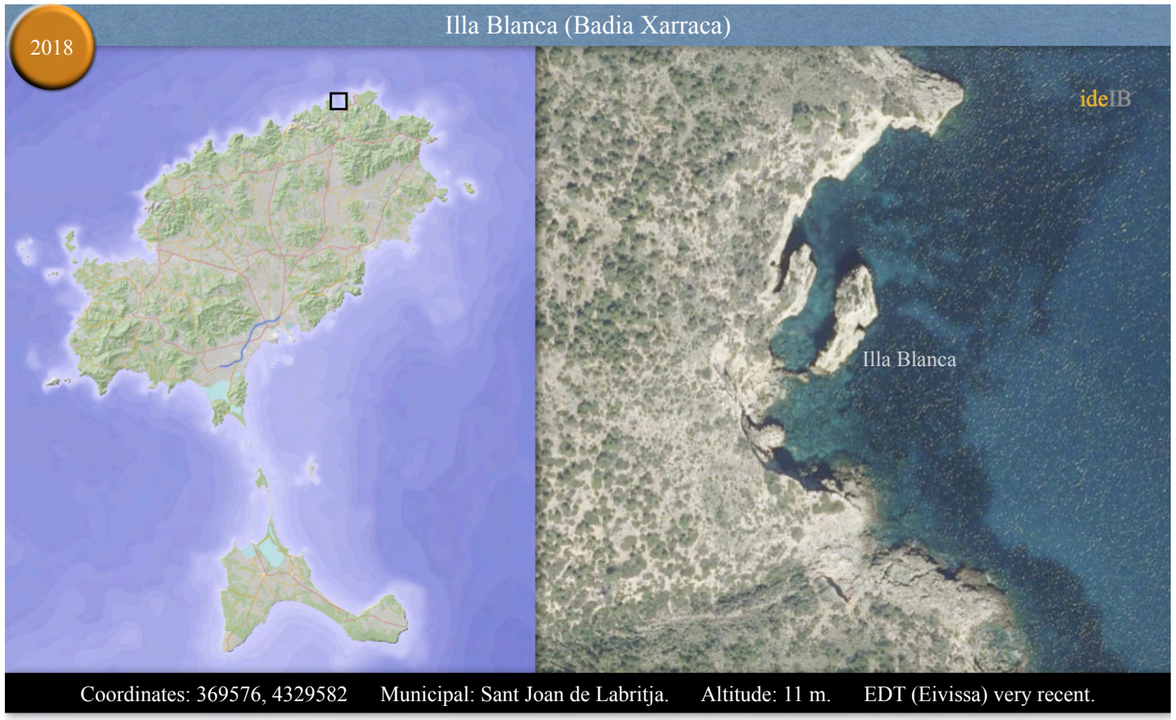


Image 71: Habitat on illot de sa Mesquida.

Image 72: A selection of males (left) and females (right) of *Podarcis pityusensis* from illot de sa Mesquida.



Location: Illa Blanca (450 m^2) is located 350 m. to the northwest of Illot de sa Mesquida in badia Xarraca, and is very recent separated from Eivissa.

Toponymy: White island.

Synonyms: None.

Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Helichrysum stoechas, Crithmum maritimum, Allium* sp. and *Limonium* sp.

Faunal aspects: One yellow-legged gull (*Larus michahellis*) breeding pair.

Herpetological history: Population described as *Podarcis pityusensis* (Boscá, 1883) by van den Berg & Zawadzki (2023a), with a doubtful terra typica of escull a Punta de Llevant.

Lizard density: Very small population (2018), no lizards spotted by Cirer in 2020 (without climbing the rock).

Image 73: Illa Blanca in badia Xarraca.

Image 74: Habitat on Illa Blanca with second spotted *Podarcis pityusensis* (encircled) (see video).

Image 75: Enlargements of the area of the female lizard.

Location: West of punta de Xarraca we have es Canaret where there is an islet with a small separation from Eivissa: La regana des Canaret, a wedge-shaped crevice from one meter at the narrowest part to 5 meters at the widest part, and not very deep, where lobsters were kept. The vegetation is a very impoverished maquis, since until fifty years ago it was a pen for rabbits that were supplied with bundles of alfalfa from the ground, but which has devastated the native plants of the herbaceous layer. The lizard population was very scarce when it was studied in the 20th century. Subsequently, a slight recovery of the plant cover and an increase in the lizard density of lizards has been verified.

Toponymy: Canaret is the diminutive of Canar, meaning a small place with reeds.

Synonyms: None.

Floral aspects: *Pinus halepensis*, *Pistacia lentiscus*, *Crithmum maritimum, Salicornia fruticosa* or *Arthrocaulon macrostachyum* and *Limonium* sp.

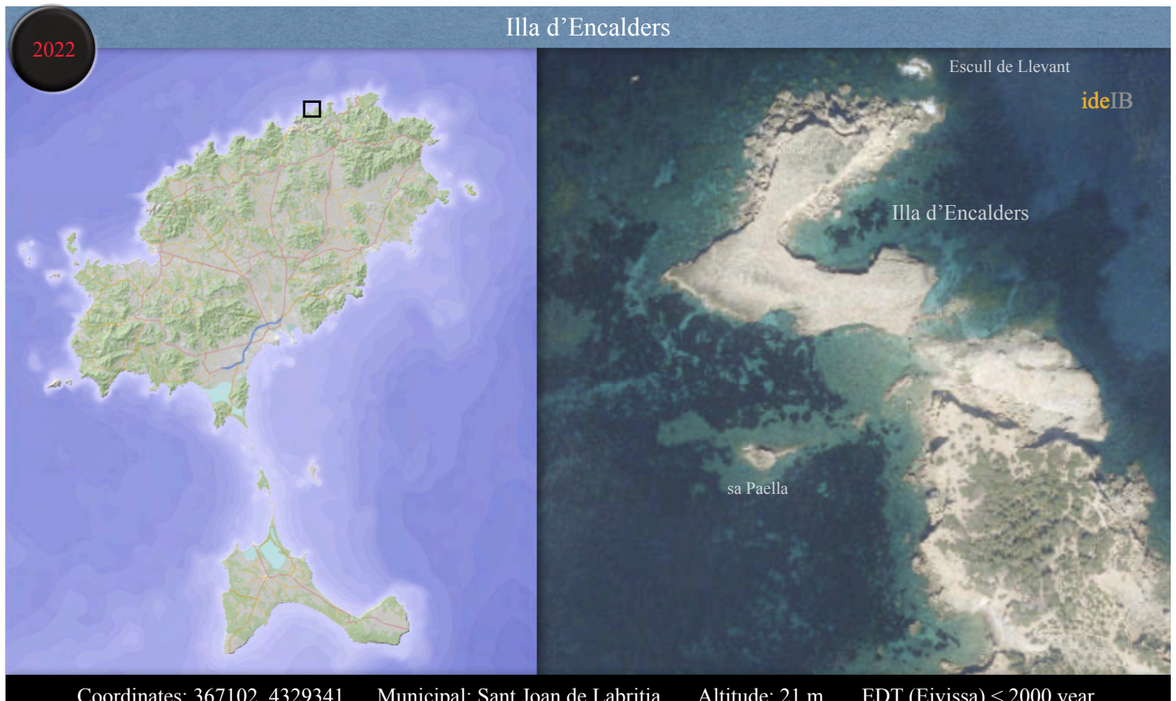
Faunal aspects: Normal complex of invertebrates.

Herpetological history: Population described as *Podarcis pityusensis canaretensis* Cirer, 1980. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Cirer (1987).

Lizard density: No lizards (2022), probably extinct. Snake presence has been observed by Cofib in 2024.

Image 76: Young female *Podarcis pityusensis* on illot des Canaret.

Image 77: Illot des Canaret (top), with a small impression of its scarce habitat (bottom-right) including an adult male (center) and adult female *Podarcis pityusensis* (bottom-left).



Location: Illa d'Encalders is located on the north coast of Eivissa, separated by a strait a few meters wide and just over a meter deep. The spelling of the toponym has recently been corrected from Illa d'en Calders (Ribes-Marí 1993). It is a chalk-marl island with a good limestone crust. It is easily accessible in the south and from there it rises on a gentle slope until reaching the northern end where it has the maximum altitude of 21 meter, where it ends with an abrupt cleft and blocks of rock, that have fallen in disorder, accumulate. Despite having a good extension (27.774 m^2) there is very little vegetation due to its exposure to the wind. For this reason, the lizard population has always had a low density.

Toponymy: Area with holes that retain water.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Pistacia lentiscus*, *Helichrysum stoechas* and *Limonium* sp.

Faunal aspects: Normal complex of invertebrates.

Herpetological history: Population described as *Lacerta lilfordi caldesiana* Müller, 1928. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Salvador (1984).

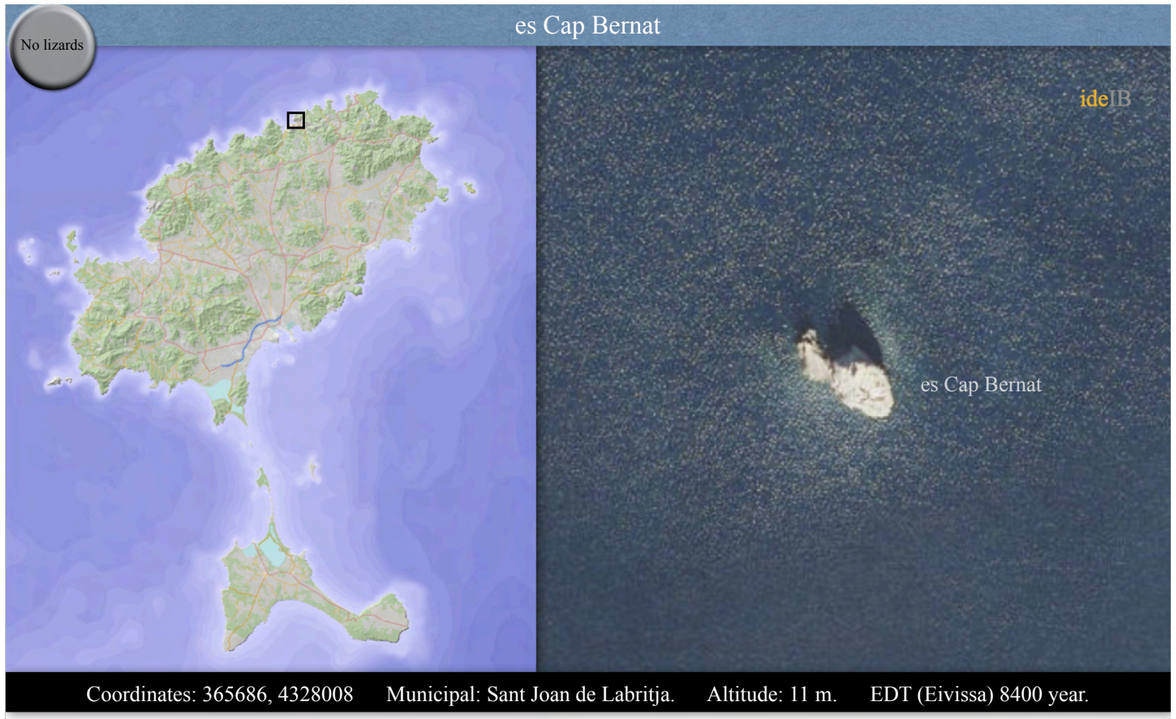
Lizard density: No lizards (2022), probably extinct.

Image 78: Illa d'Encalders.

Image 79: Impoverished habitat on illa d'Encalders.

Image 80: Male on illa d'Encalders (photo: Michael Kroniger).

Image 81: Male (top) and female (bottom) from illa d'Encalders.



Location: Es Cap Bernat is a steep rock pillar (431 m^2) right in the middle of the entrance to Port de Benirràs. It reaches 11 meter in height and does not support terrestrial fauna.

Toponymy: Bernard's head (or penile glans).

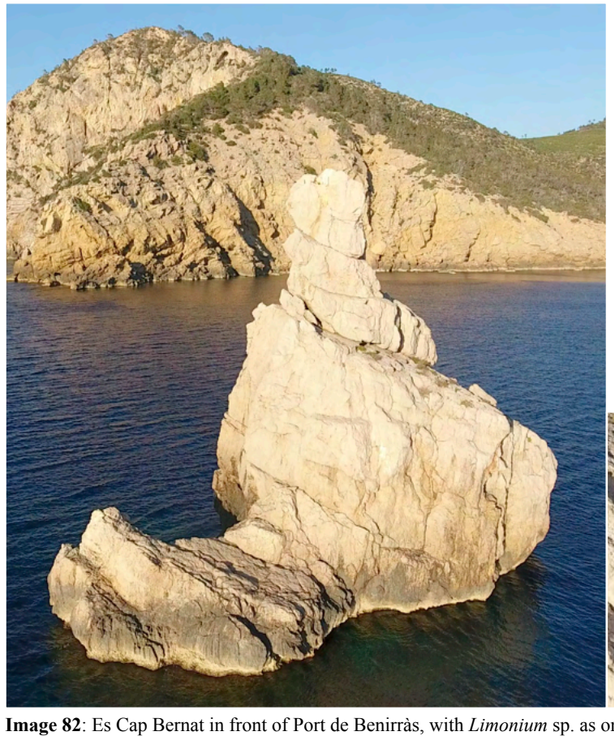
Synonyms: None.

Floral aspects: *Limonium* sp.

Faunal aspects: Non-existent.

Herpetological history: Es Cap Bernat is considered without lizards by Mayol (2004a) and Salvador (2015).

Lizard density: No lizards.



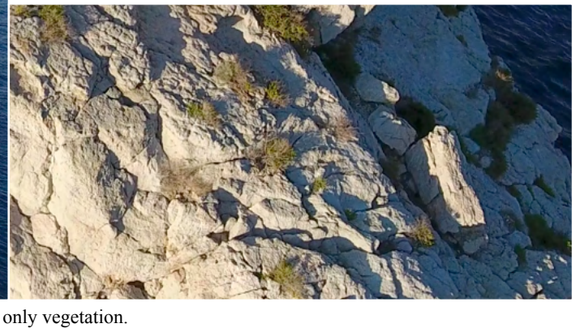
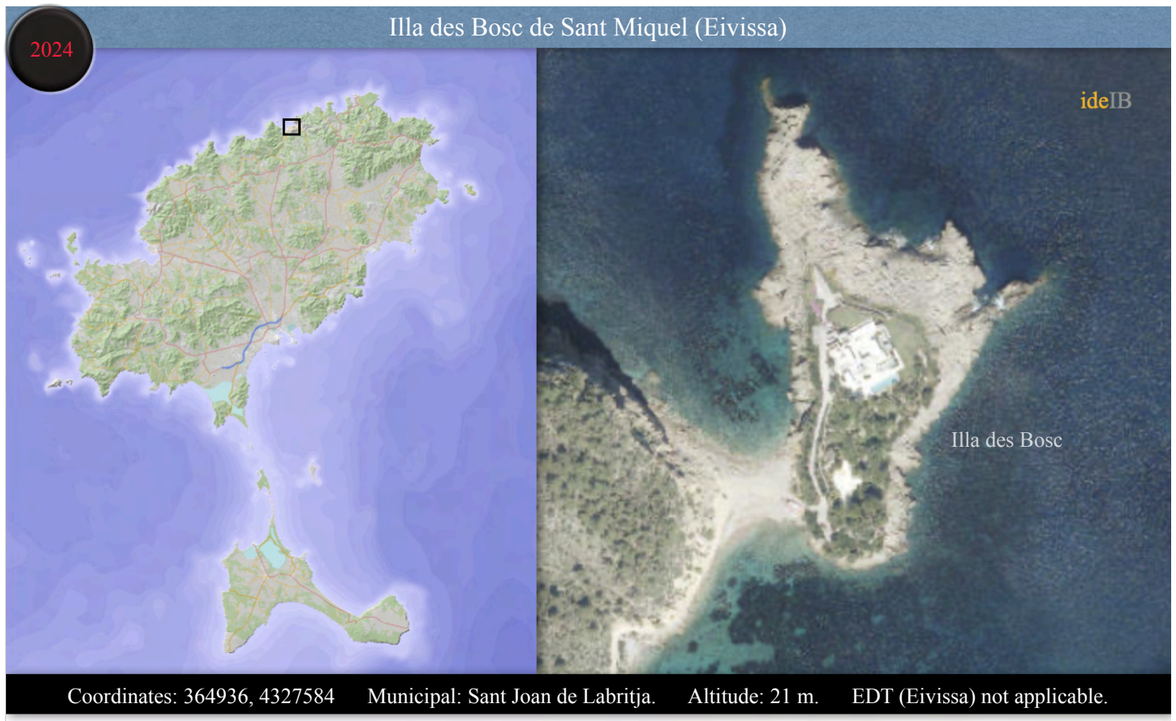


Image 82: Es Cap Bernat in front of Port de Benirràs, with *Limonium* sp. as only vegetation.



Location: Illa des Bosc is an ancient island, north-west to the Port de Balansat, naturally connected to the mainland of Eivissa by the isthmus es pas de s'Illa since time immemorial. It is also called Punta de sa Ferradura, which is the name of the north-eastern end of the islet. We added de Sant Miquel to make a distinction.

Toponymy: Island of the forest (actually with a luxury mansion).

Synonyms: Punta de sa Ferradura.

Floral aspects: Not investigated.

Faunal aspects: The number of cats struck us.

Herpetological history: Population described as *Lacerta lilfordi miguelensis* Eisentraut, 1928, using a wrong terra typica provided by Hermann Grün, who gave the impression that this was an island. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Salvador (1984).

Lizard density: In 2014 still abundant, but this has changed.

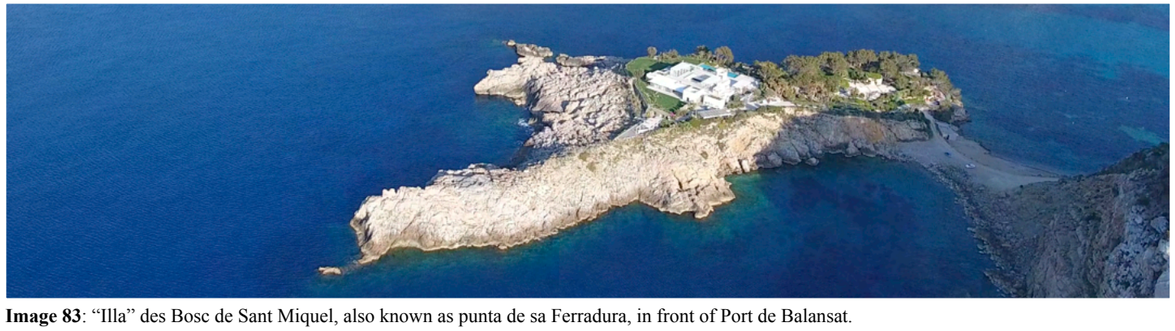
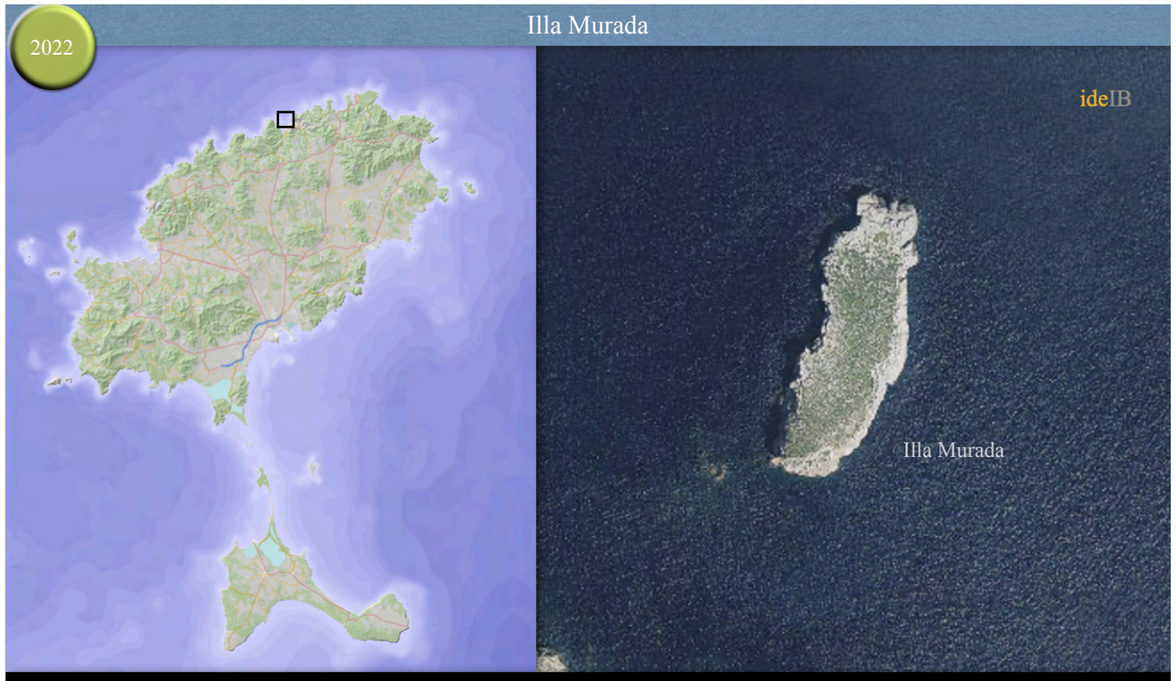


Image 83: "Illa" des Bosc de Sant Miquel, also known as punta de sa Ferradura, in front of Port de Balansat.



Location: Illa Murada (14.163 m^2) is located west of Port de Balansat and east of punta de sa Creu. Separated from Eivissa by a very deep channel, its contour emerges as an irregular prism of massive Cretaceous limestone rock with completely vertical cliffs. There is only one point, on the southwest side where a boat can approach, if the waves allow it, what is called es Pujador, where the ascent to the island begins. At the top of the natural cliffs are the remains of an ancient wall which used to completely wall the island, hence its name.

The upper part is shaped like a horizontal roadstead about 200 meters long by 60 meters wide. Very stony, with the stones of the old wall scattered and covered by nitro-halophilous vegetation that reaches a high degree of coverage. This is due to the constant contribution of nitrogen from the various colonies of birds.

The Margalides spurge *Euphorbia margalidiana* has been introduced to this islet, in order to have a backup if at any time the population of sa Margalida were to enter a recession; with greater success than expected, since the spurge currently covers a quarter of the island and threatens the native vegetation of illa Murada.

Toponymy: Walled island.

Synonyms: None.

Floral aspects: *Euphorbia margalidiana*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Helichrysum stoechas*, *Malva arborea*, *Asparagus horridus*, *Allium* sp, *Senecia* sp. and *Limonium* sp.

Faunal aspects: Yellow-legged gull *Larus michahellis*, Scopoli's shearwater *Calonectris diomedea*, European storm petrel *Hydrobates pelagicus* and European shag *Gulosus aristotelis*, the endemic gastropod mollusc *Xerocrassa ebusitana muradae* and the beetles *Alphasida ibicensis* and *Phytan mediterraneus*.

Herpetological history: Population described as *Lacerta lilfordi muradae* Eisentraut, 1928.

Lizard density: Abundant (2022), although this might have changed since Cofib caught 4 snakes on illa Murada in 2024 (Romero 2025).

Image 84: Illa Murada.

Image 85: Habitat of the lower northern side of illa Murada (photo: Michael Kroniger).

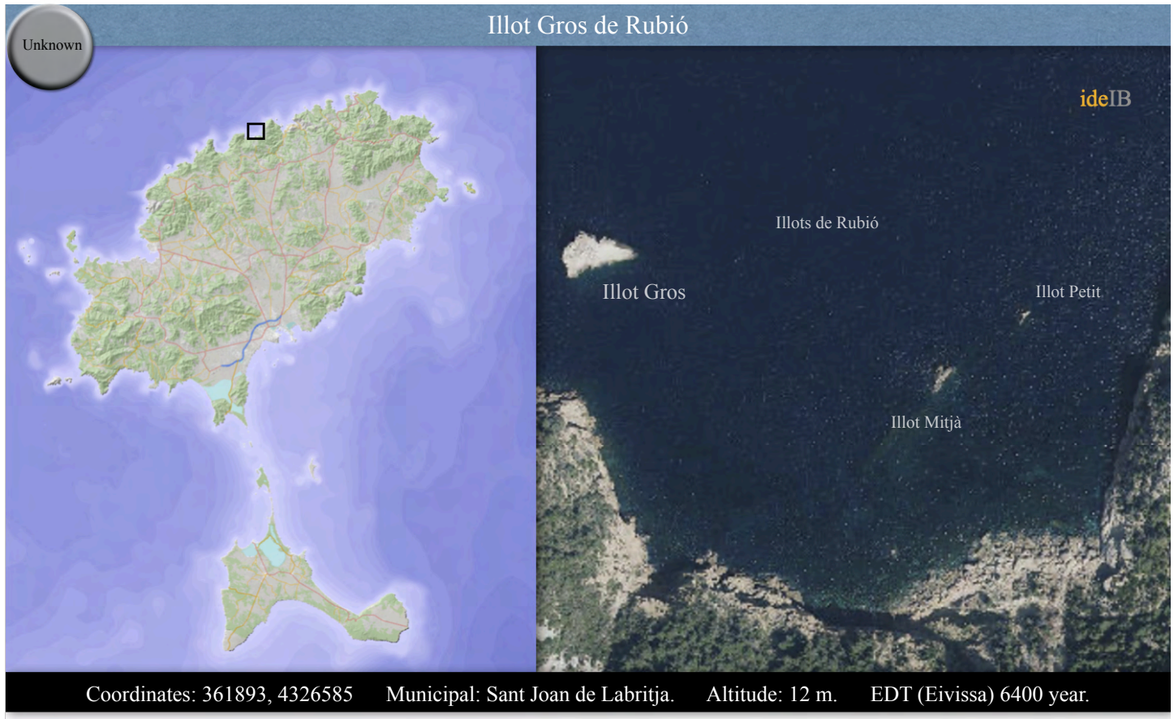
Image 86: *Malva arborea and Euphorbia margalidiana* on the southern side of illa Murada (photo: Michael Kroniger).

Illa Murada

Image 87: Male (top), female (center) and pair (bottom) of *Podarcis pityusensis* on illa Murada (photos: Michael Kroniger).

Illa Murada

Image 88: Male (top) and juvenile (bottom) of *Podarcis pityusensis* on illa Murada (photos: Michael Kroniger).



Location: Illot Gros de Rubió (1.345 m^2) is located in the north of Eivissa close to urbanització Illa Blanca, which is probably a reference to illot Gros de Rubió's appearance in the sun. This island used to be known as Entrepenyes, has a long history of separation from mainland Eivissa and has vegetation wise quite a few similarities to illot de ses Àguiles near Menorca, which contains a small *Podarcis lilfordi* population. There are breeding seagulls (*Larus michahellis*), which presence is also favorable in supporting a *Podarcis pityusensis* lizard population (Zawadzki & Kroniger 2003). Considering all this, we are not convinced that a *Podarcis pityusensis* lizard population would be impossible on this island.

Toponymy: Rubió is a ancient name referring to the area between Sant Mateu, Sant Miquel, Santa Gertrudis to the sea.

Synonyms: Entrepenyes.

Floral aspects: *Malva arborea*, *Crithmum maritimum*, *Allium* sp. and *Limonium* sp.

Faunal aspects: Breeding yellow-legged gull *Larus michahellis*.

Herpetological history: Considered lizard-free by Mayol (2004a) and Salvador (2015).

Lizard density: Not investigated.

Image 89: Illot Gros de Rubió.

Image 90: Habitat on top of illot Gros de Rubió.

Location: To the east of Torres d'en Lluc inside the Cala d'Albarca we find another bare rock without the possibility of a lizard population: Illa de sa Cala d'Albarca (848 m^2).

Toponymy: Albarca (Aubarca on Eivissa) comes from Arabic and means a large water collection area.

Synonyms: None.

Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

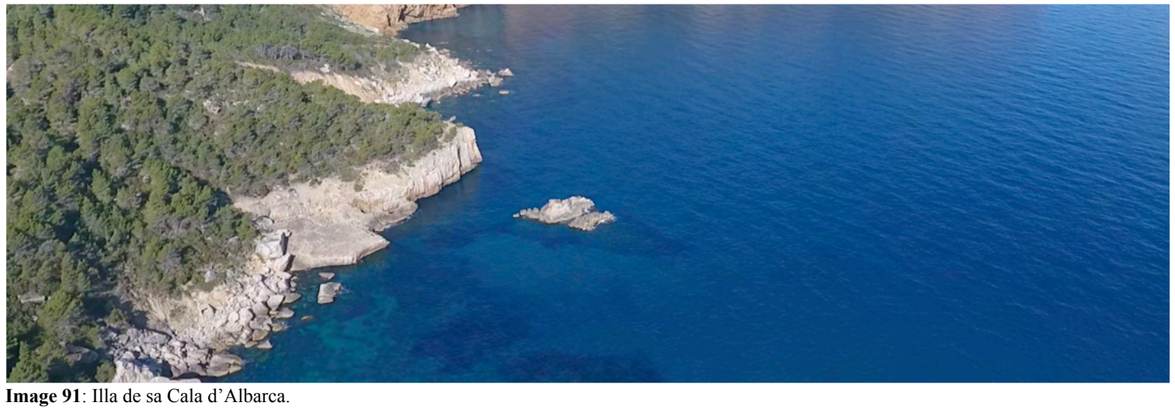
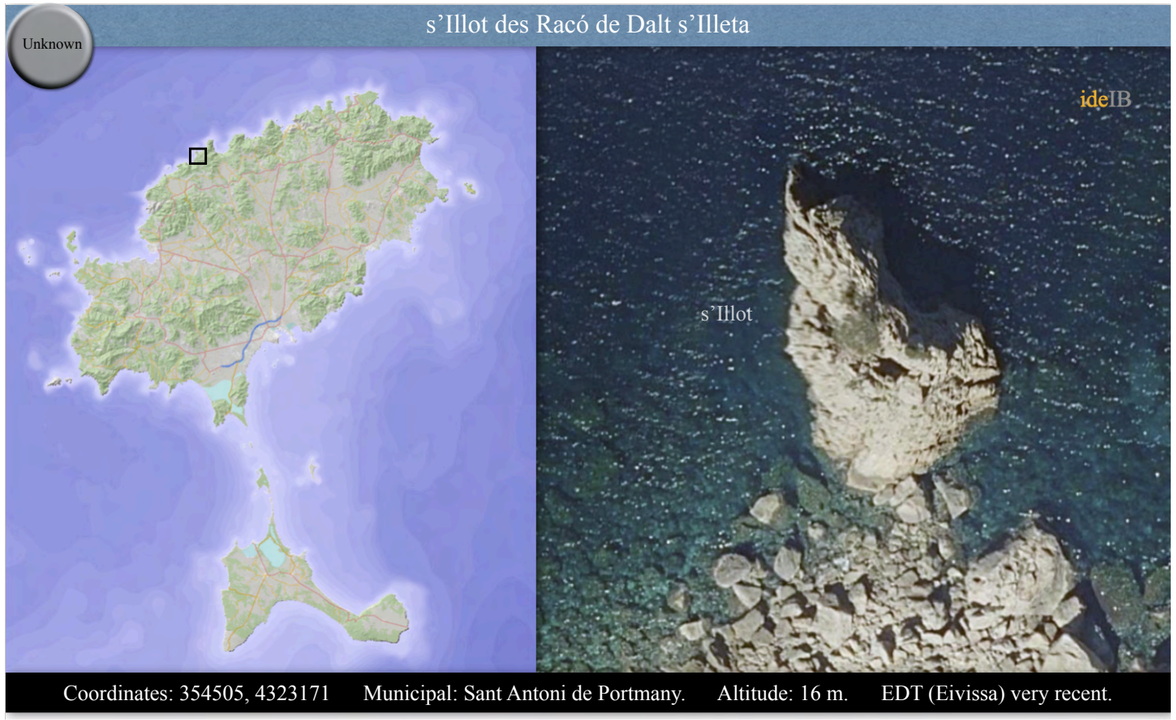


Image 91: Illa de sa Cala d'Albarca.



Location: s'Illot (547 m^2) is located at the Racó de Dalt s'Illeta and of very recent separation from Eivissa.

Toponymy: Just called islet.

Synonyms: None.

Floral aspects: *Pinus halepensis, Juniperus phoenicea, Helichrysum stoechas, Limonium* sp.*, Anthemis maritima, Daucus carota, Crithmum maritimum* and more.

Faunal aspects: Not investigated.

Herpetological history: None.

Lizard density: No lizards were spotted while searching them by areal drone, but we think there is a good chance that these could have been present. s'Illot has a major disadvantage: Due to its proximity and easy access, the island is prone to a visit from a horseshoe whip snake (*Hemorrhois hippocrepis*), which, in the case of a lizard population should be present, could easily lead to an extinction event.

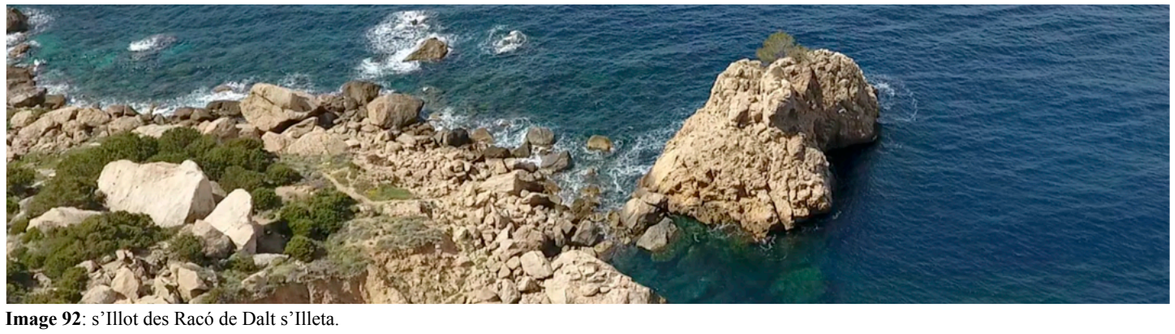
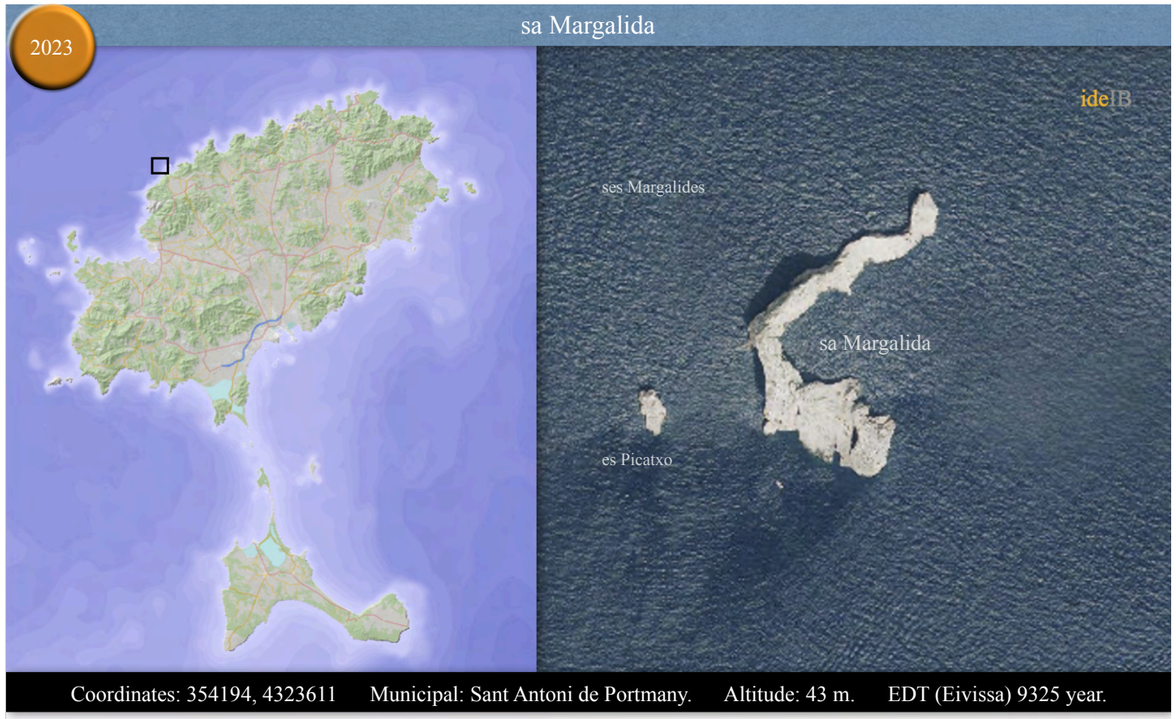


Image 92: s'Illot des Racó de Dalt s'Illeta.



Location: 430 meters from the coast of Ses Balandres, separated from Eivissa by a channel 29,2 meters deep, are ses Margalides, two calcareous-marly islets, very fissured, folded and karstified.

The large islet (10.044 m^2) is the one that bears the name sa Margalida par excellence, or illa de ses Balandres. It is also called illa Foradada, because at its southern end it has an impressive coastal arc, where it can be crossed by boat.

Sa Margalida is shaped like a half-moon with the tips facing the land and vertical walls up to 43 meters high in the widest part of the island, where the sparse vegetation is found, characterized by the exclusive endemism of this islet, the spurge *Euphorbia margalidiana*, discovered by Heinrich Kuhbier (1982). Its thick stems hang from the vertical rock walls, taking root in deep crevices and pits where a little moisture can be retained.

There is also the endemic snail *Xerocrassa ebusitana margaritae*, and of course a population of *Podarcis pityusensis*, possibly the most interesting population of all, especially regarding the color scheme; mainly melanistic but also a variety of other color morphs.

Toponymy: Margalida is any inflorescence with yellow center, probably due to the *Euphorbia margalidiana* inflorescence.

Synonyms: Illa Foradada, illa de ses Balandres.

Floral aspects: *Arthrocnemum macrostachyum*, *Limonium ebusitanum*, *Malva arborea*, *Crithmum maritimum*, *Allium commutatum*, *Euphorbia margalidiana*, *Chenopodiastrum murale*, *Olea europaea* and *Mesembryanthemum nodiflorum*.

Faunal aspects: Birds such as *Larus michahellis*, *Falco eleonorae*, and invertebrates *Lucilia sericata*, *Macroglossum stellatarum*, *Merodon sp*., *Theba pisana*, *Vanessa cardui* and *Xerocrassa ebusitana margaritae*.

Herpetological history: Population described as *Lacerta lilfordi hedwig-kamerae* Müller, 1927. Name correction into *Lacerta lilfordi hedwigkamerae* Müller, 1927 by Mertens & Wermuth (1960). A complete overview of the herpetological history of sa Margalida is given in van den Berg et al. (2015b).

Lizard density: Low (2023).

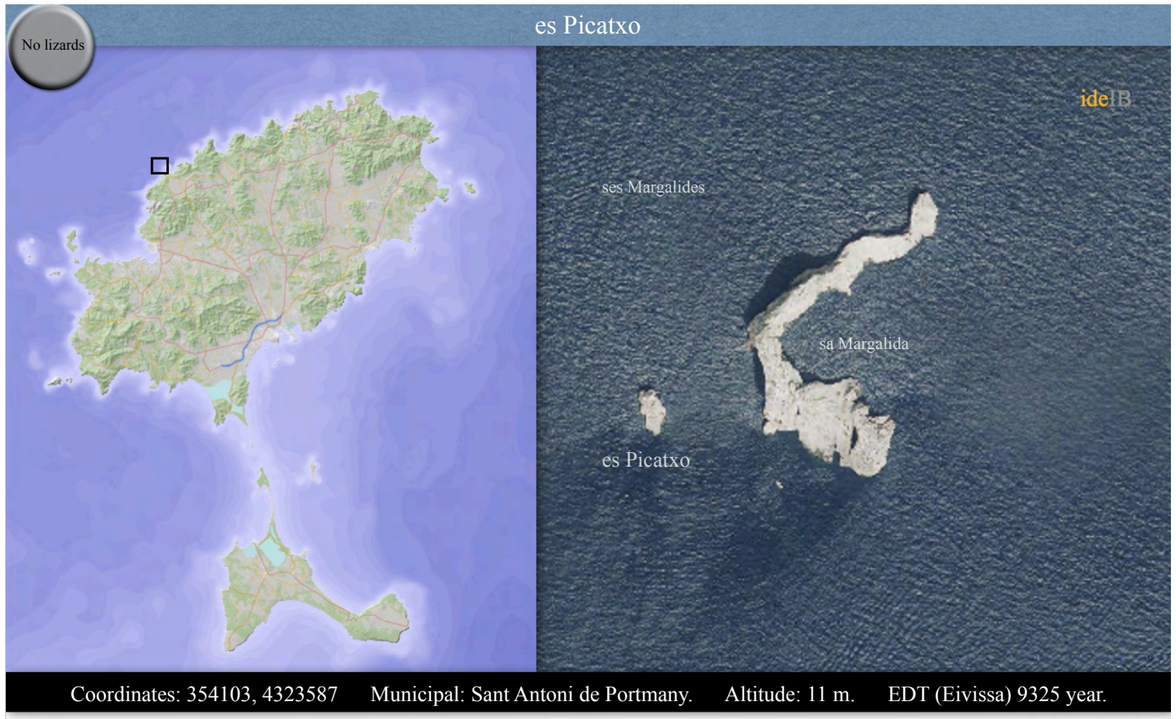
sa Margalida

Image 93: sa Margalida.

Image 94: Habitat on sa Margalida. Insert: *Euphorbia margalidiana* on the top ridge.

sa Margalida

Image 95: A variety of color morphs of *Podarcis pityusensis* on sa Margalida (photos top row: Michael Kroniger).



Location: Es Picatxo (547 m^2) is located to the east of sa Margalida. Despite their proximity, sa Margalida and es Picatxo have been separated for 7000 years. Just two plant species and its small surface area do not make es Picatxo a likely candidate for hosting a *Podarcis pityusensis* lizard population.

Toponymy: Picatxo means vertically protruding rock.

Synonyms: None.

Floral aspects: *Limonium* sp. and *Malva arborea* on top of the islet.

Faunal aspects: Not investigated.

Herpetological history: None.

Lizard density: No lizards.

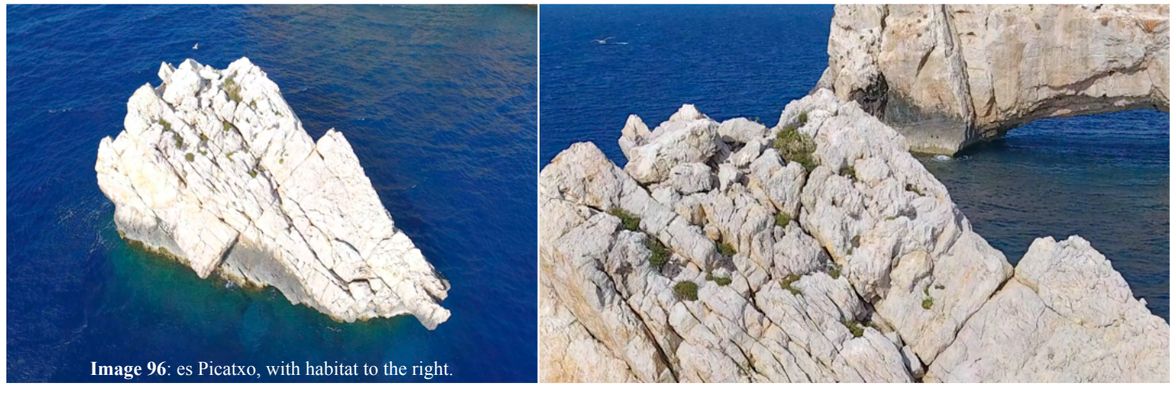


Image 96: es Picatxo, with habitat to the right.

Location: Illeta de Cala Salada is a small islet (6.948 m^2) located with easy access about 60 meters from the rocky coast north of Cala Salada, which reaches 25 meter in height. It is about 200 meter long by 50 meter wide, covered by scrubs of juniper and olive trees, and along the seashore by species of the *Limonietum ebusitani* alliance. Over time it has had many human uses. In the 13th century it is known that it was called illa des Coloms because the annual tax was a pair of pigeons.

Toponymy: Salty cove.

Synonyms: Illa des Coloms.

Floral aspects: *Juniperus phoenicea*, *Olea europaea*, *Crithmum maritimum*, *Asparagus horridus*, *Limonium* sp., *Senecio* sp. and *Asphodelus fistulosus*.

Faunal aspects: Normal complex of invertebrates.

Herpetological history: Population described as *Lacerta lilfordi calae saladae* Müller, 1929. Name correction into *Lacerta lilfordi calae-saladae* Müller, 1927 by Eisentraut (1930). Name correction into *Lacerta lilfordi calaesaladae* Müller, 1927 by Mertens & Wermuth (1960).

Lizard density: Low (2022).

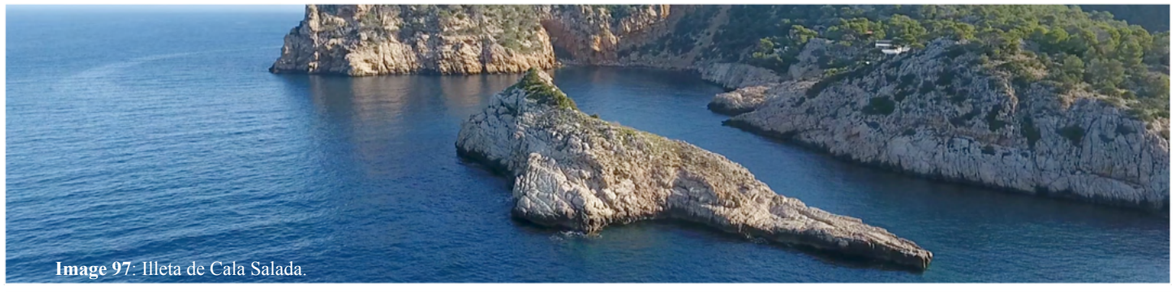
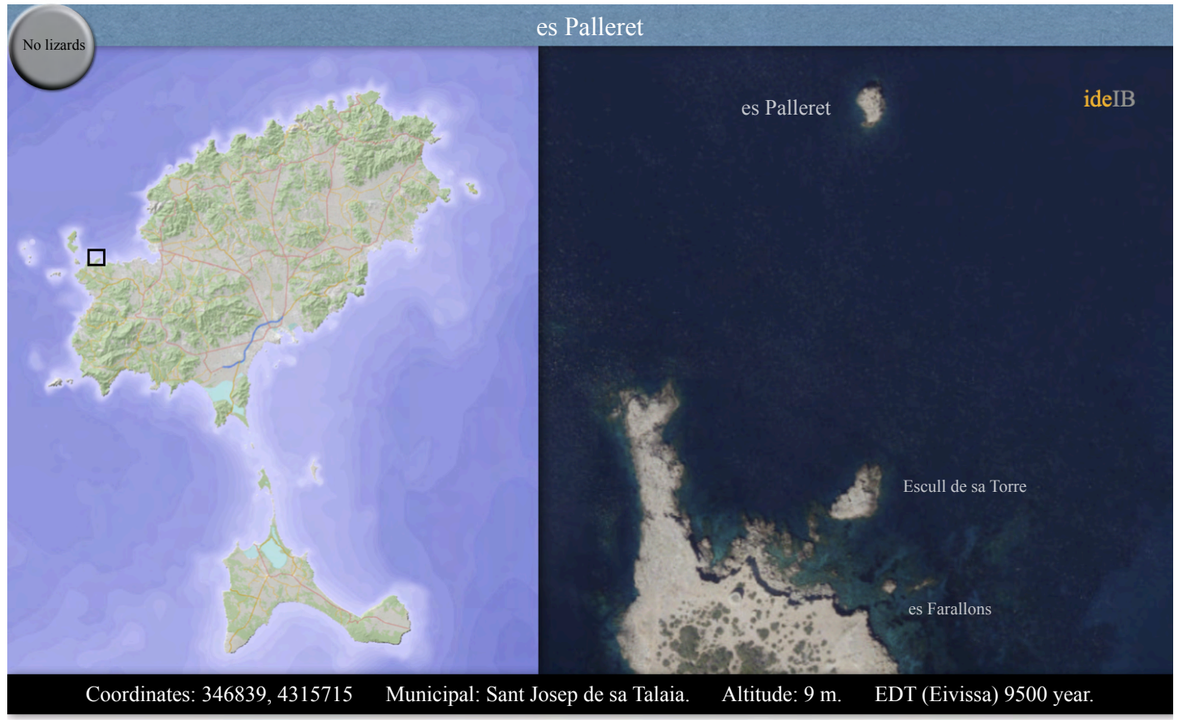


Image 97: Illeta de Cala Salada.

Image 98: Habitat on illeta de Cala Salada.

Image 98: Color variation of *Podarcis pityusensis* within the population of illeta de Cala Salada.



Location: Es Palleret (405 m^2), a relatively high and long isolated island, lacks the vegetation necessary to support a *Podarcis pityusensis* population. We were actually able to observe one plant on the top of the island, probably solsera. Closer to the mainland we also find escull de sa Torre (1.008 m^2), located near Torre d'en Rovira, which guards the bay of Sant Antoni de Portmany. This islet also falls within the category of bare rocks without lizards, which is confirmed by Salvador (2015a).

Toponymy: Es Palleret derives from a little haystack, due the islet silhouette.

Synonyms: None.

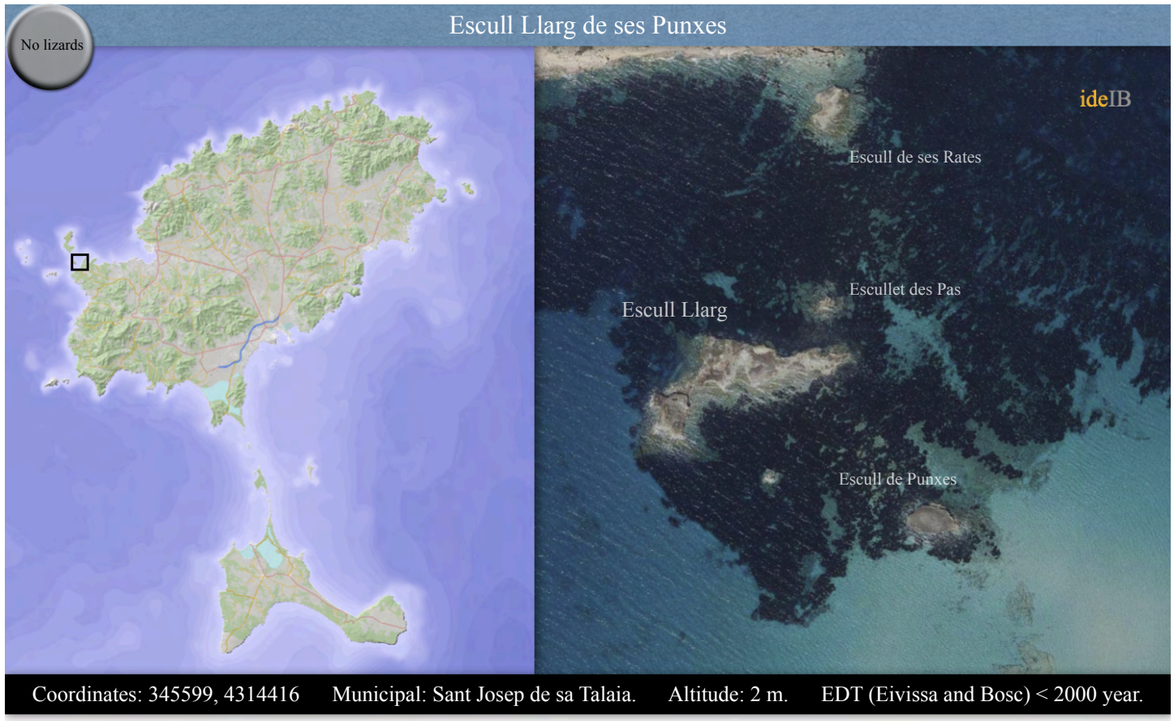
Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*.

Faunal aspects: Not investigated.

Herpetological history: No lizards according Salvador (2015).

Lizard density: No lizards.

Image 99: es Palleret (left) and escull de sa Torre (right).



Location: Located between Comte and illa des Bosc are the esculls de ses Punxes. These four very small, low and bare rocks are without any possibility of a lizard population.

Toponymy: Spike reefs.

Synonyms: None.

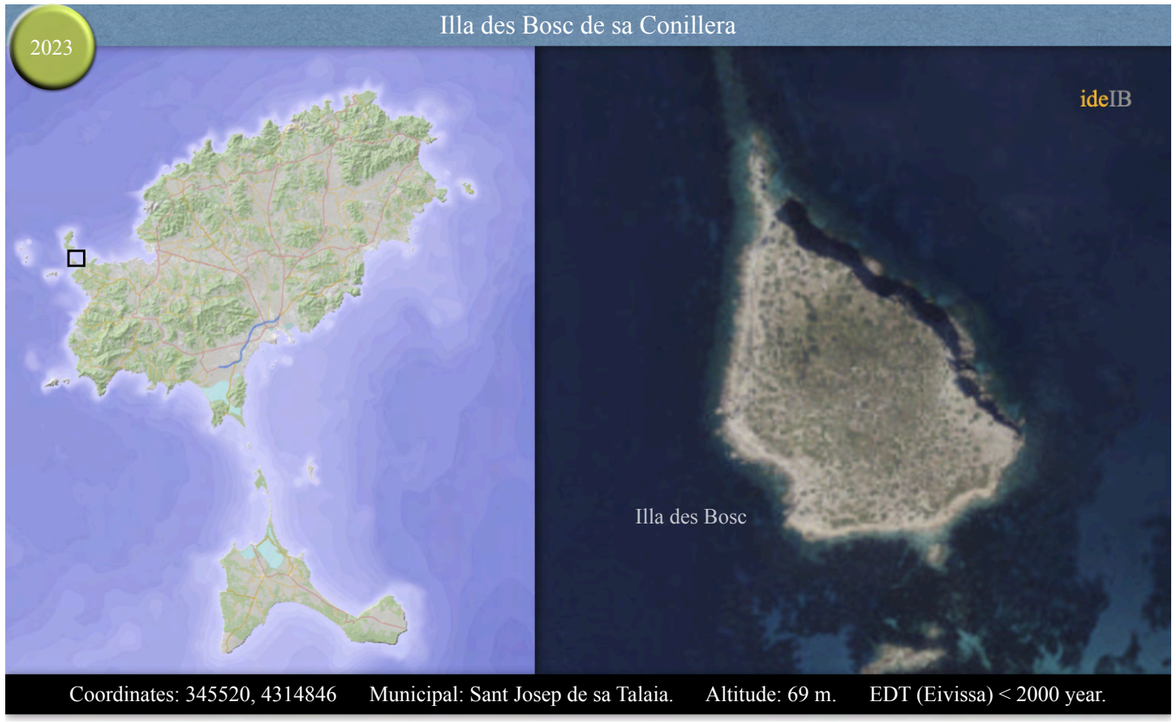
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: No lizards according Martínez-Rica & Cirer (1982), Mayol (2004a) and Salvador (2015).

Lizard density: No lizards.

Image 100: Esculls de ses Punxes (photo: Michael Kroniger).



Location: Illa Bosc is an island of considerable size (166.591 m^2) and height located between sa Conillera and the beaches of Comte. It is as high as sa Conillera, but much smaller. They have had almost the same episode of isolation due to the eustatic changes of the Quaternary.

The name is because it was once covered with trees. Currently there are only shrub and herbaceous layers. It has the shape of a rounded dome with slopes where rainwater quickly drains away, eroding the soil. It is much more arid, stony and uniform than sa Conillera, leaving the territory exposed to possible aerial predation by lizards.

Until the late seventies it was used for military exercises with artillery shooting practices. Just after the end of military use, the island was visited repeatedly, noting that the lizard density was very low. However, what was most surprising was the behavior of the lizards, unlike in sa Conillera where lizards approach visitors, on illa del Bosc they were very elusive and suspicious at that time, in each visit a long time was spent before seeing any specimen, as they sought refuge from the slightest disturbance.

This island has been revisited during the 21st century and two observations have been made; the behavior of the lizards is no longer elusive and they can be observed confidently while searching for food, and the lizard density has recovered in the areas covered by bushes.

Toponymy: Forrest island (in this case without trees).

Synonyms: None.

Floral aspects: *Pinus halepensis*, *Juniperus phoenicea*, *Helichrysum stoechas* and *Limonium* sp.

Faunal aspects: Breeding yellow-legged gulls and rats.

Herpetological history: Population described as *Lacerta lilfordi kochi* Müller, 1927. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Salvador (1984).

Lizard density: Abundant (2023).

Image 101: Illa des Bosc de sa Conillera.

Image 102: Habitat on illa des Bosc de sa Conillera.

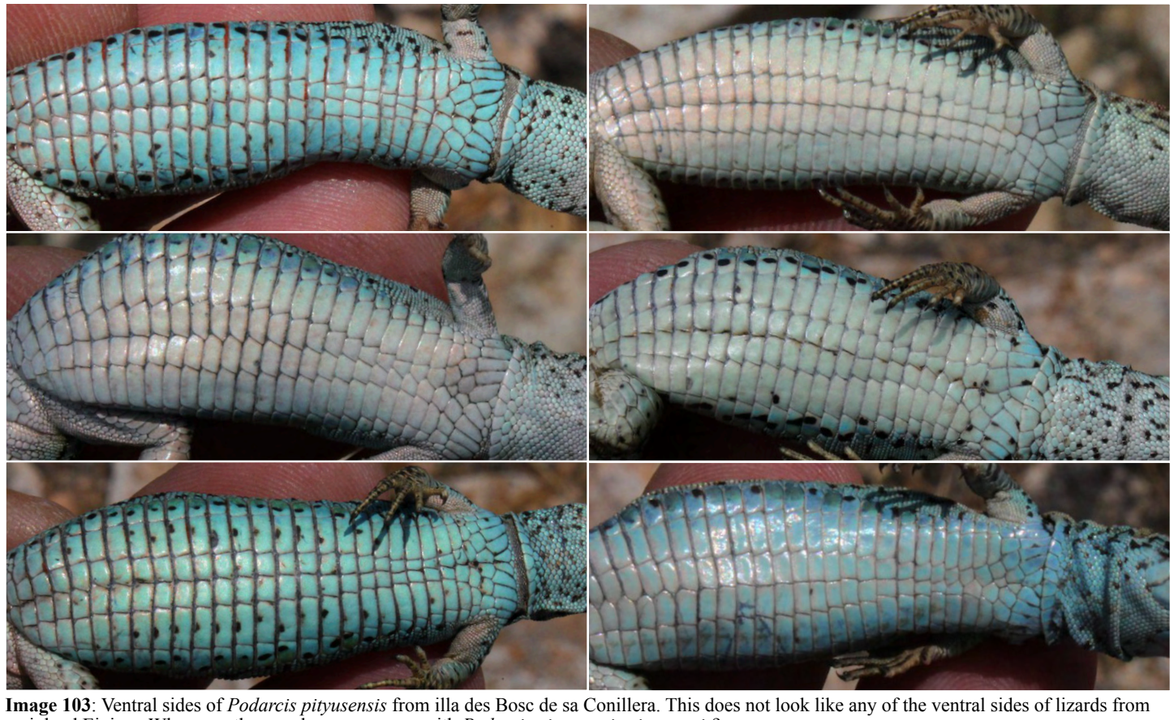
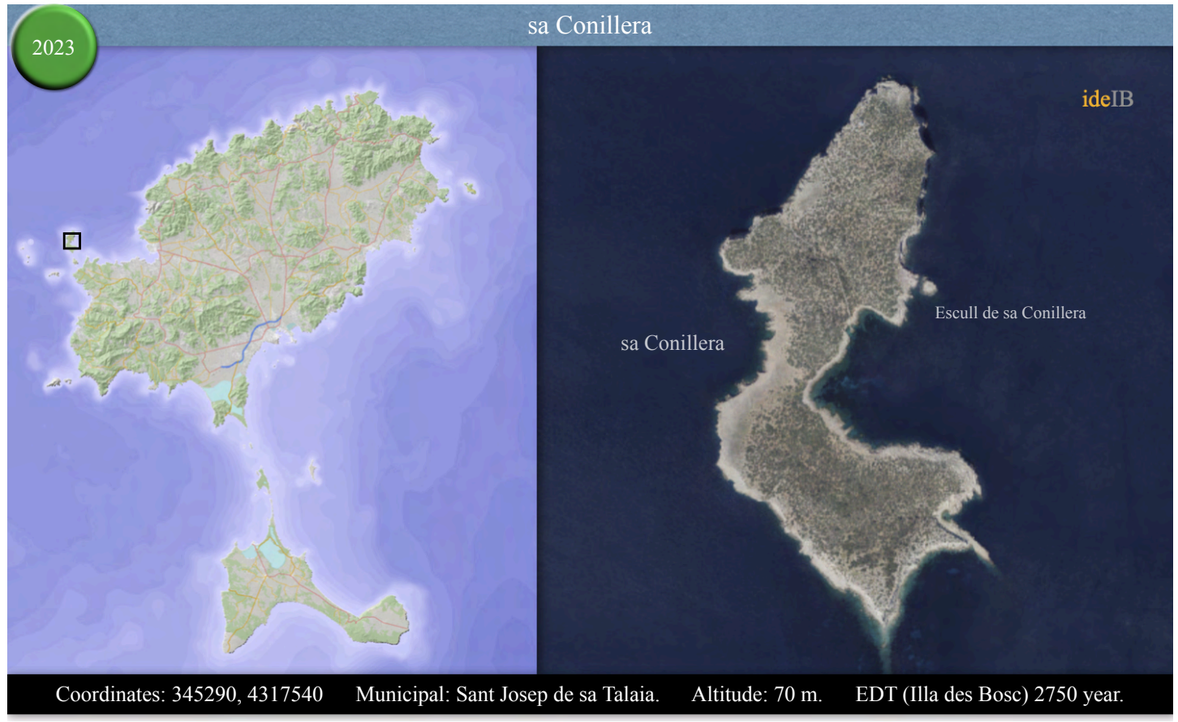


Image 103: Ventral sides of *Podarcis pityusensis* from illa des Bosc de sa Conillera. This does not look like any of the ventral sides of lizards from mainland Eivissa. Why were they made synonymous with *Podarcis pityusensis pityusensis*?



Location: Sa Conillera is the fourth island in size (1.043.520 m^2) of the Pityusic Islands, located in front of the bay of Portmany, which encloses and protects it. It is one of the highest islands with 70 meters in the area where the lighthouse is located. Sa Conillera has a fairly large island surface area and has had a notable constant human impact since time immemorial, which makes it an replica of the island of Eivissa, due to its ecological similarities, but without the predatory mammals (genet, hedgehog, marten, cat, dog) that prey on the lizards of Eivissa. Currently, the only mammals are rabbits, introduced by man since time immemorial for edible purposes and rats. There has been a lighthouse since 1857, inhabited by two families until 1971, when the lighting was automated. This human presence has stripped sa Conillera of wood and other vegetable fuels, which is why it is more arid than we might expect. Fortunately, since it has been uninhabited, a notable recovery of the tree structure has been observed.

This is one of the most frequented islets in the past to spend the day with the family and make a paella, always with a watchman to scare away the lizards that tried to jump in. The high lizard density has therefore been known since ancient times. In all the visits it has been possible to verify that the density remains at high values.

Toponymy: The rabbit hutch.

Synonyms: None.

Floral aspects: *Pinus halepensis*, *Juniperus phoenicea*, *Pistacia lentiscus*, *Erica multiflora*, *Rosmarinus officinalis*, *Helichrysum stoechas*, *Anagallis arvensis*, *Pallenis maritima*, *Crithmum maritimum*, *Asparagus horridus* and *Limonium* sp.

Faunal aspects: Breeding gulls (*Ichthyaetus audouinii* and *Larus michahellis*), the endemic tenebrionids *Asida mater cunicularia* and *A. ludovici ludovici* and rabbits and rats.

Herpetological history: Population described as *Lacerta lilfordi kochi* Müller, 1927. Made synonymous with *Podarcis pityusensis pityusensis* (Boscá, 1883) by Salvador (1984). *Lacerta pityusensis carl-kochi* Mertens & Müller, 1940 nomen novum pro *Lacerta lilfordi kochi* Müller, 1927 (Mertens & Müller 1940). *Lacerta pityusensis carlkochi* Mertens & Müller, 1940 name correction for *Lacerta lilfordi carl-kochi* Mertens & Müller, 1940 (Mertens & Wermuth 1960).

Lizard density: Very high (2023).

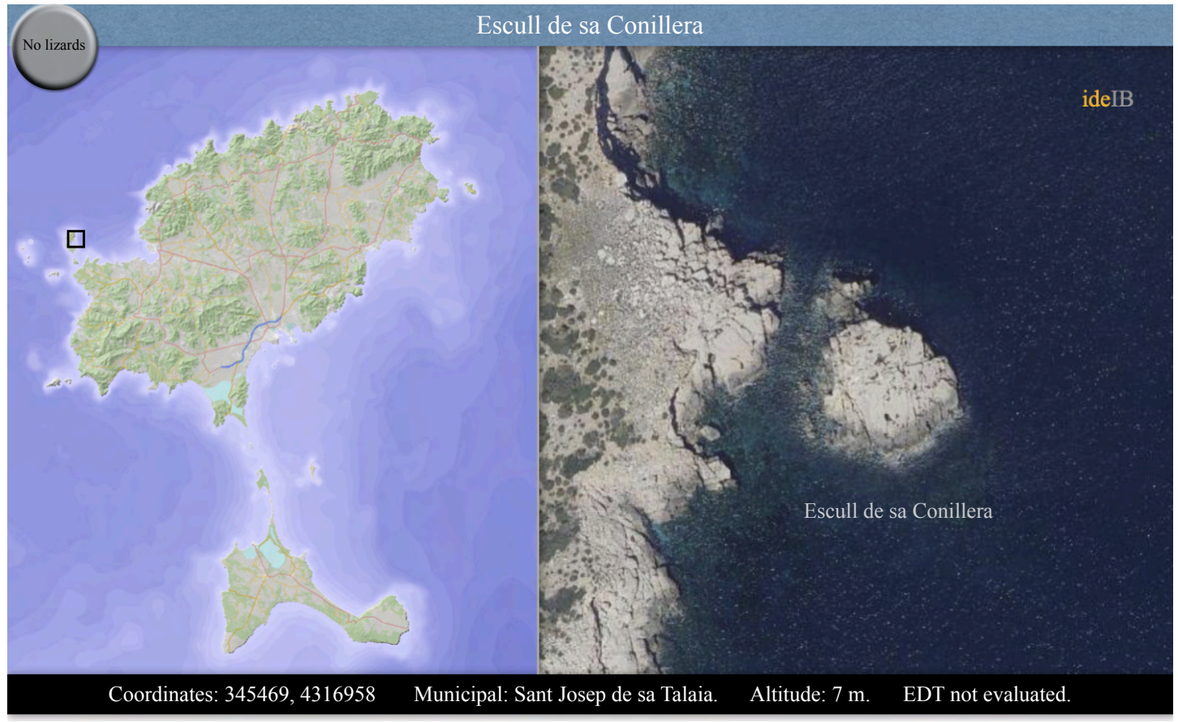
sa Conillera

Image 104: sa Conillera.

Image 105: Far de sa Conillera.

Image 106: Ventral sides of *Podarcis pityusensis* from sa Conillera.

Escull de sa Conillera



Location: Escull de sa Conillera is just a bare rock located north-east of l'Estància de Dins where the sa Salvadora jetty is located. No lizards have ever been observed here.

Toponymy: sa Conillera reef.

Synonyms: None.

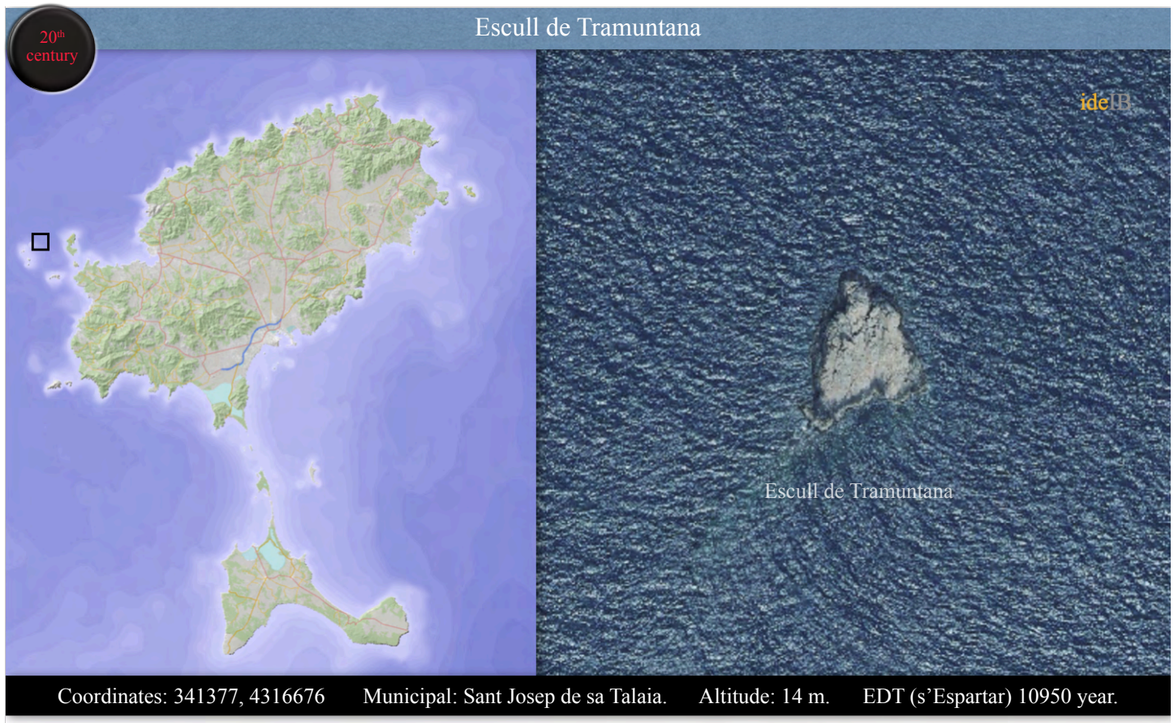
Floral aspects: Not investigated.

Faunal aspects: Not investigated.

Herpetological history: Non.

Lizard density: No lizards.

Image 107: Escull de sa Conillera (image from internet).



Location: Escull de Tramuntana (1.206 m^2) is the northernmost of the ses Bledes Islands, and the first of the present islands to become isolated from the Gran Pityusic system. The relative EDT to Bleda Plana is 6900 year. The current vegetation is not much; a few plants of probably the same species. It is likely that Eisentraut (1930) was correct in his assumption that there was no original population of *Podarcis pityusensis* present before 1930, despite reports that may contradict this. Koch (1928) describes that the local fishermen, who transported him to the Bledes Islands, told him that black lizards could be found in large numbers on Bleda na Bosc and Bleda na Plana and to a lesser extent on Bleda na Gorra, escull Vermell and escull de Tramuntana.

Toponymy: Rock of the north.

Synonyms: None.

Floral aspects: Not investigated.

Faunal aspects: Not investigated.

Herpetological history: Eisentraut (1930) released 24 specimens from Eivissa on Escull de Tramuntana. No lizards were observed on this island in 1979 and 1980 (Salvador 1984) as well as in 1962 and 1985 by Martínez-Rica (Cirer 1987) and in 2013 by Pérez-Mellado, who concluded that Eisentraut had failed here (Romero 2013).

Lizard density: No lizards.

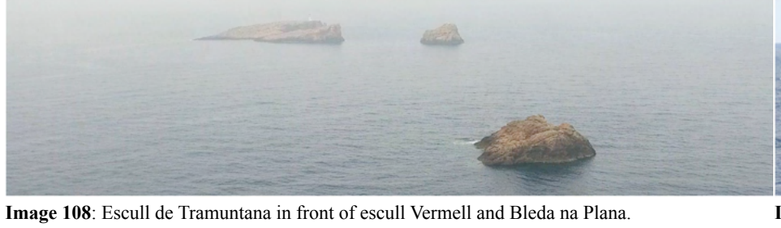
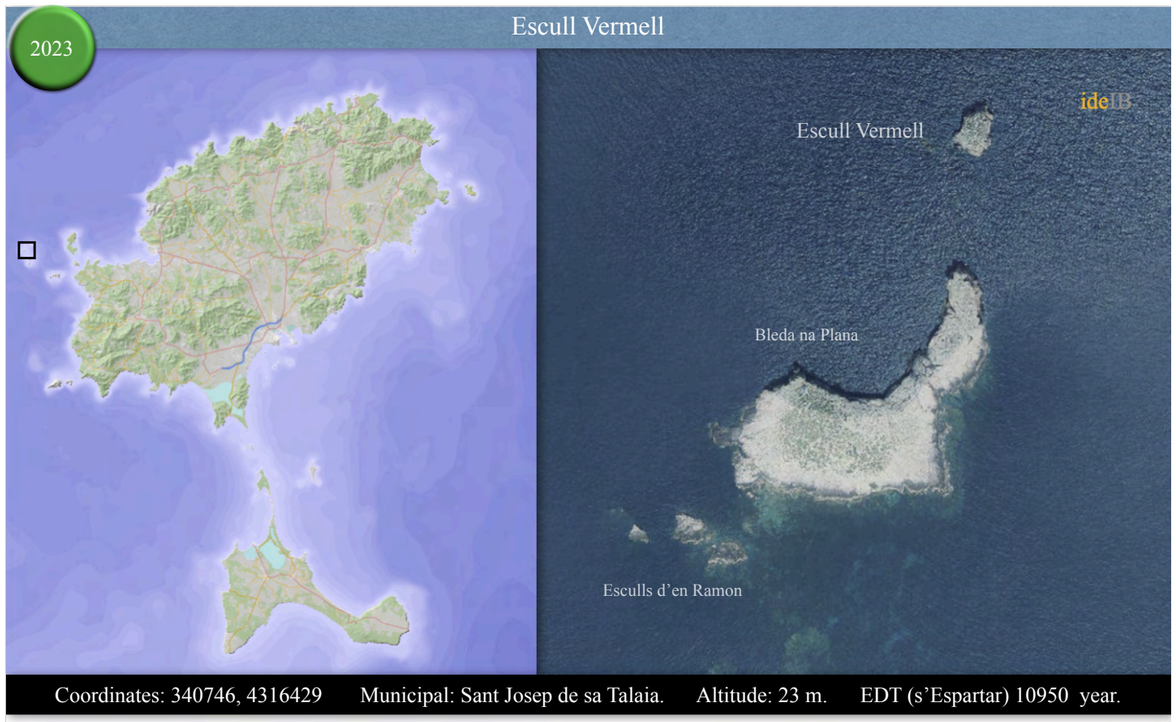


Image 108: Escull de Tramuntana in front of escull Vermell and Bleda na Plana.

Image 109: Escull de Tramuntana.



Location: Escull Vermell (1.413 m^2) is located to the north of cap Vermell on Bleda na Plana, hence its official name Escull des cap Vermell, which we shorten to maintain the generally used name in literature. The relative EDT to Bleda na Plana is 2750 year.

Image 110: Escull Vermell.

Toponymy: Rock of the red cape.

Synonyms: Escull des cap Vermell.

Floral aspects: Not investigated.

Faunal aspects: Not investigated.

Herpetological history: Population described as *Lacerta lilfordi maluquerorum* (Eisentraut 1930), what was immediately corrected by himself into *Lacerta lilfordi gorrae* (Eisentraut 1930) and later again corrected by Mertens & Müller (1940) into *Lacerta pityusensis maluquerorum* Mertens, 1921.

Lizard density: Very high (2023).

Image 111: Habitat on escull Vermell.

Location: Bleda na Plana clusters with escull de Tramuntana, escull Vermell and esculls d'en Ramon into the northern group of the Ses Bledes. The relative EDT to the southern group (Bleda na Bosc, es Vaixell and Bleda na Gorra) is 6925 year. On Bleda na Plana (30.806 m^2) we find the westernmost lighthouse of the Pityusic Islands, a small cylindrical tower 8 meters high. From the small landing for the boat of the lighthouse keeper to the lighthouse there is a concrete track which then crosses the entire islet. This is, therefore, an island with a strong human impact, with more or less continuous visits due to the maintenance of the lighthouse, and consequently, it is not surprising that there is a small population of the gecko *Hemidactylus turcicus*. The invertebrate fauna indicates that the ses Bledes are the most differentiated islands of the Pityusic archipelago, since there are a good number of endemics.

The highest population densities of *Podarcis pityusensis* are those observed on Bleda na Plana. When the lighthouse was built, their abundance made masonry work difficult and poison was spread throughout the islet in order to eliminate them, which, fortunately, was not achieved. The entire group of ses Bledes is made up of white limestone and dolomite rocks, very cracked and with angular edges. It is an extraordinary visual experience to observe how a completely black lizard, apparently showy on a white rock, goes completely unnoticed if it is immobile, since its silhouette is mixed between the black shadows of the cairns of the rocks of the substrate.

Toponymy: The abundance of sea chard (*Beta vulgaris maritima*) gives its name to the ses Bledes. Plana refers to flat.

Synonyms: na Plana. (We added Bleda at all three main ses Bledes islets to be able to distinguish).

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Beta vulgaris maritima*, *Cynomorium coccineum*, *Limonium* sp. and *Senecio* sp.

Faunal aspects: *Alphasida ibicensis medae*, *Iberellus companionii pithiusensis*, *Trochoidea ebusitana*, *Pachychila acuminata*, *Hemidactylus turcicus* and breeding gulls.

Herpetological history: Population described as *Podarcis pityusensis maluquerorum* Mertens, 1921.

Lizard density: Very high (2022).

Image 112: Bleda na Plana.

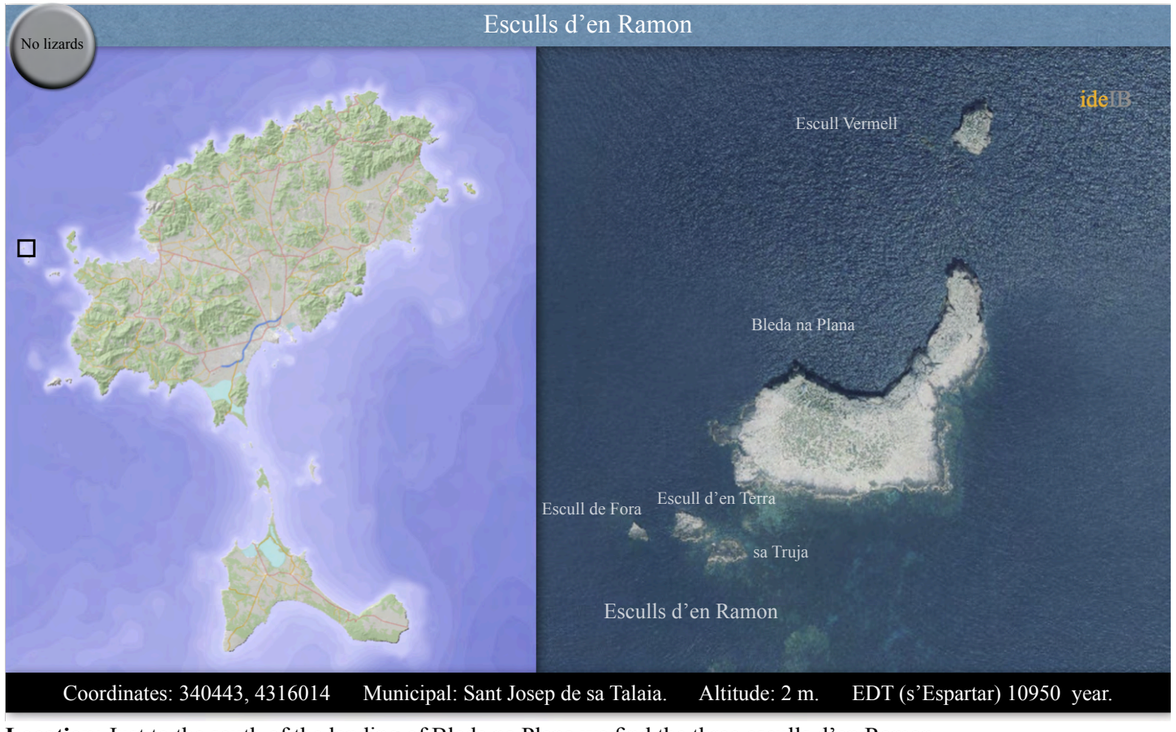
Image 113: Lighthouse on Bleda na Plana.

Image 114: Habitat on Bleda na Plana, with Bleda na Bosc, es Vaixell, Bleda na Gorra and es Vedrà in the background.

Image 115: Juveniles of *Podarcis pityusensis* on Bleda na Plana. SVL from top to bottom: 59, 58, 55, 47 and 46 mm.

Interestingly, the juvenile lizards that we observed in ses Bledes are not completely melanistic, but have a more or less dark brownish gray back, on which darker and lighter reticulated stripes are distinguished. It seems, therefore, that the total melanistic color of the adults is not what they present when they are born, but that there may be a cumulative component of melanism that is accentuated with growth (SVL= snout-vent length).

Image 116: Adults of *Podarcis pityusensis* on Bleda na Plana (photos: Michael Kroniger).



Location: Just to the south of the landing of Bleda na Plana we find the three esculls d'en Ramon.

Toponymy: Close to the mainland (d'en Terra), to the outside (de Fora) and sow (sa Truja) rock.

Synonyms: None.

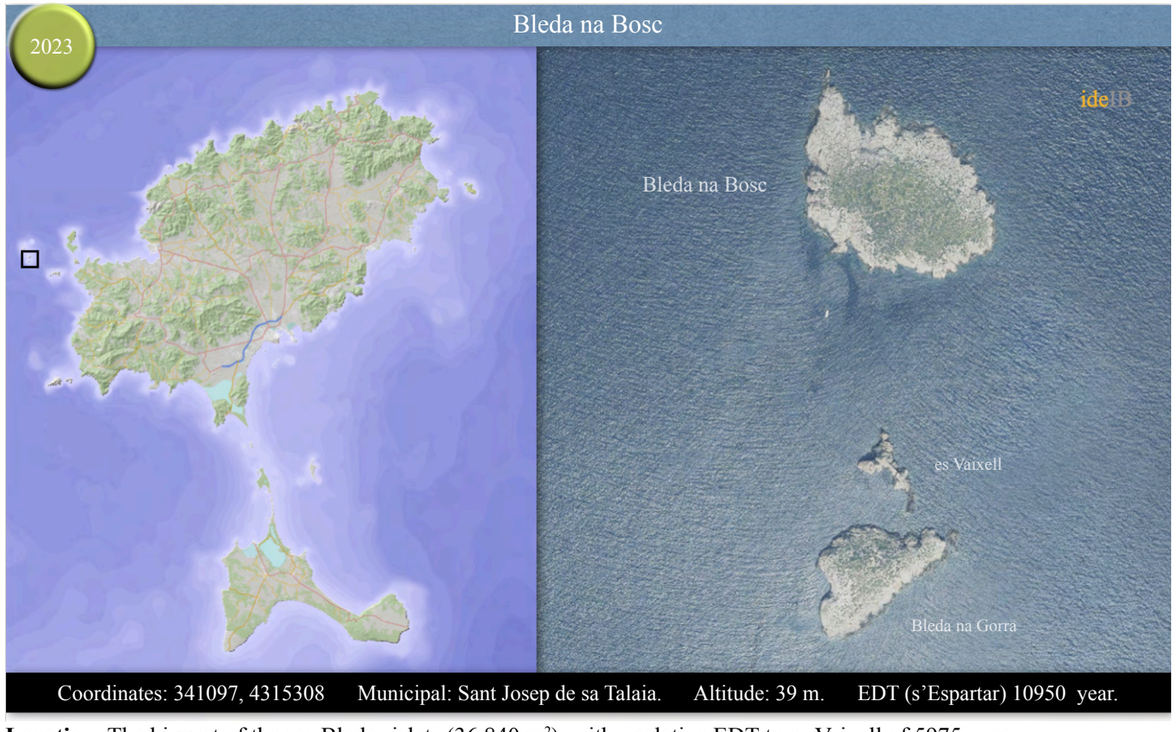
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: Non.

Lizard density: No lizards.

Image 117: Esculls d'en Ramon, from left to right: sa Truja, escull d'en Terra and escull de Fora as seen from Bleda na Plana.



Location: The biggest of the ses Bledes islets (36.840 m^2), with a relative EDT to es Vaixell of 5975 year.

Toponymy: Forest islet.

Synonyms: na Bosc. (We added Bleda at all three main Ses Bledes islets to be able to distinguish).

Floral aspects: Tamarisk (*Tamarix africana*), tree alfalfa (*Medicago arborea*)**,** *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Beta vulgaris maritima*, *Crithmum maritimum*, *Malva arborea*, *Asparagus horridus*, *Limonium* sp. and *Senecio* sp.

Faunal aspects: *Alphasida ibicensis medae*, *Asida mater cunicularia*, *Iberellus companionii pithiusensis*, *Trochoidea ebusitana scopulicola, Trochoidea ebusitana conjugens*, *Pachychila acuminata* and breeding gulls.

Herpetological history: Population described as *Podarcis pityusensis maluquerorum* (Koch 1928). Transferred into *Lacerta lilfordi gorrae* by Eisentraut (1930).

Lizard density: Abundant (2023).

Image 118: Bleda na Bosc.

Bleda na Bosc

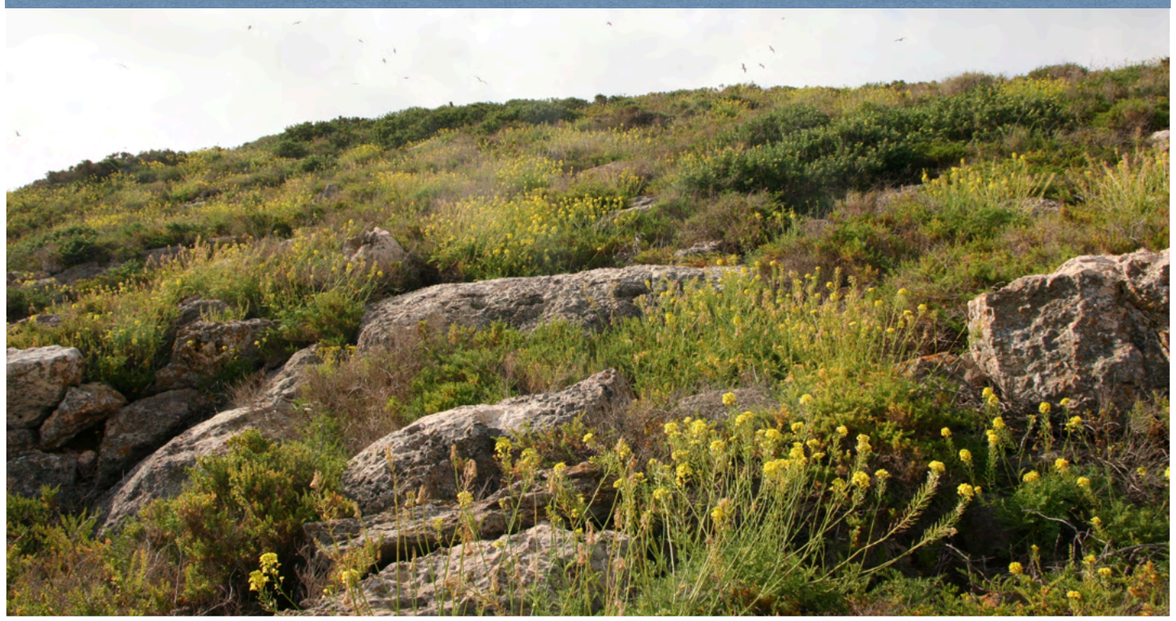
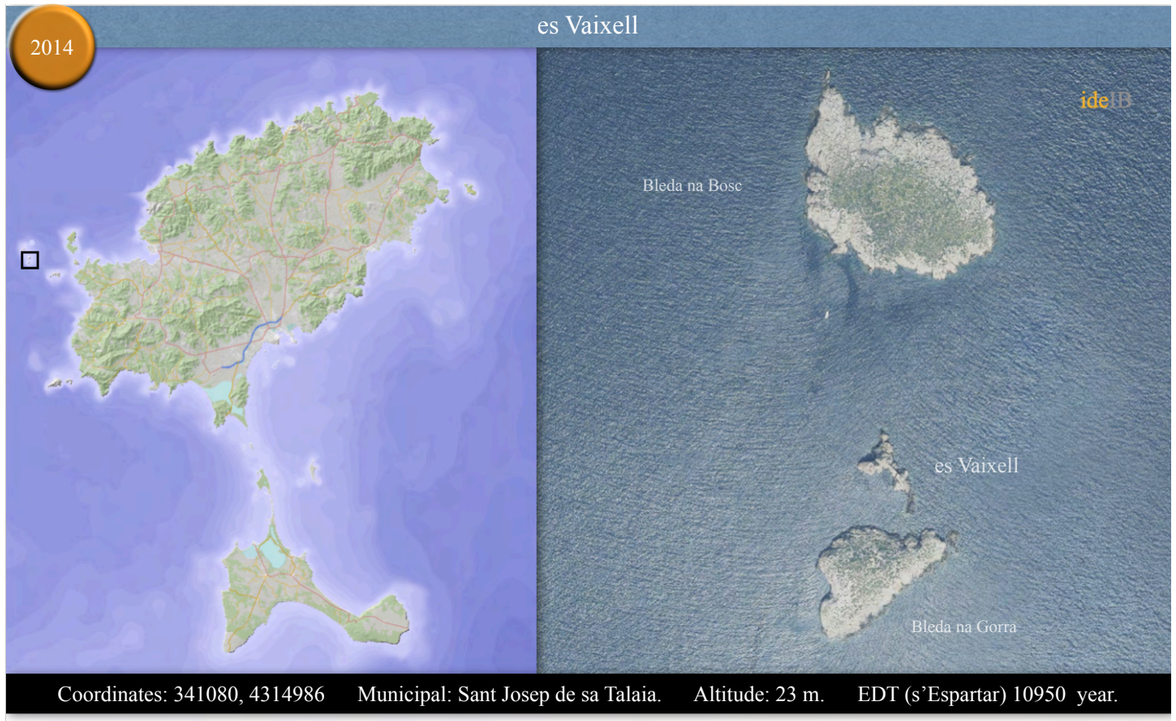


Image 119: Habitat on Bleda na Bosc (photo: Mike Zawadzki).

Image 120: Pair (top) and young female (bottom) of *Podarcis pityusensis* on Bleda na Bosc (photos: Michael Kroniger).

es Vaixell



Location: Es Vaixell is situated north of Bleda na Gorra, separated by just 60 m of shallow (0.5 meter) water, with a highest elevation of 23 meter. It is a difficult to access rock with a small surface area of 2.016 m^2. The separation from Bleda na Gorra is recent, < 2000 year, but the isolation from Bleda na Bosc is much longer due to a deeper bathymetry of 5.4 meter, resulting in a relative EDT of 5975 year.

Toponymy: Es Vaixell translates into "It is a boat or ship". In the beginning of the 20th century this island was also known under the Spanish name of "Isla de Falucho", referring to a Felucca, a traditional wooden sailing boat with a single sail used in the Mediterranean, and in our case referring to the silhouette of the island es Vaixell.

Synonyms: None.

Floral aspects: Not investigated.

Faunal aspects: Not investigated.

Herpetological history: In June 1928 Hermann Grün (or one of his local fisherman) collected 7 lizards on an island called "Isla de Falucho, bei Ibiza". These specimens found their way into the collection of the Zoologische Staatssammlung München (ZSM). In the catalog under number ZSM 2239 these specimens were first identified as *Lacerta lilfordi lilfordi* and later corrected to *Lacerta pityusensis pityusensis* by the curator of the collection Lorentz Müller (Michael Franzen pers. comm. 2023). This correction is probably due to his first recognizing these melanistic lizards as *Podarcis lilfordi lilfordi* and later realizing that they came from the vicinity of Eivissa, and thus made a second mistake. Unfortunately these specimens were lost in the second world war.

Assuming that es Vaixell was devoid of *Podarcis pityusensis* lizards, Martin Eisentraut introduced 51 *Podarcis pityusensis* lizards from Evissa on es Vaixell in 1930 as part of his translocation experiments (Eisentraut 1930, Böhme & Eisentraut 1981). We doubt that Eisentraut ever set foot on es Vaixell himself, to make a good estimate of any existing population and that he simply released the Eivissa lizards from his boat onto an accessible rock near the waterline.

For a long time it was assumed that the Eisentraut experiment on es Vaixell had failed and that this island still had no *Podarcis pityusensis* population. That changed in 2010, when a naturalist of the reserve, Jorge Calvo, spotted a lizard on

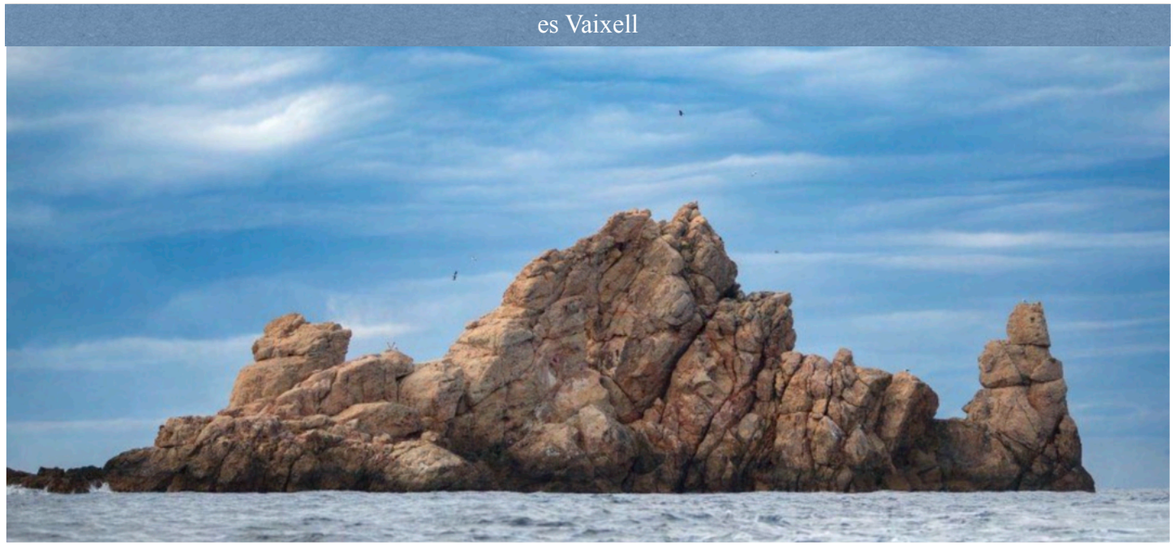


Image 121: Es Vaixell as seen from the east. (photo: Cristina Amanda Tur in Tur (2022)).

Image 122: Habitat on es Vaixell as seen from Bleda na Gorra.

es Vaixell through his binoculars, observing this from Bleda na Gorra (Romero 2012). Subsequently, a team led by Valentin Pérez-Mellado set out to investigate this overlooked population (Pérez-Mellado et al. 2014, 2017).

Lizard density: Not investigated, but probably low given the small habitat and lack of trophic resources. This was also suggested in Pérez-Mellado et al. (2014).

Location: Bleda na Gorra is the southernmost islet of the ses Bledes and with 13.391 m² the smallest of the three main ses Bledes islands.

Toponymy: Gorra translates into a cap or a hat.

Synonyms: sa Gorra.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Beta vulgaris maritima*, *Asparagus horridus*, *Malva arborea*, *Crithmum maritimum*, *Fumaria* sp. and *Limonium* sp.

Faunal aspects: Breeding gulls.

Herpetological history: Population described as *Lacerta lilfordi gorrae* Eisentraut, 1928.

Lizard density: Abundant (2023).

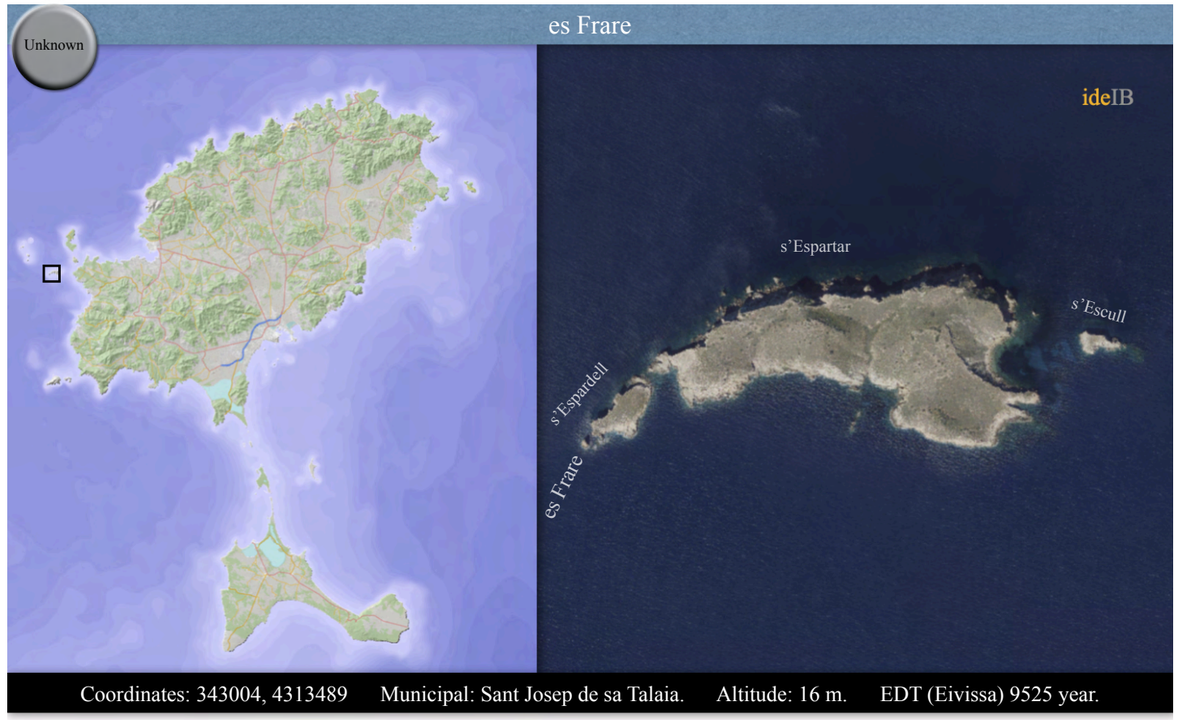
Image 123: Bleda na Gorra and es Vaixell.

Bleda na Gorra

Image 124: Habitat on Bleda na Gorra.

Image 125: Some *Podarcis pityusensis*, including a bearded woman, on Bleda na Gorra (photos: Michael Kroniger).

es Frare



Location: Es Frare (225 m^2) is the westernmost islet in the s'Espartar group of islands, close to s'Espardell de s'Espartar

Toponymy: It owes its name to its resemblance to a friar.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum* and *Limonium* sp.

Faunal aspects: Not investigated.

Herpetological history: The name of this island, es Frare, corresponds to the terra typica of *Lacerta lilfordi frailensis* Eisentraut, 1928: "Isla del Fraile, dem Westzipfel der Insel Esparto an der Westküste Ibizas vorgelagert". However, the original location where this subspecies was collected the first time was on s'Espardell de s'Espartar, which island is really on the western tip of s'Espartar, and not es Frare, which is on the western tip of s'Espardell de s'Espartar. A small misidentification, which is also confirmed by image 31 in Eisentraut (1949) (see image 126), which has been rectified and generally accepted since Salvador (1984). The name of this island is derived from "friar", which, with a little imagination, can also be found in the silhouette of this island (see image 127): "Es Frare de s'Espartar is a solitary friar, a stone ascetic with a triangular rock on its white top, with the basement darkened in the part that touches the surface of the sea and with his feet anchored in the seabed." (Costa 2017).

Vegetation is clearly visible at the top of es Frare, consisting at least of glasswort and *Limonium* sp., but whether this is enough to support a lizard population cannot be said with certainty. Pending our investigation, we can already determine that the lizards of s'Espardell de s'Espartar at least take an unexpected position within the four islands of the s'Espartar group, all four of which have diverged recently (EDT < 2000 year within the group).

Of the three known populations, the *Podarcis pityusensis* lizards of s'Espartar and escull de s'Espartar have a completely different color scheme than the *Podarcis pityusensis* lizards of s'Espardell de s'Espartar, the latter having many similarities with the *Podarcis pityusensis* lizards of the ses Bledes islands. In the event that es Frare would harbor a lizard population, and that the color scheme would resemble that of s'Espartar and escull de s'Espartar, then it would be plausible that the lizards collected on s'Espardell de s'Espartar in 1928 were not the original lizards, but translocated lizards from the ses

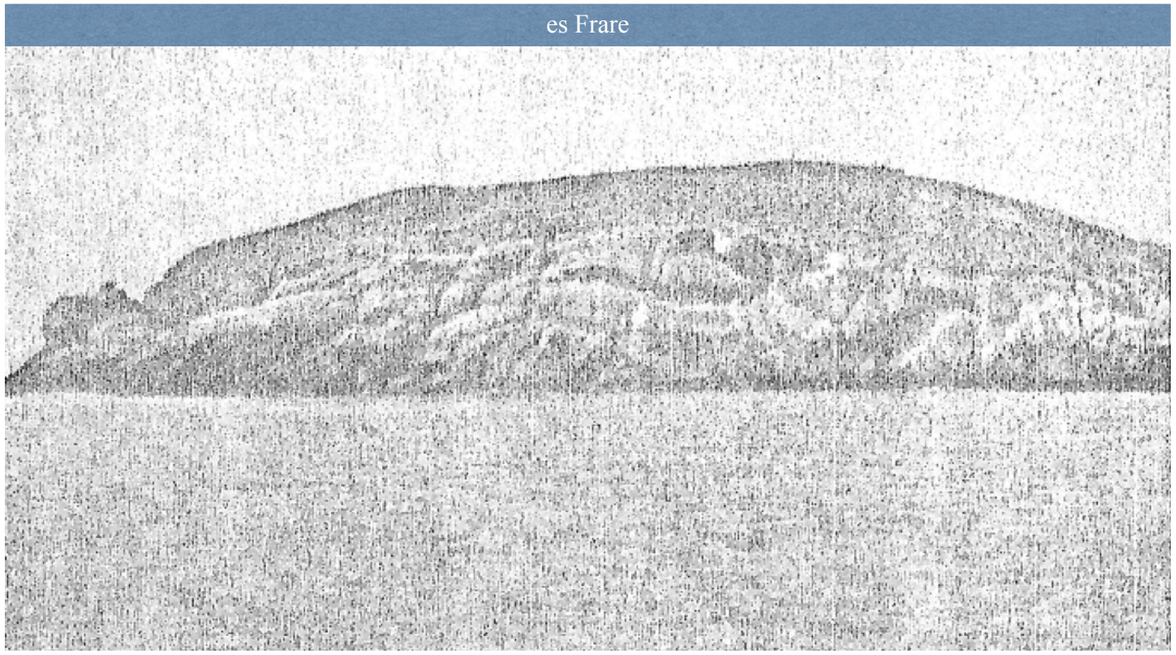


Abb. 31. Eiland Fraile bei Insel Espartó. phot. Eisentraut.

Image 126: Image 31 in Eisentraut (1949) where s'Espardell de s'Espartar is visually represented as es Frare (Eiland Fraile).

Image 127: es Frare (photo: Joan Costa, Diario de Ibiza).

Image 128: Habitat on es Frare.

Bledes islands, which is also suggested by Martínez-Rica & Cirer (1982) and Cirer (2021).

Lizard density: Unknown if a population of *Podarcis pityusensis* is present.

Location: To the west, beyond Punta des Codolar, the island s'Espartar almost merges into s'Espardell de s'Espartar, separated only by a narrow shallow strait, es Freuetó. Despite the small surface area (10.838 m^2) and high exposure to the sea, there is an incipient soil with abundant organic matter (guano), as important colonies of seabirds nest there. For some time it was the only place in the Pityusic Islands where Audouin's gull (*Ichthyaetus audouinii*) nested, information that was kept hidden throughout the 20th century to avoid the plundering of its eggs; now it is no longer necessary, because we find *Ichthyaetus audouinii* everywhere around Eivissa. The vegetation is an impoverished replica of s'Espartar. The snail *Trochoidea caroli espartariensis*, endemic to s'Espartar, also has a significant presence on s'Espardell de s'Espartar, which biogeographically indicates the unity of the two islands.

Toponymy: Little field of esparto grass.

Synonyms: s'Espardell, which should not be confused with s'Espardell in the es Freus Islands.

Floral aspects: Glasswort, *Lygeum spartum*, *Phoeniculum vulgare*, *Crithmum maritimum*, *Senecio* sp. and *Limonium* sp.

Faunal aspects: *Trochoidea caroli espartariensis* and breeding gulls (*Ichthyaetus audouinii* and *Larus michahellis*).

Herpetological history: Population described as *Lacerta lilfordi frailensis* Eisentraut, 1928, and in the same year again as *Lacerta lilfordi frailensis* Müller, 1928.

Lizard density: Low (2023).

Image 129: es Frare, s'Espardell de s'Espartar in front of Bleda na Bosc, s'Espartar and escull de s'Espartar (image from internet).

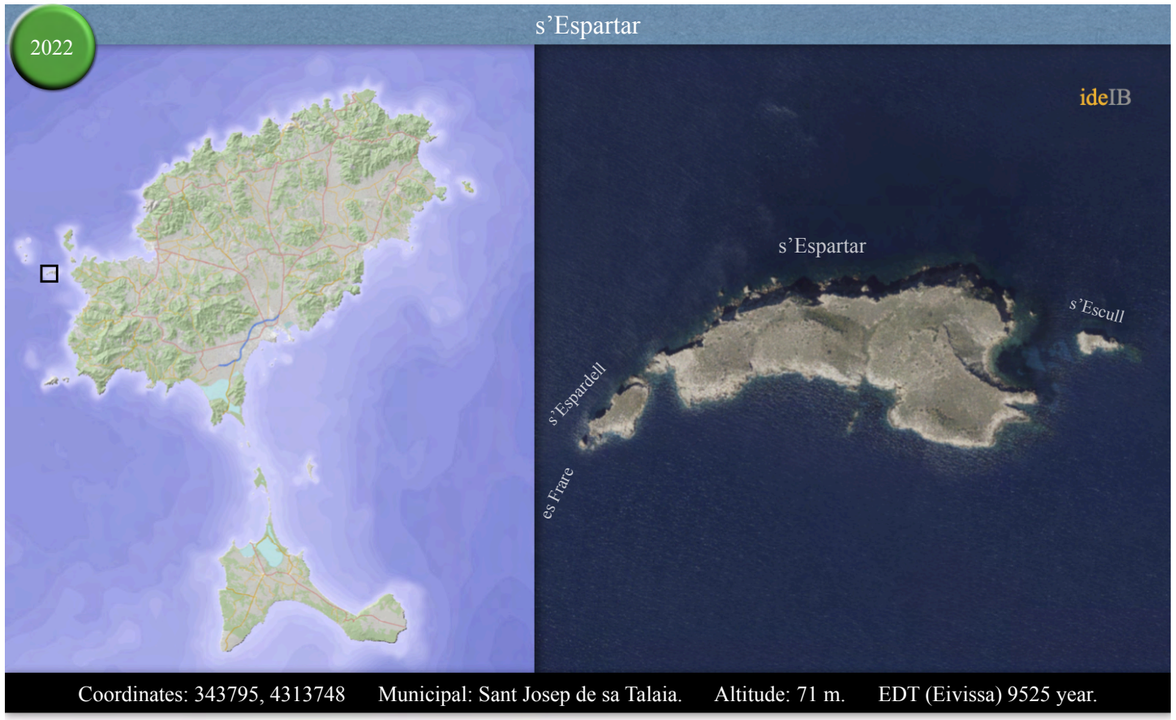
s’Espardell de s’Espartar

Image 130: Habitat on s’Espardell de s’Espartar.

Image 131: es Freuetó strait between s’Espardell de s’Espartar and s’Espartar.

s’Espardell de s’Espartar

Image 132: Three male and one female *Podarcis pityusensis* on s’Espardell de s’Espartar (photos: Michael Kroniger).



Location: s'Espartar is located west of sa Conillera. It is a large (197.103 m^2) island where esparto grass (*Lygeum spartum*, *Stipa tenacissima*) and orchard grass (*Dactylis glomerata*) grow on the southern slope, forming the largest esparto in the Balearic Islands (*Dactylo-Lygeetum sparti* association). Traditionally, people went there to collect the bundles of esparto grass needed to make traditional objects of daily use; hats, espadrille soles, ropes, llata, a flat esparto braid wider than thick, senalles, a basket of esparto grass very typical in Eivissa to transport vegetables. Nowadays is also collected for craft purposes and environmental education. The northern slope is a shady cliff where there are many plant species with biogeographic interest. In total, up to 131 plant species have been found on s'Espartar. Invertebrates accentuate the biogeographical interest with the presence of the endemic snail *Trochoidea caroli espartariensis* and the beetles *Pachychila sublunata*, *Stenosis intricata*, *Asida mater cunicularia* and *A. ludovici*. Among the birds stand out the largest colony of the European storm petrel (*Hydrobates pelagicus*) of the Pityusic Islands, we also know that the Audouin's gull (*Ichthyaetus audouinii*) nests there, as well as the yellow-legged gull (*Larus michahellis*). S'Espartar has never hosted human habitations despite its size and height, nor lighthouses or other facilities. Like Bosc de Conillera, until recently, there were also remains of scrap metal from the artillery fire it suffered during military exercises. It does not seem that in this case the military uses have modified the behavior of the lizards of s'Espartar as in the case of Bosc de Conillera, since a population with a high density of specimen and with the usual behavior of the species has always been found

Toponymy: Derives from esparto grass *Lygeum spartum*.

Synonyms: None.

Floral aspects: *Lygeum spartum*, *Stipa tenacissima*, *Dactylis glomerata*, *Crithmum maritimum*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Pallenis maritima*, *Senecio* sp., *Asparagus horridus*, *Mesembryanthemum nodiflorum* and *Limonium* sp.

Faunal aspects: *Trochoidea caroli espartariensis*, *Pachychila sublunata, Stenosis intricata, Asida mater cunicularia* and *Asida Ludovici* and breeding gulls (*Ichthyaetus audouinii* and *Larus michahellis*).

Herpetological history: Population described as *Lacerta pityusensis kameriana* Mertens, 1927.

Lizard density: Very high (2022).

Image 133: Habitat on s'Espartar (photo: Michael Kroniger).

Image 134: **1** young female, **2** juvenile, **3** male at lunch, **4** another male, **5** female and **6** temporary very high density on s'Espartar.

Location: s’Escull de s’Espartar is a small (3.150 m^2) islet located northeast of s’Espartar, which reaches 18 meter in height. The rock has resisted the erosion that separated it from the island of s'Espartar by means of a shallow roadstead. The plant cover is very small and basically hosts species of the *Limonietum ebusitani* alliance, while esparto grass is scarce.

Toponymy: Rock, gravel rock (sa Grava).

Synonyms: s’Escull, escull de sa Grava.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Asparagus horridus*, *Lygeum spartum* and *Limonium* sp.

Faunal aspects: Not investigated.

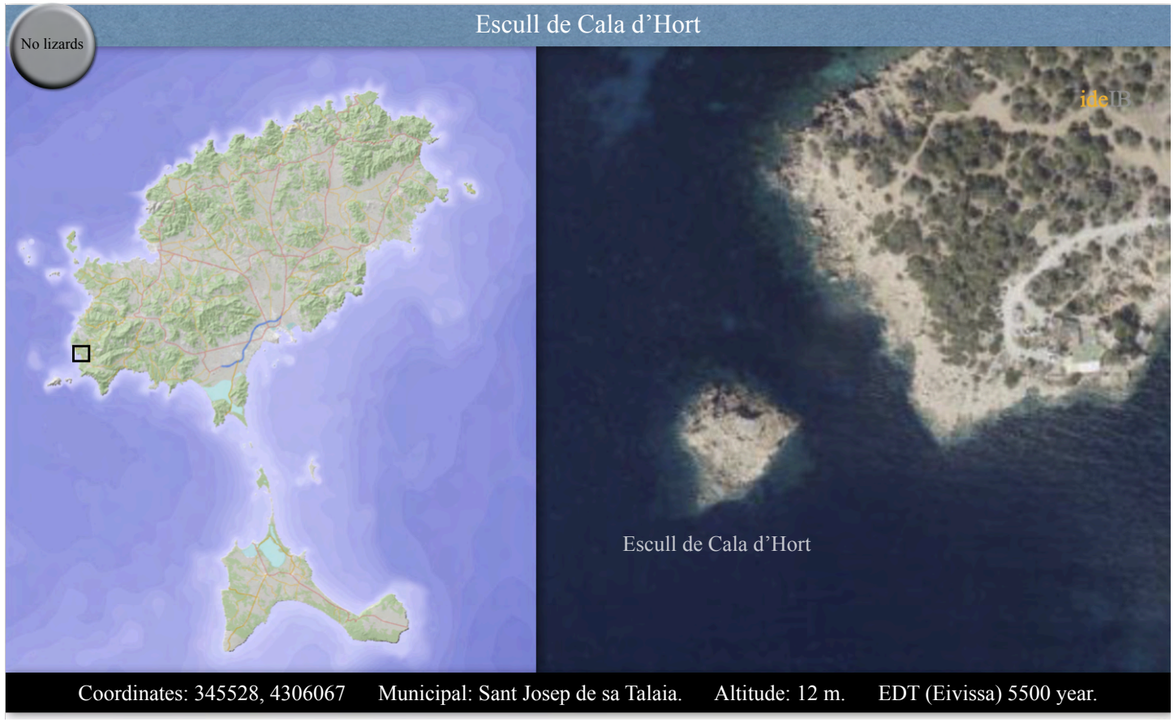
Herpetological history: Population described as *Lacerta lilfordi zenonis* Müller, 1928. Made synonymous with *Podarcis pityusensis kamerianus* (Mertens, 1927) by Salvador (1984).

Lizard density: Abundant (2023).

Image 135: s’Escull de s’Espartar.

Image 136: Habitat on s’Escull de s’Espartar.

Image 137: One male and two females from s’Escull de s’Espartar.



Location: Escull de Cala d'Hort is a small (3.229 m^2) islet located to the north of Cala d'Hort, in front of punta de sa Cultiva. To our experience this island is big and high enough to sustain a small population of lizards. The sufficient presence of vegetation is favorable, however no sign of lizards. The absence of ants and snails was also notable. While lifting stones the only terrestrial invertebrates present were some woodlice.

Toponymy: Reef of Cala d'Hort (orchard cove).

Synonyms: Escull des Moro.

Floral aspects: *Crithmum maritimum*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Erica multiflora, Limonium* sp. and *Mesembryanthemum nodiflorum*.

Faunal aspects: Only woodlice.

Herpetological history: According Cirer (1981), Martínez-Rica & Cirer (1982) and Salvador (2015) without lizards. During our own visits in 1979, 1983 and 2014 we did not find any evidence of *Podarcis pityusensis* presence.

Lizard density: No lizards.

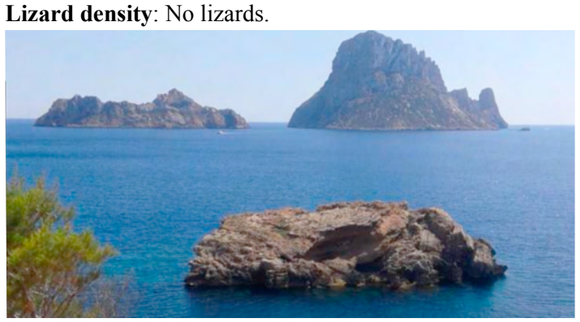


Image 138: Escull de Cala d'Hort.


Image 139: Habitat on escull de Cala d'Hort.

Location: Sa Galera de Tramuntana (4.765 m^2) is a few meters away from the northern part of es Vedrà, nevertheless the relative EDT is 6000 years. There is almost no vegetation. Despite the introduction of Eisentraut in 1930, there is no lizard population left, and that was to be expected due to the absence of trophic resources.

Toponymy: Owes its name to the resemblance of a galley ship.

Synonyms: sa Galera. We added de Tramuntana referring to punta de Tramuntana to be able to distinguish.

Floral aspects: Glasswort, *Limonium* sp., *Suaeda vera* and *Mesembryanthemum nodiflorum*.

Faunal aspects: Almost none, only a very small number of invertebrates.

Herpetological history: Eisentraut (1930) released 20 specimens from Eivissa on sa Galera de Tramuntana. According to Martínez-Rica & Cirer (1982), Salvador (1984) and Pérez-Mellado et al. (2017) there are no lizards on sa Galera de Tramuntana. During our own visits to this island in 1979, 1985 and 2014 we were also not able to find any evidence of *Podarcis pityusensis* presence.

Lizard density: No lizards.

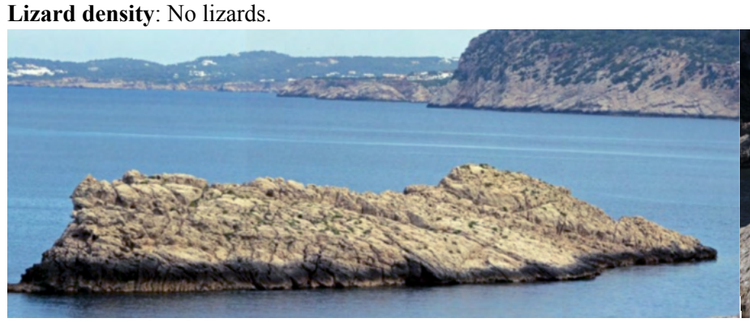


Image 140: sa Galera de Tramuntana.


Image 141: Habitat on sa Galera de Tramuntana.

Location: Es Vedrà, the great icon of the Pityusic Islands, located in front of Cap Blanc and punta de l'Oliva to the southwest of Eivissa. Its visibility from Valencia to Formentera and its singular shape emerging from the seabed gave it a sacred character since the first inhabitants of the islands, testified by the archaeological remains that have been found there and by the references to navigation from antiquity and the Middle Ages.

In more recent times it has been the mystical refuge of the carmelite Francesc Palau who lived there for a few years as an anchorite, a point of observation of UFOs for esotericists, a muse of inspiration for visual artists and musicians such as Mike Oldfield. It is the most enchanting silhouette of the islands of the western Mediterranean and has been photographed by countless tourists and can be found on all social networks. With a perimeter of only 4,135 meters (691.858 m^2) it reaches an altitude of 382 m., dimensions that give it an overwhelming pyramidal configuration, since the maximum height of the island of Ibiza is only 475 meters.

The verticalized limestone strata form an east-west ridge that divides the island with two marked ecologically unequal slopes, the southeast one facing Formentera, is very sunny and the lack of humidity provides xerophytic vegetation. The slope facing Cala d'Hort, northwest, has a basement of Miocene marly sandstones that retain moisture better and support shrub and herbaceous vegetation with greater water requirements. This is where we will find the highest density of lizards.

Es Vedrà is, without doubt, the island of greatest biogeographic interest in the Pityusic Islands, where a large number of plant endemics and up to twenty species of the highest biogeographic interest are found, which testify to the high degree of isolation and ecological differentiation of this island with respect to the other Pityusic Islands. The number of plant species recorded is 168. It may have suffered a reduction in biodiversity, since at the end of the 20th century a herd of goats were released there without control. Most have recently been eliminated, but during a 2024 visit, a goat was still observed grazing. During the more than twenty years that a large herd has grazed on the island, the vegetation has been noticeably impoverished.

It is worth noting the abundance of cryptogams (*Cryptogamae*) hidden in the wettest cavities and the ubiquitous presence of lichens on the rocks of es Vedrà and es Vedranell. Lizards have been observed biting these lichens.

Obviously, it is a nesting area for seabirds, such as the Balearic shearwater (*Puffinus mauretanicus*), *Falco eleonorae*, Adouin's gull (*Ichthyaetus adouinii*) and the osprey (*Pandion haliaetus*). The invertebrate fauna is also remarkable with the

snail *Trochoidea ebusitana vedrae* and the tenebrionid *Asida ludovici ludovici,* among others.

In all the visits to es Vedrà, large numbers of lizards have been noted. But on an island of strong contrasts, the density is not uniform. In the area of the beacon, facing south, with bare limestone rocks, there are almost no lizards. On the northern slope, you have to move away from the sea line and look where the vegetation cover is denser to find an abundant population of lizards, with a value of 3 on the lizard density scale. The body coloration of the lizards of es Vedrà and es Vedranell is unique within the species with blue bellies and sides, sometimes with a violet hue, yellowish green in the center of the back and a very marked network of black spots. The juveniles that have been observed also have this coloration.

Toponymy: Very old name, probably pre-Roman.

Synonyms: None.

Floral aspects: 168 recorded plant species.

Faunal aspects: Nesting birds: *Puffinus mauretanicus*, *Falco eleonorae*, *Ichthyaetus adouinii* and *Pandion haliaetus*. Invertebrates: *Trochoidea ebusitana vedrae* and *Asida ludovici ludovici.*

Herpetological history: Population described as *Lacerta lilfordi vedrae* Müller, 1927.

Lizard density: Abundant (2024).

Image 142: Es Vedrà (photo: Michael Kroniger).

es Vedrà

Image 143: Habitat on northern slope of es Vedrà.

Image 144: Male *Podarcis pityusensis* on es Vedrà (photo: Michael Kroniger).

es Vedrà

Image 145: Female *Podarcis pityusensis* on es Vedrà (photo: Michael Kroniger).

Image 146: Juvenile *Podarcis pityusensis* on es Vedrà.

Location: Es Vedranell (164.612 m^2) is located between es Vedrà and sa punta de l'Oliva on Eivissa and is considerably smaller and lower (126 meter) than es Vedrà. However, it is the second highest islet surrounding Eivissa. Both islets have a similar geological and ecological structure and are quite different from the Ibizan area in front, due to the overlap that formed them. Es Vedranell also has a steep relief with a limestone ridge that separates the two slopes. The karst structure of es Vedranell retains water better. On the south coast is s'Olleta, a small sheltered bay with the jetty of the s'Aigua cave, where fishermen from Portmany used to go to get fresh water before going out to sea. The arrangement and orientation of the materials create particular microclimates in different parts of the islet, giving rise to a great wealth of flora. The flora and fauna of es Vedrà and es Vedranell are very similar and maintain a large number of common species. Just like the lizards that have body coloration and biometrics that are indistinguishable from each other.

Toponymy: Very old name, probably pre-Roman.

Synonyms: None.

Floral aspects: Small area investigated: *Salicornia fruticosa* or *Arthrocaulon macrostachyum* and *Limonium* sp.

Faunal aspects: Nesting birds: *Puffinus mauretanicus*, *Falco eleonorae*, *Ichthyaetus adouinii* and *Pandion haliaetus*.

Herpetological history: Population described as *Lacerta lilfordi vedranellensis* Müller, 1928. Present name: *Podarcis pityusensis vedrae* (Müller, 1927), made synonymous by Eisentraut (1930).

Lizard density: Low (2023).

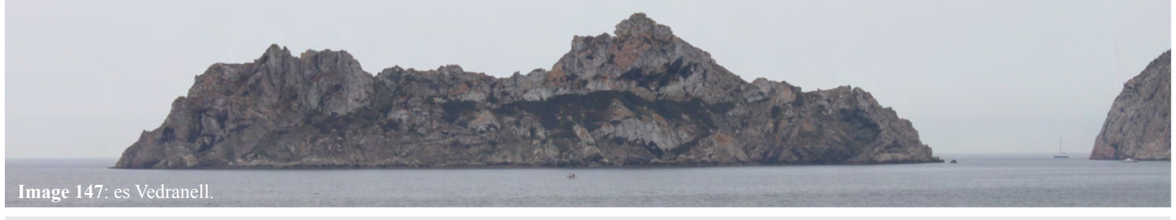


Image 147: es Vedranell.

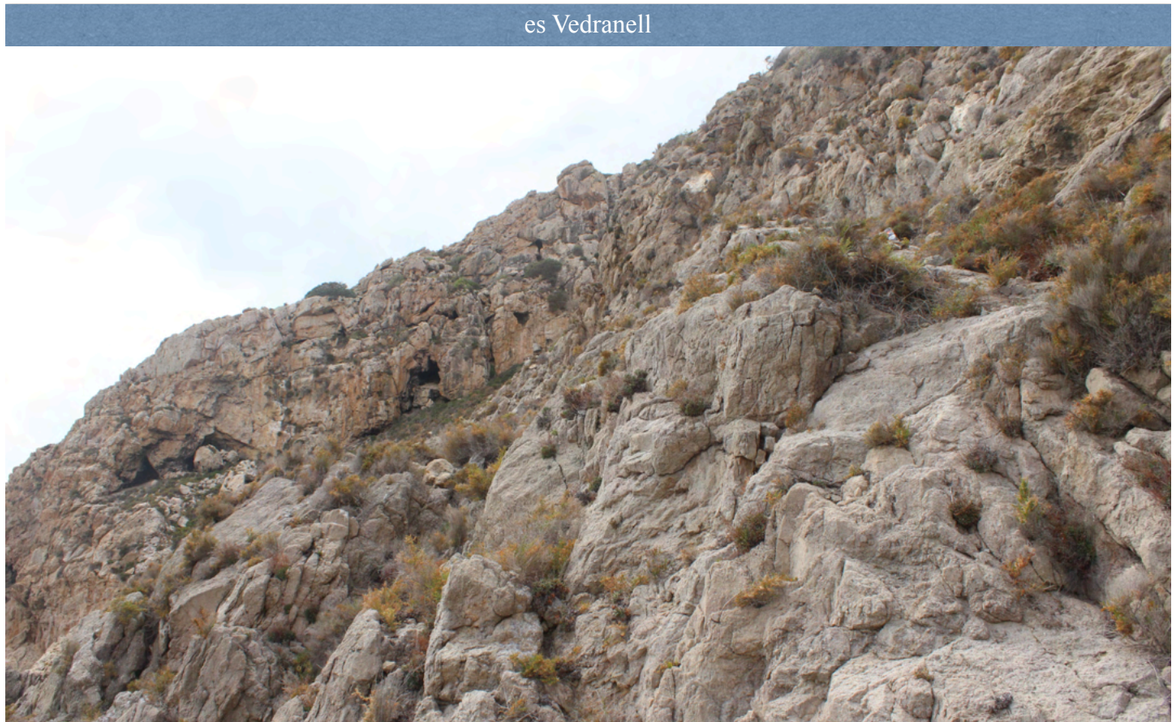


Image 148: Habitat on es Vedranell (photo: Michael Kroniger).


Image 149: Female (left) and male (right) *Podarcis pityusensis* on es Vedranell (photo: Michael Kroniger).

Location: In Porroig there are two islets that preside over the small bay of Caleta de ses illetes de Porroig. The largest is known as s'illeta Grossa (6.490 m^2) and is the only one that has vegetation. Its origin is probably recent due to coastal erosion. The largest islet is no more than 20 meters away from Eivissa by a channel full of rocks fallen from the cliffs which can be accessed on foot. The highest part of s'illeta Grossa is a small area of clayey materials that do not retain enough moisture to sustain good plant cover. Illeta Petita is often overrun by waves, has no vegetation and no lizards.

Toponymy: Red Port. This is due to the red silts on the slopes of the bay of Porroig, to the south.

Synonyms: Illeta Grossa: Illeta d'en Terra de Porroig. Illeta Petita: Escull de Fora de Porroig.

Floral aspects: *Pinus halepensis*, *Crithmum maritimum*, *Daucus carota*, *Helichrysum stoechas* and *Limonium* sp.

Faunal aspects: Not investigated.

Herpetological history: Population described as *Lacerta pityusensis purroigensis* Buchholz, 1954. Present name: *Podarcis pityusensis pityusensis* (Boscá, 1883), made synonymous by Lilge (1975).

Lizard density: Low (2022).

Image 150: Illeta Grossa de Porroig.

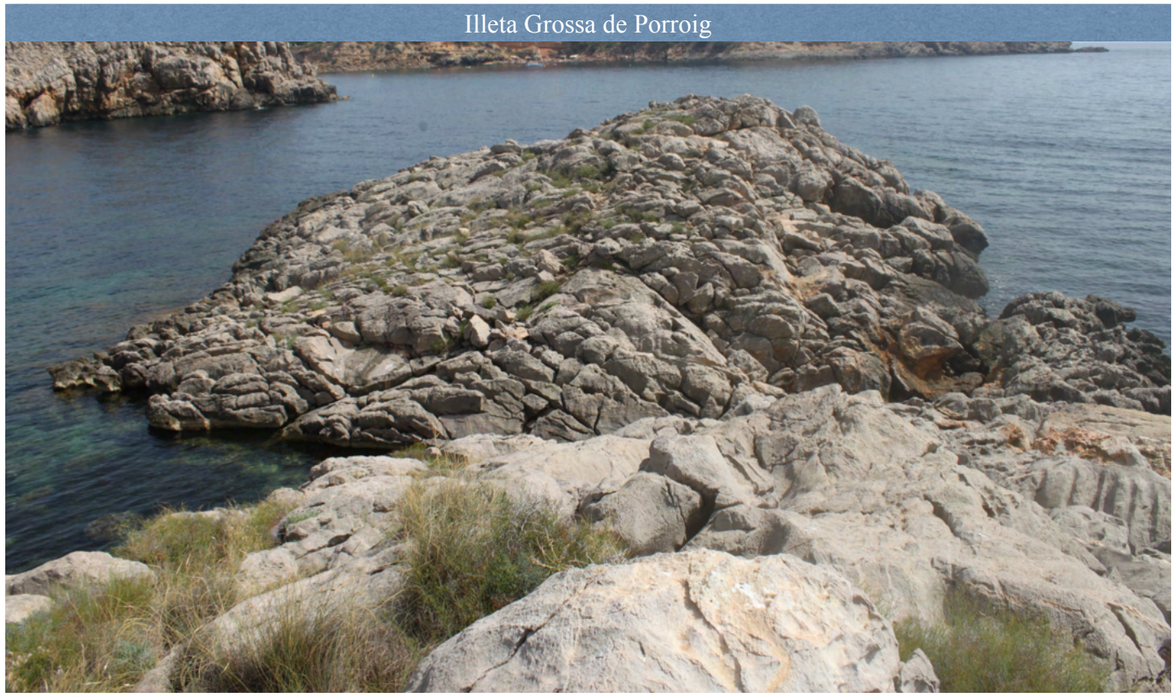
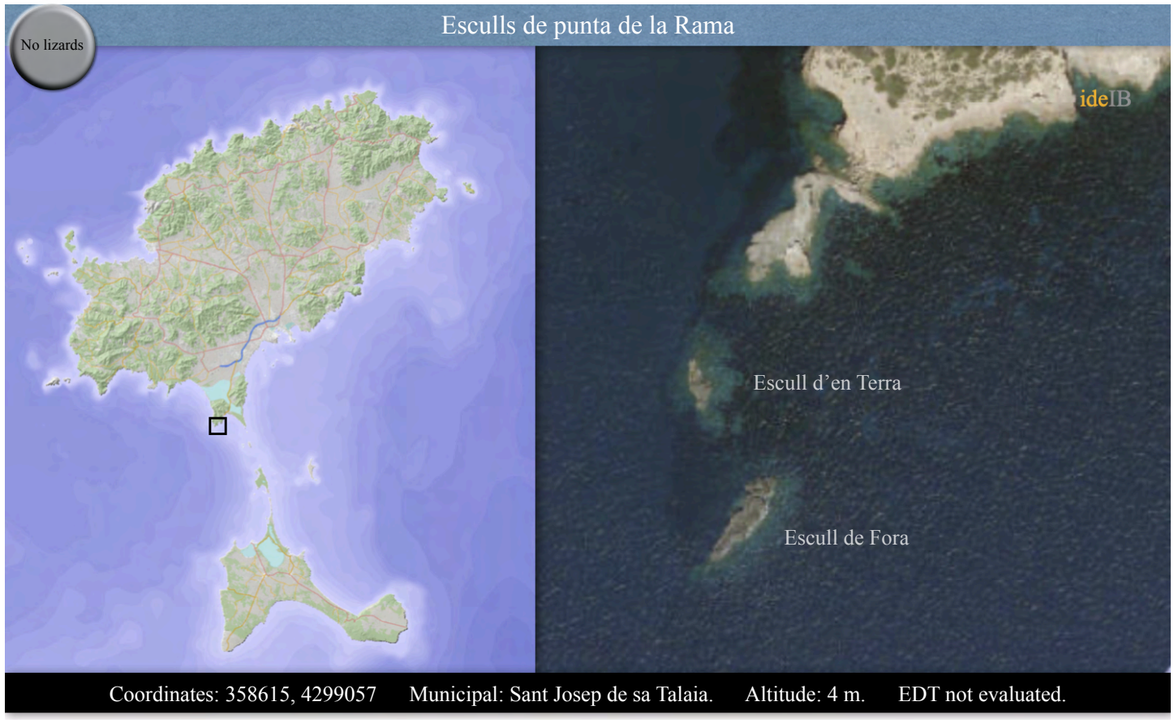


Image 151: Habitat illeta Grossa de Porroig.

Image 152: Illeta Petita de Porroig.

Image 153: Two male *Podarcis pityusensis* from illeta Grossa de Porroig.



Location: The southernmost point of the island of Eivissa is Punta de la Rama. Just in front of Punta de la Rama there are two reefs: Esculls de punta de la Rama (Escull d'en Terra to the north and Escull de Fora to the south). Both are small in size and have no vegetation nor terrestrial fauna.

Toponymy: Close to the mainland (d'en Terra) and to the outside (de Fora) rock of Punta de la Rama (Branch).

Synonyms: Esculls des Cap des Falcó.

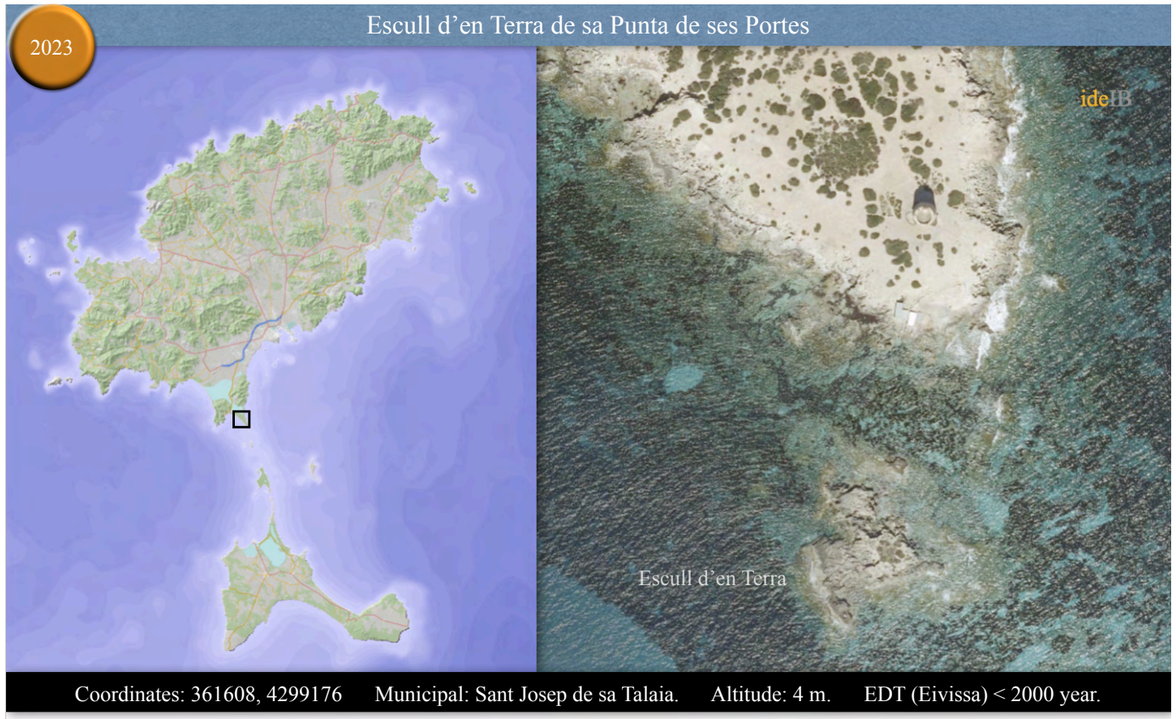
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: None.

Lizard density: No lizards.

Image 154: Esculls de punta de la Rama (image from internet).



Location: Close to Punta de ses Portes of Eivissa at the start of the es Freus Islands we find yet another escull d'en Terra. This small island (3.133 m^2) has a visible history of stone mining and in a limited area on the highest part a relatively rich vegetation.

Toponymy: Close to the mainland (d'en Terra) at Punta de ses Portes (doors).

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Limonium* sp., *Senecio* sp., *Silene cambessedesii* and *Lotus cytisoides*.

Faunal aspects: Breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Previously considered without lizards by Martínez-Rica & Cirer (1982), Mayol (2004a) and Salvador (1986, 2009). Population described as *Podarcis pityusensis* (Boscá, 1883) by Zawadzki & van den Berg (2017).

Lizard density: We observed 4,6,2 specimen during two days, which represents the major part of the population (Zawadzki & van den Berg 2017), thus lizard density is low (2023).

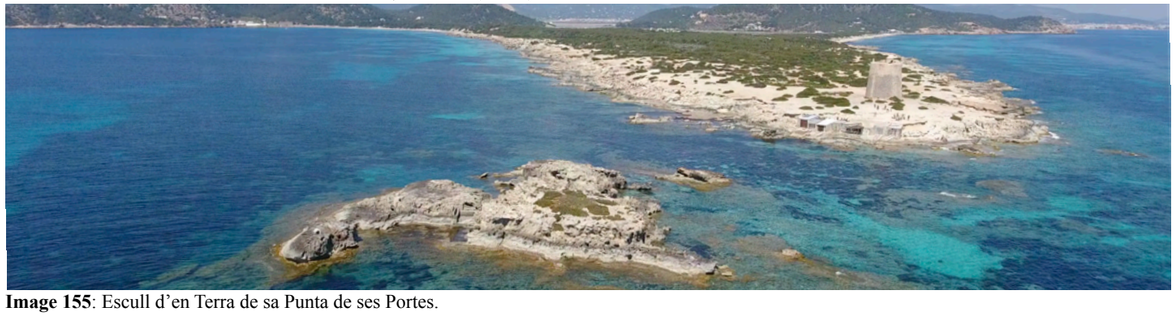
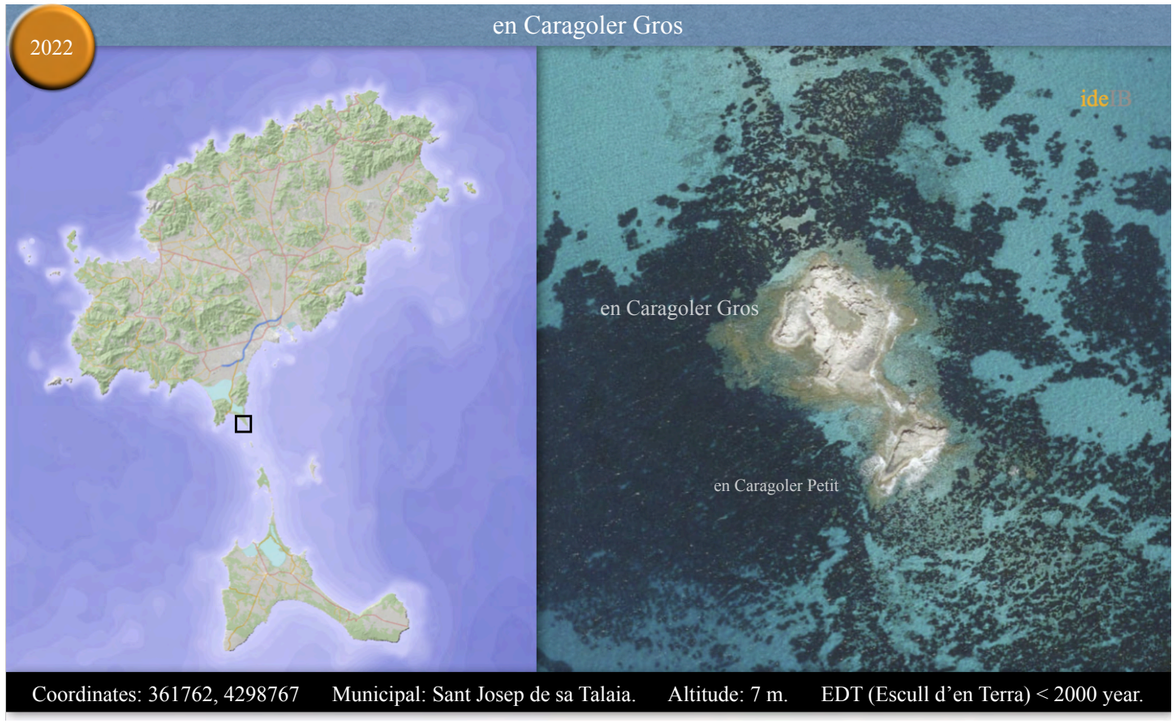


Image 155: Escull d'en Terra de sa Punta de ses Portes.

Image 156: Habitat on escull d'en Terra de sa Punta de ses Portes.

Image 157: Female *Podarcis pityusensis* on escull d'en Terra de sa Punta de ses Portes.



Location: Between illa des Penjats and Punta de ses Portes, there are two islets, en Caragoler Gros and en Caragoler Petit, between Freu Petit and Freu d'Enmig, a place where many shipwrecks have occurred throughout history. En Caragoler Gros is a small (5.971 m^2) low island that only reaches about 7 meters in height, rounded in shape formed by sandstone and sand with low bushes of the *Limonietum ebusitani* alliance. Almost clinging, to the southeast, is en Caragoler Petit, a bare reef without vegetation nor lizards. On en Caragoler Gros lives a large colony of snails (*Cochlicella conoidea*) that leave their shells all over the island, hence its name, tenebrionids of very restricted distribution such as *Heliopathes balearicus* and *Catomus rotundicollis* and a large colony of nesting gulls, currently more abundant than it was thirty years ago.

Toponymy: Snail island.

Synonyms: None.

Floral aspects: *Suaeda vera*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Mesembryanthemum nodiflorum*, *Frankenia laevis*, *Asparagus horridus*, *Limonium* sp., *Senecio* sp., *Silene cambessedesii, Allium* sp. and *Lotus cytisoides*.

Image 158: En Caragoler Petit (front), en Caragoler Gros (middle) and escull d'en Terra de sa Punta de ses Portes (background).

en Caragoler Gros

Image 159: Habitat on en Caragoler Gros.

Image 160: En Caragoler Petit, without lizards.

Faunal aspects: *Cochlicella conoidea*, *Heliopathes balearicus*, *Catomus rotundicollis* and breeding yellow-legged gull (*Larus michahellis*).

Herpetological history: Population unintentionally described first as *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) by Eisentraut (1949) as a result of a confusing terra typica "Isla Negretta". On page 101 of Eisentraut (1949) under distribution and material for *Lacerta pityusensis gastabiensis* Eisentraut, 1928 we can read, among others, "Isla Negretta, der Südspitze Ibazas zunächts gelegen, 8 Männchen, 4 Weibchen, 20. 9. 29, Grün leg.". When we take this literal than Isla Negretta should be equal to escull d'en Terra de sa Punta de ses Portes. Buchholz (1954) and later Cirer (1987a) consider this island to be en Caragoler (Gros). This would therefore correspond to the map of Eisentraut (1949) where en Caragoler (Gros) is indeed the closest island to Eivissa, and where escull d'en Terra de sa Punta de ses Portes is not shown. Despite the fact that we are inclined to regard the description given by Grün as truthful, we should still reject this based on the number of lizards collected. During our visits to escull d'en Terra de sa Punta de ses Portes we counted at most 12 *Podarcis pityusensis* lizards. Therefore it is more likely that Grün captured Eisentraut's 12 lizards on en Caragoler Gros.

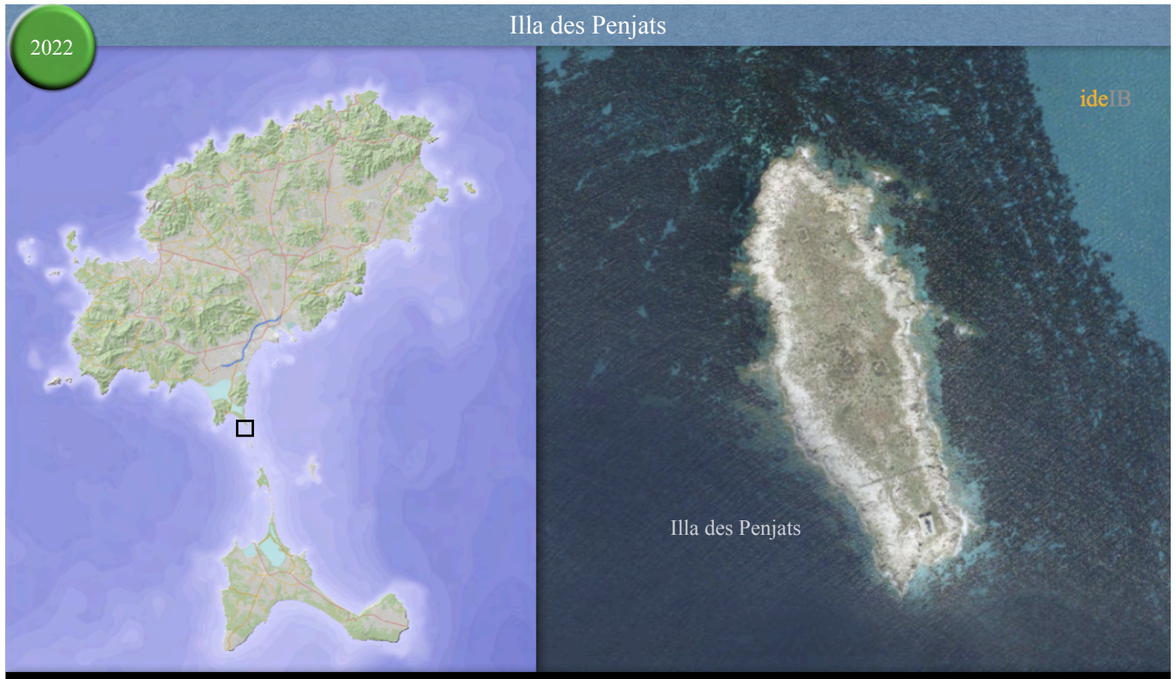
Subspecies described as *Lacerta pityusensis caragolensis* Buchholz, 1954.

Lizard density: Low (2022).

en Caragoler Gros

Image 161: Young male *Podarcis pityusensis* on en Caragoler Gros.

Image 162: Female *Podarcis pityusensis* on en Caragoler Gros.



Location: Illa des Penjats separates es Freu Gros from es Freu d'Enmig, the place where the first lighthouse was built in the Pityusic Islands, inhabited from 1855 until its automation in 1929. It is an island of sandstone, very disintegrated on the surface providing a sandy soil. Elongated and flat, about 500 meters long and 13 meters high with a surface of 75.969 m^2. It is well covered with thickets of statice, asparagus, mastic, mallow, glasswort and sea purslane among others, which are used by seagulls to make their nests.

Such an explicit name of illa des Penjats in the land of corsairs should have some historical basis, but there is nothing certain, apart from a story by Joan Villangómez Llobet published on the occasion of the centenary of the lighthouse and the multiple shipwrecks that occurred on its coasts, since it is the main nautical passage of the Pityusic Islands.

The lizard population is stable, since the island has a considerable surface area, but with a discreet density, because the resources of refuge are limited and scarce. The body coloration is much duller than that of the neighboring lizards of illeta Negra Grossa.

Toponymy: Island of the hanged in the land of pirates.

Synonyms: None.

Floral aspects: *Pistacea lentiscus*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Limonium* sp., *Malva arborea*, solsera, *Atriplex portulacoides*, *Lotus cytisoides, Asparagus horridus*, *Mesembryanthemum nodiflorum, Allium* sp. and *Cynomorium coccineum.*

Faunal aspects: Large breeding colony of seagulls.

Herpetological history: Population described as *Lacerta pityusensis ahorcadosi* Eisentraut, 1930, later joined in *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) together with the populations of en Caragoler Gros, illeta Negra Grossa, s'Espalmador, illa de sa Torreta, illa de Casteví, illa de s'Alga and s'Espardell by Eisentraut (1949). This was reversed by Salvador (1984).

Lizard density: Very high (2022).

Image 163: Illa des Penjats.

Image 164: Habitat on illa des Penjats (photo: Michael Kroniger).

Image 165: Male *Podarcis pityusensis* on illa des Penjats (photo: Michael Kroniger).

Image 166: Released *Podarcis pityusensis* on illa des Penjats.

Location: On the western side of illa des Penjats there are ses Illetas Negres (relative EDT 5800 year), the most southern one, illeta Negra Petita (relative EDT < 2000 year), is a reef that is completely covered by storms and cannot support vegetation, but on illeta Negra Grossa we find a vegetation cover that is lush enough to accommodate a mature ecosystem, with thickets of mastic, tree mallow, lots of branched asphodel, onionweed, sea carrot, a large amount of sea onion, leek and *Sedum* sp. All this vegetation is of considerable height for such a small islet (13.993 m^2), which provides a habitat very rich in food and with the possibility of chromatic crypsis for a population of lizards of very bright colors. In the past the density of lizards has always been very high, almost comparable to the densities observed in ses Bledes.

Toponymy: Big black island.

Synonyms: Negra del Nord, Negra de Tramuntana.

Floral aspects: *Pistacea lentiscus*, *Malva arborea*, *Asphodelus ramosus*, *Asphodelus fistulosus*, *Daucus carota*, *Drimia maritima*, *Allium* sp., *Sedum* sp., *Cynomorium coccineum*, *Mesembryanthemum nodiflorum, Limonium* sp. and glasswort.

Faunal aspects: Breeding colony of seagulls, *Hemidactylus turcicus.*

Herpetological history: Population described as *Lacerta lilfordi intermedia* Eisentraut, 1928, later corrected by Eisentraut (1928b) into *Lacerta lilfordi negrae* Eisentraut, 1928, later joined in *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) together with the populations of en Caragoler Gros, Illa des Penjats, s'Espalmador, illa de sa Torreta, illa de Casteví, illa de s'Alga and s'Espardell by Eisentraut (1949). This was reversed by Salvador (1984).

Lizard density: Low (2022).

Image 167: Illeta Negra Grossa.

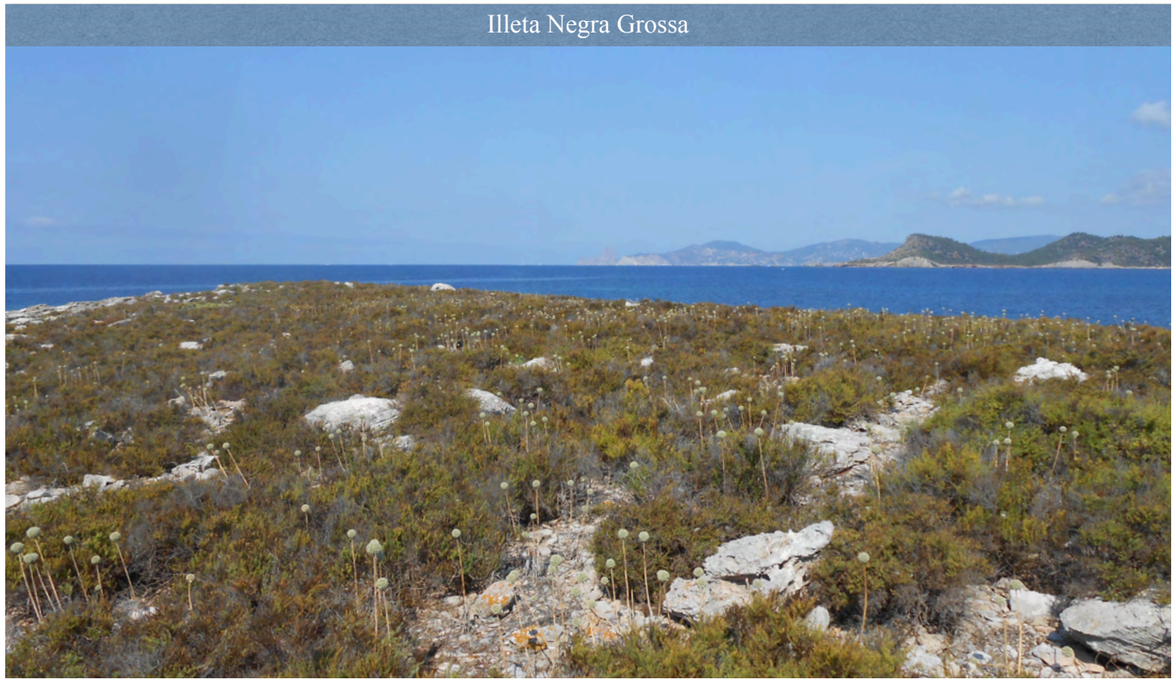


Image 168: Habitat on illeta Negra Grossa.

Image 169: Male (top-left and right) and female (bottom-left) *Podarcis pityusensis* on illeta Negra Grossa.

Illeta Negra Grossa

Image 170: Male *Podarcis pityusensis* on illeta Negra Grossa.

Image 171: Male *Podarcis pityusensis* on illeta Negra Grossa.

Illeta Negra Petita

Coordinates: 361441, 4297360 Municipal: Sant Josep de sa Talaia. Altitude: 3 m. EDT (en Caragoler) 5950 year.

Location: The southernmost of ses illetas Negres is illeta Negra Petita. It is a reef that is completely covered by storms and cannot support vegetation.

Toponymy: Small black island.

Synonyms: Negra del Sud, Negra de Llebeig.

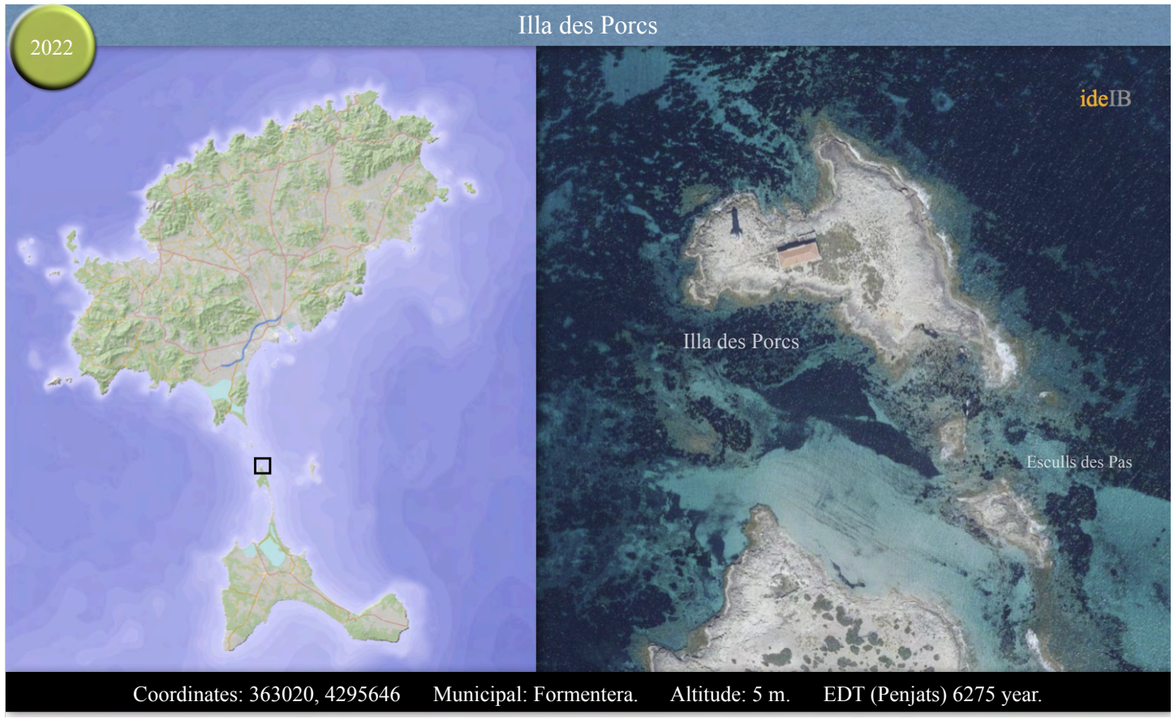
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: Illeta Negra Petita is according Martínez-Rica & Cirer (1982) and Mayol (2004a) without lizards.

Lizard density: No lizards.

Image 172: Illeta Negra Petita.



Location: To the north of s'Espalmador, marking the pass des Freu Gros, is illa des Porcs, for one hundred and fifty years also called illa d'en Pou, because there is the lighthouse that Emili Pou designed. It was inhabited between 1862 and 1935 by lighthouse keepers and their families. Illa des Porcs is a sandstone island (13.999 m^2), covered with a blackened crust, which marks the continuation of the north coast of s'Espalmador, with very fissured rocks that provide shelter for lizards. The vegetation is typical of the splash zone with species of the *Limonietum ebusitani* alliance. The density of lizards is surprisingly high. At first glance it does not seem like an island with enough food resources to sustain the large number of lizards that come to receive any visitor. On this, like other es Freus islands, lizards have been observed patrolling the mounds of dry *Posidonia* and visiting the splashing area during low tides to prey on marine isopods.

Toponymy: Island of the pigs.

Synonyms: Illa d'en Pou.

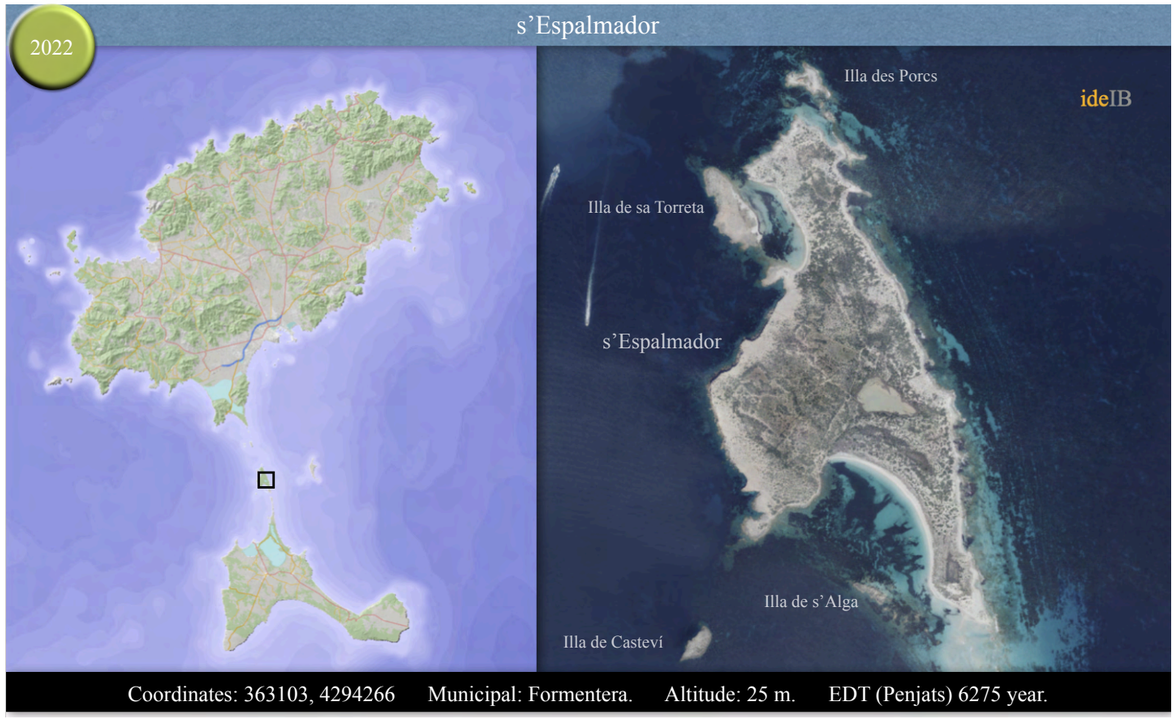
Floral aspects: *Limonium,* sp., *Crithmum maritimum, Lotus cytisoides* and *Arthrocnemum macrostachyum.*

Faunal aspects: Not investigated.

Herpetological history: Population described as *Lacerta pityusensis puercosensis* Buchholz, 1954. Made synonymous with *Podarcis pityusensis formenterae* (Eisentraut, 1928) by Salvador (1984).

Lizard density: Abundant (2022).

Image 173: Illa des Porcs with esculls des Pas (image from internet).



Location: s'Espalmador is the third largest island of the Pityusic Islands with an area of 1.382.753 m^2, located north of Formentera, from which it is separated by pas de s'Espalmador. There has been a human presence since the times of the Carthaginians, through tuna fishermen and corsairs, until a peasant family that maintained a traditional agricultural operation, can Vidal, before becoming the most famous summer port of world celebrities.

Its geological basement is formed by Cenozoic conglomerates, above which there are red silts and Pleistocene dune formations, with carbonate crusts that cover much of the island. Its large extension allows a certain diversity of landscapes. At the same time, depending on the place, diversity is observed in the body coloration and population densities of the lizards. The diversity of coloration according to the area is what has led to the population of s'Espalmador not having a satisfactory taxonomic solution and usually changing trinomials in each revision of the species.

Image 174: s'Espalmador (image from internet).

s'Espalmador

Image 175: s'Espalmador habitat around s'Alga bay houses.

There are very well-preserved coastal dunes in badia de s'Alga, es Càritx and sa punta des Pas. The fixation of these dunes is provided by plants of the *Medicagini-Ammophiletum arundinaceae* association, with the same species that we find at punta des Trucadors in Formentera, such as marram grass (*Ammophila arenaria*), sea daffodil (*Pancratium maritimum*), sea holly (*Eryngium maritimum*) and other dune plants. The dunes of s'Espalmador have a relatively high lizard density, but lower than that observed in the interior of the island. Beyond the dunes the plant associations are arranged in concentric circles, where the lizards have more intense and greenish colors, with a high lizard density. In the interior of the island are abandoned fields of crops, with a landscape similar to the fields of Formentera, where we find lizards with more earthy colors.

There is also a brackish pond with *Salicornia* and reeds, where aquatic birds settle. All of this provides a very large plant diversity in a small area, with 265 species have been catalogued, some of which are true biogeographical rarities, which provide a wide range of ecological conditions for lizards. S'Espalmador is an island that also has great ornithological wealth where seabirds are found nesting, waders recuperating to continue their migration or spend the winter, passerines, etc. Invertebrates play a remarkable role as there is an abundant population of the endemic snail *Trochoidea ebusitana ebusitana*, the beetles *Asida ludovici minorata* and *Asida mater immarginata*. Also the Mediterranean house gecko *Hemidactylus turcicus* has found its way to s'Espalmador.

Toponymy: s'Espalmador comes from the verb "*espalmar*", which refers to the ships cleaning and maintenance tasks. It was common to repair boats in the bay of s'Alga.

Synonyms: None.

Floral aspects: 265 species have been catalogued.

Faunal aspects: Also very diverse.

Herpetological history: Population described as *Lacerta lilfordi espalmadoris* Müller, 1928, later joined in *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) together with the populations of en Caragoler Gros, illa des Penjats, illeta Negra Grossa, illa de sa Torreta, illa de Casteví, illa de s'Alga and s'Espardell by Eisentraut (1949). Made synonymous with *Podarcis pityusensis formenterae* (Eisentraut, 1928) by Salvador (1984).

Lizard density: Abundant (2022).

s'Espalmador

Image 176: Two female (top and bottom-right) and one juvenile (bottom-left) *Podarcis pityusensis* on s'Espalmador.

s'Espalmador

Image 177: Two male *Podarcis pityusensis* on s'Espalmador.

Illla de sa Torreta

Location: Illa de sa Torreta is a small island (54.597 m^2) located in the northwestern part of s'Espalmador in the bay of sa Torreta. It is low, reaching 5 meters at its highest point, and has a sandy soil with a small vegetation zone, and large mounds of dry *Posidonia* where lizards graze. Seagulls are nesting on this island, with frequent mortality of chicks that are soon be invaded by insect larvae which are a great protein source for the lizards. This is enough to maintain the entire food web of terrestrial organisms that inhabit it. It constitutes one of the most miniaturized complex ecosystems that we can find. Small invertebrates feed on the dry *Posidonia*, especially the layers that are more hidden from the sun and that still maintain humidity, and on the corpses of the chicks and the excrement of the seagulls. This is an entire food web that supports a population of lizards with a much higher density than would be expected from the plant cover.

Toponymy: Referring to the nearby Torre de sa Guardiola.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Limonium* sp., *Eryngium maritimum*, *Cynomorium coccineum*, *Lotus cytisoides*, *Limbarda crithmoides*, *Crithmum maritimum*, *Silene cambessedesii*, *Sporobolus pungens*, *Daucus carota*, *Cynomorium coccineum*, *Cakile maritima* and *Echium arenarium.*

Faunal aspects: Breeding sea gulls.

Herpetological history: Population described as *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) by Eisentraut (1949). Subsequently the subspecies was described as *Lacerta pityusensis torretensis* Buchholz, 1954.

Lizard density: Abundant (2023).

Image 178: Illa de sa Torreta.

Illa de sa Torreta

Image 179: Illa de sa Torreta (image from internet).

Image 18: Habitat on illa de sa Torreta.

Image 181: Male *Podarcis pityusensis* on illa de sa Torreta.

Illa de sa Torreta

Image 182: Two different looking male *Podarcis pityusensis* on illa de sa Torreta.

Image 183: Female *Podarcis pityusensis* on illa de sa Torreta.

Image 184: Male *Podarcis pityusensis* on illa de sa Torreta.

Location: Illa de Casteví (12.904 m^2) is located south-west of s'Espalmador. It is named after governor Joan de Castellví, therefore, the spelling should be Casteví, and not Gastabí, nor Castaví. Errors in the toponym have had consequences in the name given to the populations that inhabit certain locations, like this one. Illa de Casteví is an island of sandstone blackened by marine weathering, about five meters high, where there is a navigation beacon and scant vegetation, with bushes of the *Limonietum ebusitani* alliance that hardly come out of the cracks in the rock. The Illa de Casteví lizard population is with its few numbers always at risk of distortion or outright extinction.

Toponymy: Named after governor Joan de Castellví.

Synonyms: Illa de Gastaví.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Sonchus* sp., *Suaeda vera*, *Mesembryanthemum nodiflorum*, *Spergularia* sp. and *Limonium* sp.

Faunal aspects: Breeding sea gulls.

Herpetological history: Population described as *Lacerta lilfordi gastabiensis* Eisentraut, 1928.

Lizard density: Moderate (2023).

Image 185: Illa de Casteví.

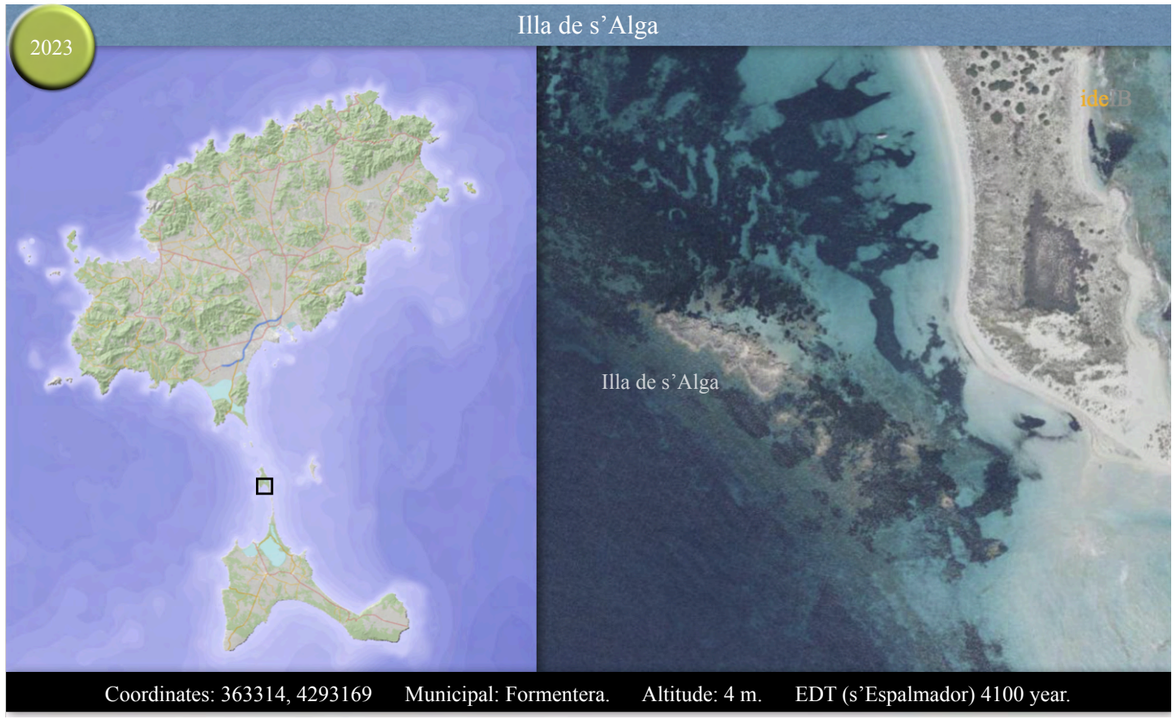
Image 186: Habitat on illa de Casteví.

Image 187: Two male (left) and two female (right) *Podarcis pityusensis* on illa de Casteví.

Illa de Casteví

Image 188: Juvenile (top-right) and four male *Podarcis pityusensis* on illa de Casteví.

Illa de s'Alga



Location: Illa de s'Alga is a small sandstone islet (5.669 m²) that encloses the bay of s'Alga de s'Espalmador. It is very small in size and heavily eroded by the sea, subject to splashing throughout its small area. It contains a ecosystem with species of the *Limonietum ebusitani* alliance as the first trophic level that will feed invertebrates and lizards.

Toponymy: Alga = *Posidonia*.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Suaeda vera*, *Lotus cytisoides*, *Senecio* sp., *Pallenis maritima*, *Mesembryanthemum nodiflorum* and *Limonium* sp.

Faunal aspects: Breeding sea gulls.

Herpetological history: Population described as *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) by Eisentraut (1949). Made synonymous with *Lacerta pityusensis espalmadoris* (Müller, 1928) by Rodríguez Ruiz (1976). Made synonymous with *Podarcis pityusensis formenterae* (Eisentraut, 1928) by Salvador (1984). See also our comments in the herpetological history of illa d'en Forn, in which the possibility is discussed that von Wettstein (1937) may have been the first describer of the illa de s'Alga population.

Lizard density: Abundant (2023).

Image 189: Illa de s'Alga.

Illa de s'Alga

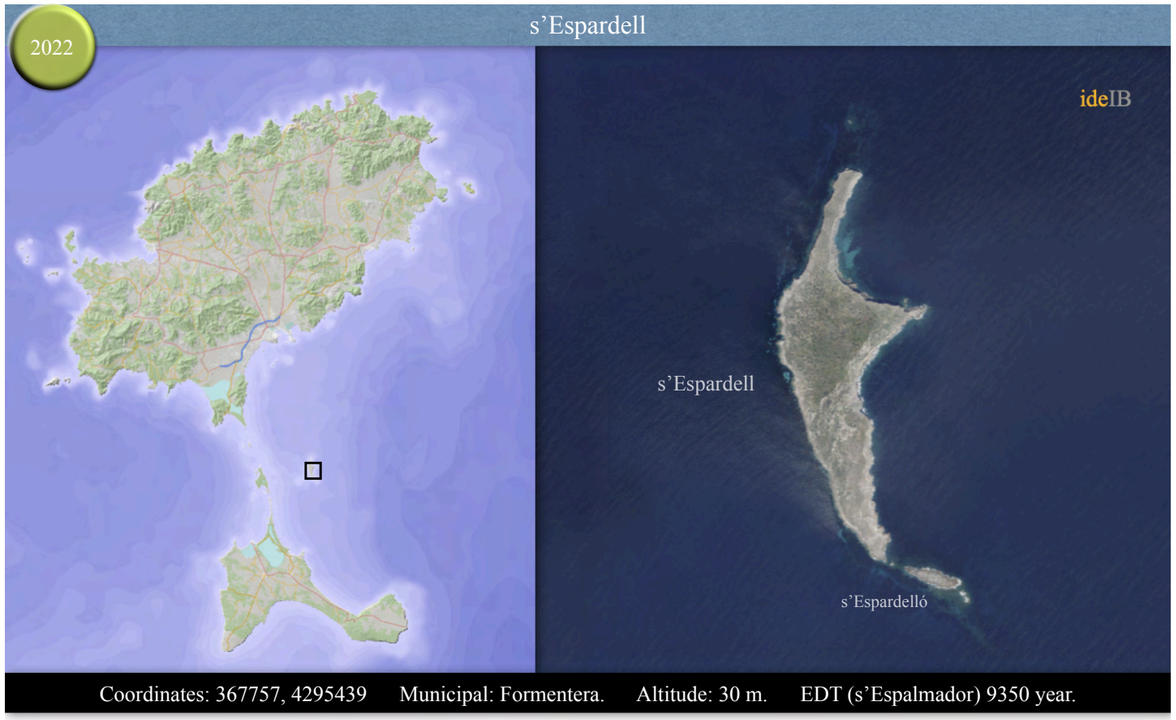
Image 190: Habitat on illa de s'Alga.

Image 191: Two male *Podarcis pityusensis* on illa de s'Alga.

Illa de s'Alga

Image 192: Male *Podarcis pityusensis* feeds on nectar of *Pallenis maritima* on illa de s'Alga.

Image 193: Female (top) and juvenile (bottom) *Podarcis pityusensis* on illa de s'Alga.



Location: S'Espardell is a relative long separated (EDT 9350 year) elongated island located to the east of s'Espalmador but much smaller (489.309 m²), very uniform, not very rugged and vegetation marked by the presence of colonies of gulls, Balearic shearwater and Scopoli's shearwater with an abundant presence of ruderal and nitrophilous plants. The central and eastern area is covered by a hard limestone crust with thin stony soil and very light low thickets of mastic and junipers. The western coast and punta de Tramuntana, where the lighthouse is located, is of sandstone with sandy soil and low vegetation of statices, an endemic wall-rocket, asphodel and sea carrot. Hyper saline ponds are also formed where we find the typical salt marsh species. On s'Espardell is a good presence of endemic invertebrates such as *Phylan mediterraneus*, *Pachychila sublunata* and *Asida mater inmarginata*.

The lizard density does fluctuates a lot in our results, but that is probably due to changing circumstances during visits to the island.

Toponymy: Ancient name, possible pre-Christian. Although, some authors say that it derives from esparto grass.

Synonyms: None.

Floral aspects: *Pistacia lentiscus*, *Juniperus phoenicea*, *Suaeda vera*, *Limonium* sp., *Reichardia* sp., *Diplotaxis ibicensis*, *Asphodelus* sp., *Daucus carota*, *Cynomorium coccineum*, *Mesembryanthemum nodiflorum*, *Allium* sp. and *Malva arborea.*

Faunal aspects: Breeding sea gulls (*Larus michahellis*), Balearic shearwater (*Puffinus mauretanicus*) and Scopoli's shearwater (*Calonectris diomedea*). Invertebrates: *Phylan mediterraneus*, *Pachychila sublunata* and *Asida mater inmarginata*.

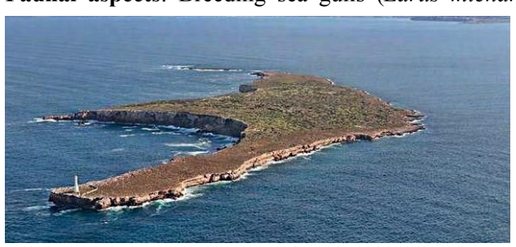


Image 194: s'Espardell (image from internet).

Herpetological history: Population described as *Lacerta lilfordi espardellensis* Eisentraut, 1928, later joined in *Lacerta pityusensis gastabiensis* (Eisentraut, 1928) by Eisentraut (1949). Made synonymous with *Podarcis pityusensis formenterae* (Eisentraut, 1928) by Salvador (1984).

Lizard density: Abundant (2022).

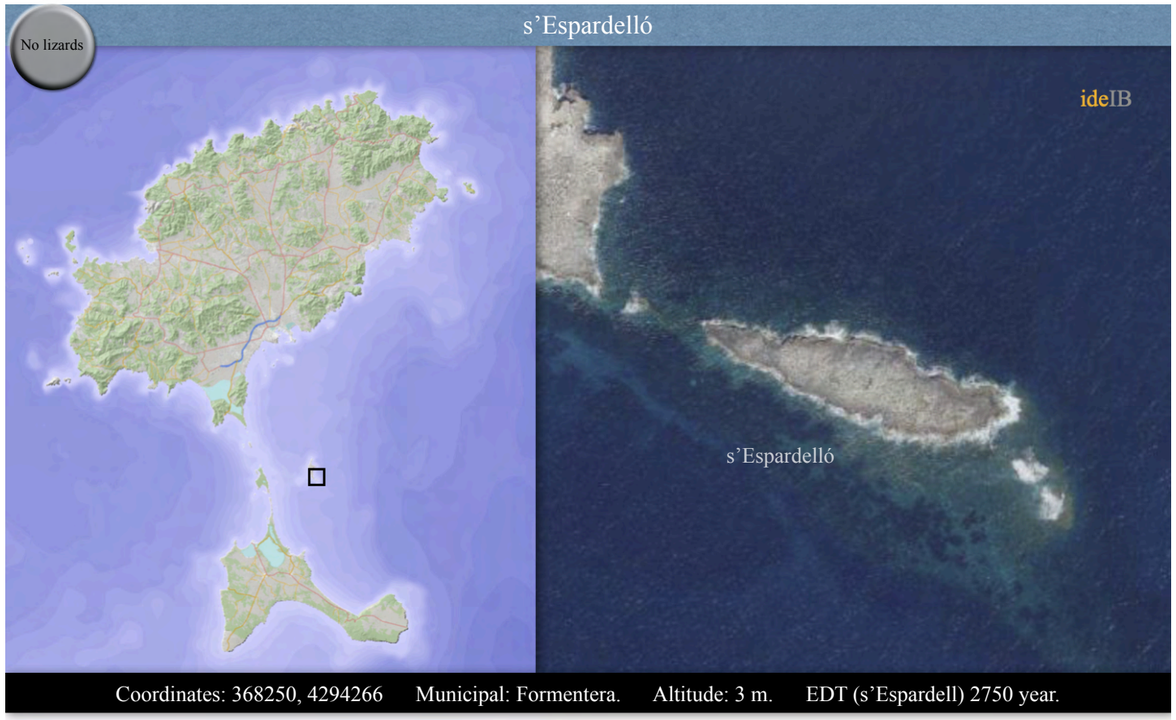
Image 195: Habitat on s'Espardell.

Image 196: Male *Podarcis pityusensis* on s'Espardell.

s'Espardell

Image 197: Male (top) and female (center and bottom) *Podarcis pityusensis* on s'Espardell (photos: Michael Kroniger).

s'Espardelló



Coordinates: 368250, 4294266 Municipal: Formentera. Altitude: 3 m. EDT (s'Espardell) 2750 year.

Location: South of s'Espardell we find s'Espardelló, a rocky reef (12.214 m^2) that from the coast of s'Espardell appears without vegetation nor fauna.

Toponymy: Little Espardell.

Synonyms: None.

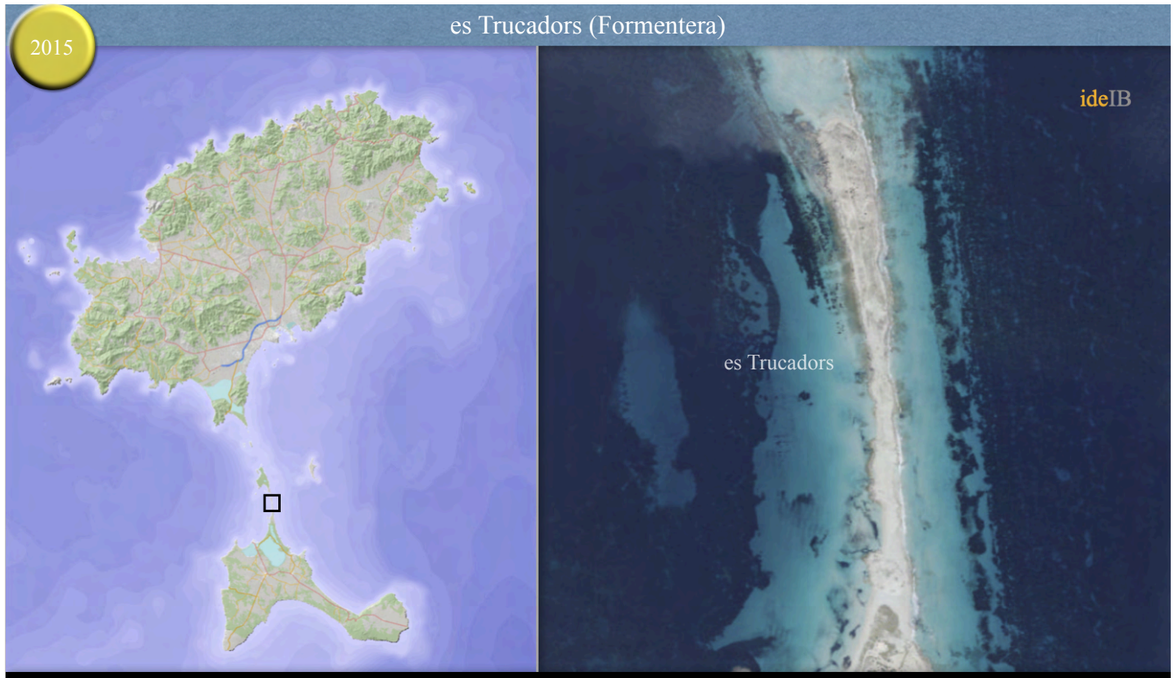
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: No lizards according Martínez-Rica & Cirer (1982) and Salvador (2015).

Lizard density: No lizards.

Image 198: s'Espardalló to the south of punta de Migjorn of s'Espardell.



Location: Es Trucadors is a small peninsula, or isthmus, located in the north of Formentera. It is a narrow, low strip of land, formed by a group of more or less stable dunes, with a length of about 3 km and an average width of 200 m with some points where it only reach 30 meter. The maximum height in the south at es Muntanyar is 10.34 meter.

The southern part of the peninsula, what is not considered to belong to es Trucadors, comprises the area between estany Pudent and pujol des Palo to the west and es Muntanyar to the east. In this area are the salt ponds of en Marroig, and to the

Image 199: The northern part of the es Trucadors area of Formentera, with its first hill pujol de n'Adolf (image from internet).

Image 200: Habitat of the northern part of the es Trucadors area of Formentera, near punta des Borronar, with a creation of Johannes Schultz.

Image 201: Habitat of the central part of the es Trucadors area of Formentera (looking to the south).

Image 202: Habitat of the southern part of the es Trucadors area of Formentera, at pas de n'Adolf (looking to the north).

west platja des Cavall d'en Borràs. The central part of the peninsula, also what is considered to be the southern part of es Trucadors, runs up to pas de n'Adolf del Sud, a name originated by the shipwreck of the Swedish ship Adolf, in 1882. In this area we also find the ses Illetes islands. The northern part of the peninsula, from pujol de n'Adolf to punta des Borronar at cap de Dins des Trucadors, is the area what in the past by herpetologists was considered as the "island" Trocados (as shown in image 199), with a maximum height of 6 meter at pujol Negre in the north and 8 meter at pujol de n'Adolf in the south. During the 1920s it seems that there has been a road, although not in very good condition, that allowed to take wagons all the way to s'Espalmador, according to the oral testimony of several people from Formentera.

es Trucadors (Formentera)

Image 203: Part of Carta de los Freus entre Ibiza y Formentera, raised in 1896. 1: Pas des Trucadors. 2: Pas de n'Adolf. 3: Pas de n'Adolf Sud.

Toponymy: Deceptions, what appears to be, but is not. Due to the difficulties of navigation in the area with frequent shipwrecks.

Synonyms: None.

Floral aspects: *Lotus cytisoides*, *Crithmum maritimum, Allium* sp., *Limonium* sp., *Cakile maritima*, *Sporobolus pungens*, *Daucus carota*, *Achillea maritima* and *Silene cambessedesii.*

Faunal aspects: A large number of seagulls are permanently resting on the beaches, which have been observed to predate on lizards repeatedly.

Herpetological history: Population within a short period twice described, first as *Lacerta lilfordi grisea* Eisentraut, 1928 and later as *Lacerta lilfordi grueni* Müller, 1928. Because *grisea* is preoccupied by *Lacerta agilis grisea* Hermann, 1804, therefor *Lacerta lilfordi grisea* Eisentraut, 1928 should be treated as synonym of *Lacerta lilfordi grueni* Müller, 1928 (Eisentraut 1928b). Made synonymous with *Podarcis pityusensis formenterae* (Eisentraut, 1928) by Salvador (1984).

Both terra typica of the first descriptions of Eisentraut and Müller are called Isla (dos) Trocados, which is strange since Eisentraut, unlike Müller, had collected his own lizards. Perhaps it was a matter of chance that in July 1928 (Eisentraut) and on 15 June 1928 (Grün) one of the three passes was breached after a winter storm, and es Trucadors was indeed a temporary island at that moment, something what also happens today. Due to accumulation of sand, these temporary sea-straits are usually closed again during the summer. It is also quite possible that Eisentraut, for example, misinterpreted an old map, as would be possible in our example (see image 203). Although if we look closely, the islands that appear at first glance (pujol de n'Adolf and illa d'en Forn) are connected by a beach structure.

Image 204: A breached pas des Trucadors at 12-04-2018.

es Trucadors (Formentera)

Image 205: Male *grueni* color morph (SVL 62 mm.) from the northern tip of the transition zone (yellow dot in image 207).

Image 206: Male *formenterae* color morph (SVL 65 mm.) from the northern tip of the transition zone (yellow dot in image 207).

Image 207: The peninsula at the north of Formentera, with the transition zone between the es Trucadors (*grueni*) color morph population and the Formentera (*formenterae*) color morph populations, between pujol de n'Adolf and the salt ponds of en Marroig, circled in black.

In itself it is understandable that Eisentraut and Müller described the lizards of es Trucadors as subspecies despite the ultimate lack of isolation from the rest of Formentera.With the methods used at the time, this population is probably the most differentiated compared to all other populations, and certainly compared to the other populations on Formentera. The impression that we are dealing with a habitat-adapted color morph on es Trucadors is clear. Ultimately, genetic research, which is currently being conducted, should provide clarity on this matter. Our field observations show that there is a transition zone between es Trucadors, just south of pujol de n'Adolf and the southern part of the peninsula around the salt ponds of en Marroig (see image 207), where both color morphs can be found.

Lizard density: Moderate (2015).

es Trucadors (Formentera)

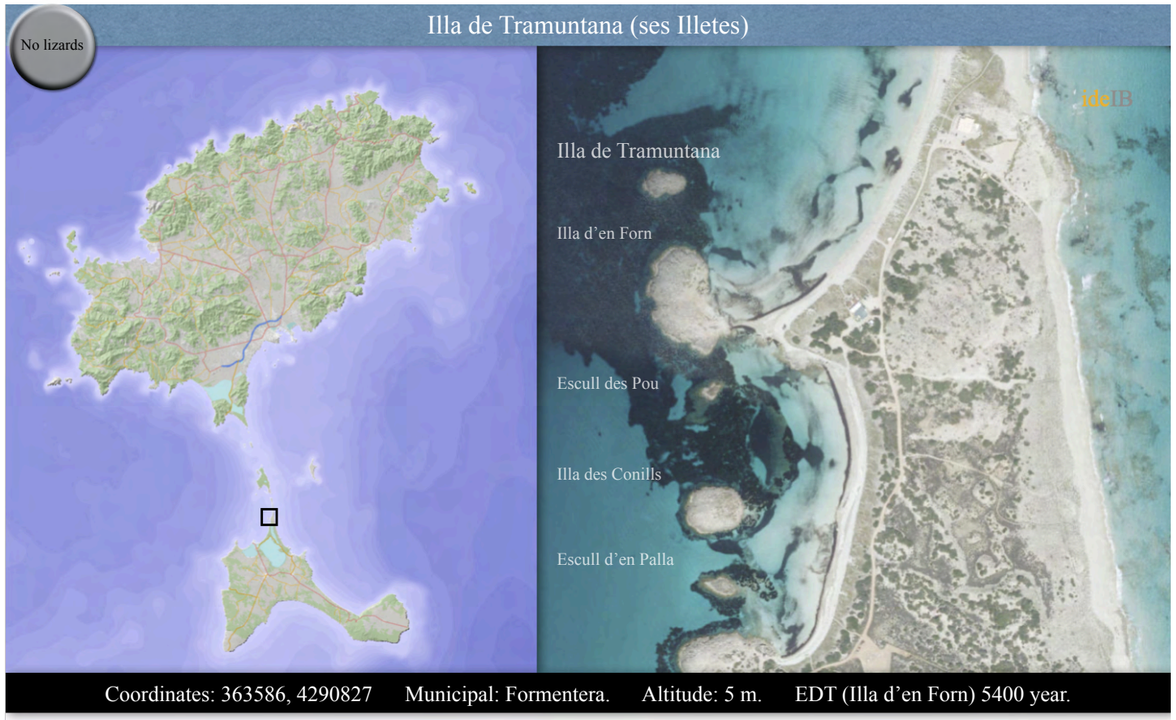
Image 208: Male *grueni* color morph (top), male *formenterae* color morph (center) and female more normal *pityusensis* than *grueni* color morph (bottom) from the central part of the transition zone (red dot in image 207).

es Trucadors (Formentera)

Image 209: Male intermediate looking color morph from the south-western part of the transition zone (blue dot in image 207).

Image 210: Two male *grueni* color morphs from es Trucadors (brown dot in image 207).

Image 211: Female and male *grueni* color morphs from es Trucadors (green dot in image 207).



Location: At the beginning of es Trucadors, to the west, are platja de ses Xalanes and platja de n'Adolf, separated by a well that once supplied fresh water. In front of these beaches there is a group of five islets, ses Illetes, of which Illa de Tramuntana (1450 m^2) is the northernmost.

Toponymy: North island.

Synonyms: None.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*.

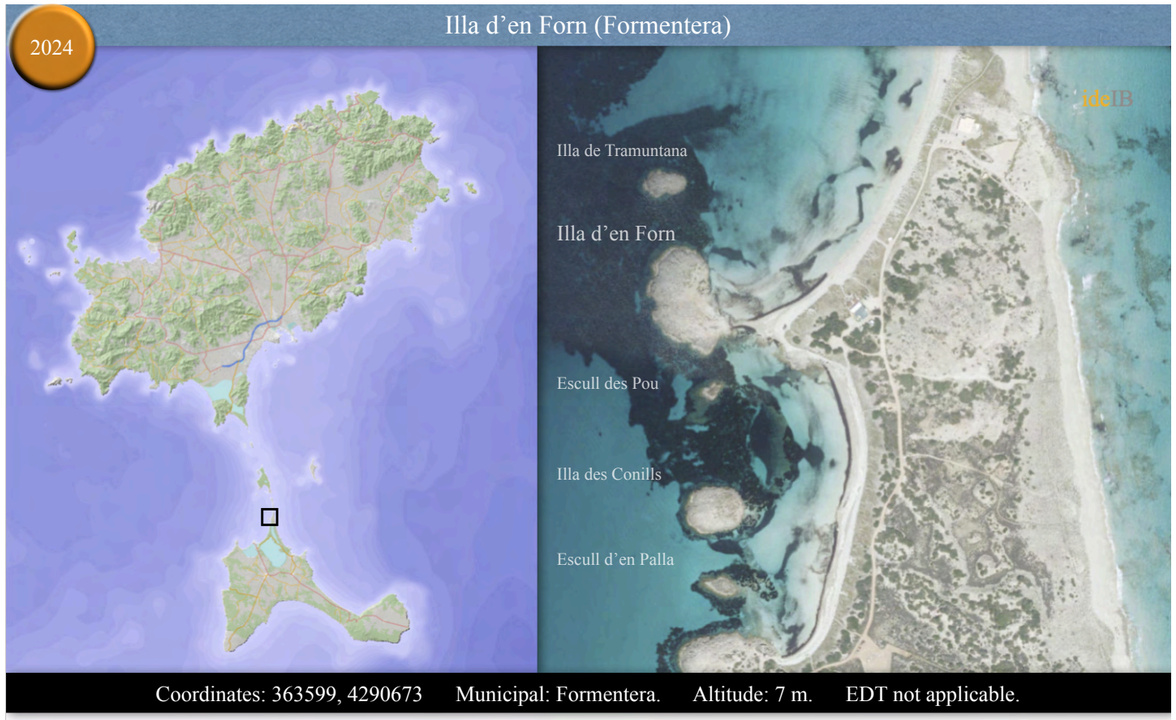
Faunal aspects: Not investigated.

Herpetological history: Not addressed in literature.

Lizard density: No lizards.

Image 212: Illa de Tramuntana (ses Illetes).

Image 213: Solsera on illa de Tramuntana (ses Illetes).



Location: The second and largest (12.560 m^2) island of ses Illetes is illa d'en Forn. The stable presence of an indigenous lizard population over time is doubtful. It is temporarily connected or separated from Formentera by a construct of sand and washed ashore *Posidonia* with obvious passage of lizards from the island to the beaches, and vice versa, which is why the population on illa d'en Forn cannot be considered an isolated island population. In 2024, when illa d'en Forn is separated from Formentera by a one-meter-deep inlet of sea, there is a very sparse population, with body coloration similar to that of the es Trucadors (*grueni*) color morph population.

Toponymy: Oven island, but more likely Forn's island (Forn is a person name).

Synonyms: Illa des Pouet.

Floral aspects: *Reichardia tingitana*, *Lotus cytisoides*, *Crithmum maritimum*, Limbarda crithmoides, *Frankenia laevis*, *Crucianella maritima*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Limonium* sp., *Asparagus horridus* and *Carpobrotus acinaciformis*.

Faunal aspects: Not investigated.

Image 214: "Illa" d'en Forn that pretends to be a real island to the left and illa de Tramuntana to the right (image from internet).

Illa d’en Forn (Formentera)

Image 215: “Illa” d’en Forn connected to Formentera in 2015 (photo: Mike Zawadzki).

Image 216: “Illa” d’en Forn connected to Formentera in 2011 and escull des Pou as viewed from illa des Conills.

Image 217: Habitat on “illa” d’en Forn (photo: Mike Zawadzki).

Illa d’en Forn (Formentera)

Herpetological history: Population described as *Lacerta pityusensis algae* von Wettstein, 1937. Made synonymous with *Podarcis pityusensis pityusensis* and *formenterae* by Lilge (1975). Made synonymous only with *Podarcis pityusensis formenterae* by Rodríguez Ruiz (1976).

Another confusing terra typica is this case of *Lacerta pityusensis algae* von Wettstein, 1937 with terra typica “Isla Alga (= Isla Pouet) nördlich von Formentera”. Why would Hartmann be so indistinct about this location in his communication to von Wettstein? Maybe that was not the case at all. Maybe it was the idea of von Wettstein, in his ignorance, to clarify the local topography with an “(= Isla Pouet)” addition. If we ignore the “(= Isla Pouet)”, then we read: Isla Alga to the north of Formentera; an island we know as illa de s’Alga. It is unclear why this, to our opinion, plausible possibility has been overlooked in most taxonomic considerations (except Cirer (1987)), which would also imply that Lilge (1975) would have been the first to describe the illa d’en Forn population, and von Wettstein (1937) would have been the first to describe the illa de s’Alga population.

Zawadzki (2001) was able to observe a small population of 15-20 specimens on illa d’en Forn in 1996, 1999 and 2000, including lizards with green color in both sexes, as well as brownish specimens reminiscent of *grueni*. In the 70s and 80s there was often a beach bar, or chiringuito, on illa d’en Forn, which would now be illegal. The boats with tourists arrived at a wooden pier installed on the island, which at that time was linked to Formentera. Obviously, with the arrival of tourist boats from Eivissa or la Savina, lizards could have easily been translocated during the 70s and 80s. Both Lilge (1975) and Zawadzki (2001) have assumed this, and it seems this is also supported by the coloration of the lizards we observed on illa d’en Forn.

Lizard density: Low (2024).

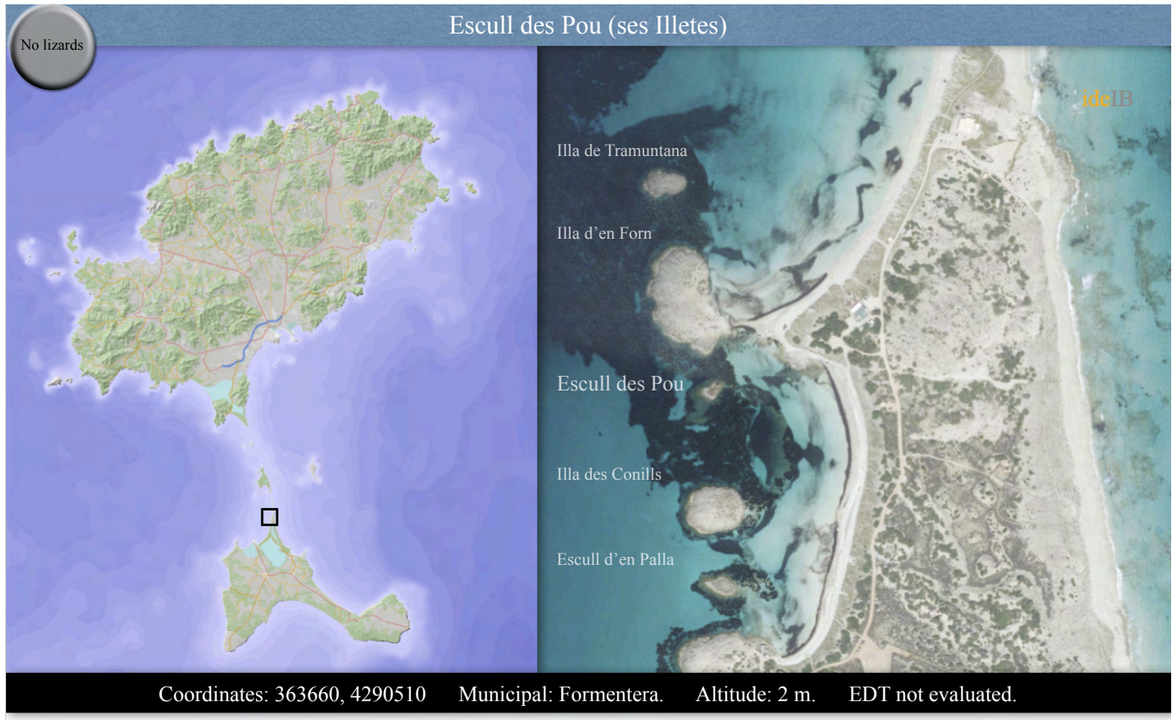
Image 218: Juvenile *Podarcis pityusensis* on “illa” d’en Forn.

Image 219: Two female *Podarcis pityusensis* on “illa” d’en Forn.

Illa d’en Forn (Formentera)

Image 220: Two *Podarcis pityusensis* in foreplay (top), same bluish male after the act (center) and greenish male *Podarcis pityusensis* (bottom), all on “illa” d’en Forn.

Escull des Pou (ses Illetes)



Coordinates: 363660, 4290510 Municipal: Formentera. Altitude: 2 m. EDT not evaluated.

Location: Escull des Pou is located between illa d’en Forn and illa des Conills and is the smallest of the ses Illetes islands.

Toponymy: Escull des Pou (well reef), Escull des Pouet (little well reef).

Synonyms: Escull des Pouet.

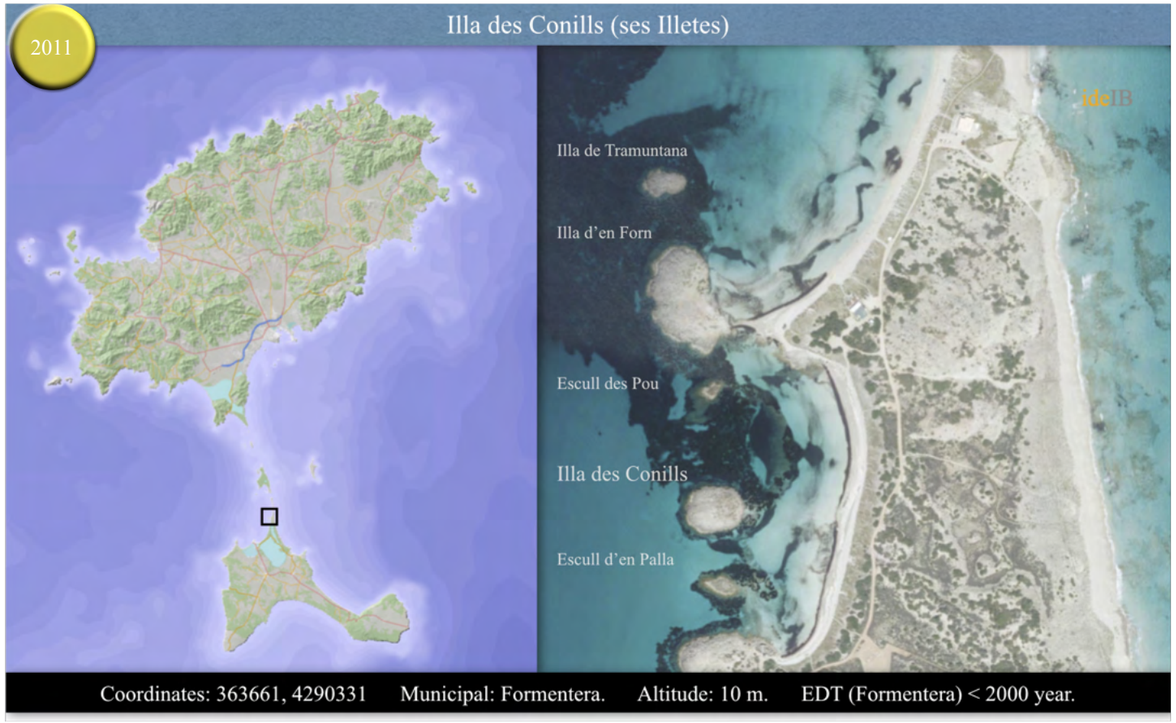
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: Not addressed in literature.

Lizard density: No lizards.

Image 221: Escull des Pou in front of “illa” d’en Forn.



Location: Although being smaller than illa d'en Forn, illa des Conills is the largest (5.018 m²) real island of the ses Illetes islands. In the 20th century it always supported a very scarce and unstable population of lizards, but this seems to have improved from observations in the 21st century. Illa des Conills is very accessible from platja de ses Xalanes and the separation of Formentera is of recent date (EDT < 2000 year).

Toponymy: Rabbit island (illa des Conills), round island (illa Redona d'Illetes).

Synonyms: Illa Redona d'Illetes.

Image 221: Illa des Conills in front of platja de ses Xalanes.

Image 222: Habitat on illa des Conills.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Suaeda vera*, *Asparagus horridus*, *Limonium* sp., *Frankenia laevis* and *Mesembryanthemum nodiflorum*.

Faunal aspects: Not investigated.

Herpetological history: Population described as *Lacerta pityusensis subformenterae* Buchholz, 1954, with as terra typica Conejo de Formentera, which in Spanish is rabbit island or illa des Conills in Catalan, collected by H. Grün on 1930-07-11.

In a correspondence (1953-1954) preserved in the ZFMK archive between Friedrich Buchholz and Herman Grün we can read that Buchholz inquired about the location of some islands in his ZFMK collection with a cryptic name (Marotsch grande, Conejo de Formentera, Isla de la Sierra (s'Escullat de Portinatx), Marotsch pequeña and Isla de la Salinas), but did not receive an adequate answer, because Grün did not know the answer either. Jost H. Jokisch succeeded Herman Grün around July 1930 by taking over the lucrative business for thousand marks (Zawadzki & Böhme 2020), although we now suspect that the transfer only became effective on a slightly later date (unpublished). Nevertheless, we can assume that some cooperation between Grün and Jokisch must have existed around that time. Armed with just a nautical chart at his disposal, Buchholz found an "island" that, to his opinion, must be applicable to Conejo de Formentera, and presented his representation of the topography in Buchholz (1954) (see image 223).

If we look at image 203, part of Carta de los Freus entre Ibiza y Formentera, which was raised in 1896, it is understandable that Buchholz considers es Trucadors and Conejo de Formentera as two islands. But on closer inspection, that is not the case; es Trucadors, Conejo de Formentera, the north of Formentera and also illa d'en Forn are connected by a beach structure on this chart. This is also according the contemporary representation of the topography. Also visible on Carta de los Freus entre Ibiza y Formentera are

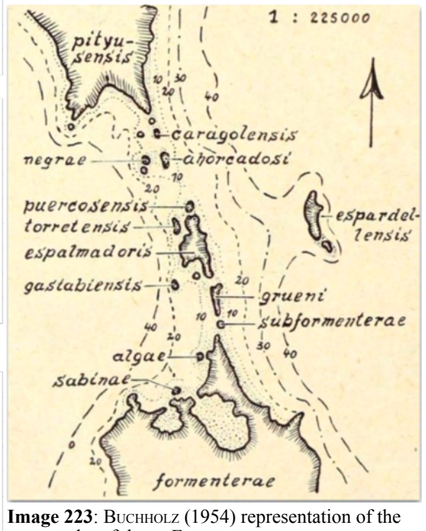


Image 223: Buchholz (1954) representation of the topography of the es Freus.

Illa des Conills (ses Illetes)

two of the ses Illetes islands, Isla Pouet and Isla Redona, known today by their Catalan names of illa d'en Forn and illa des Conills, close to the salt ponds of en Marroig. If we were to write Marroig phonetically in German, we would get Marotsch. So Marotsch grande could be identical to illa d'en Forn (12.560 m^2) and Marotsch pequeña could be identical to illa des Conills (5.018 m^2).

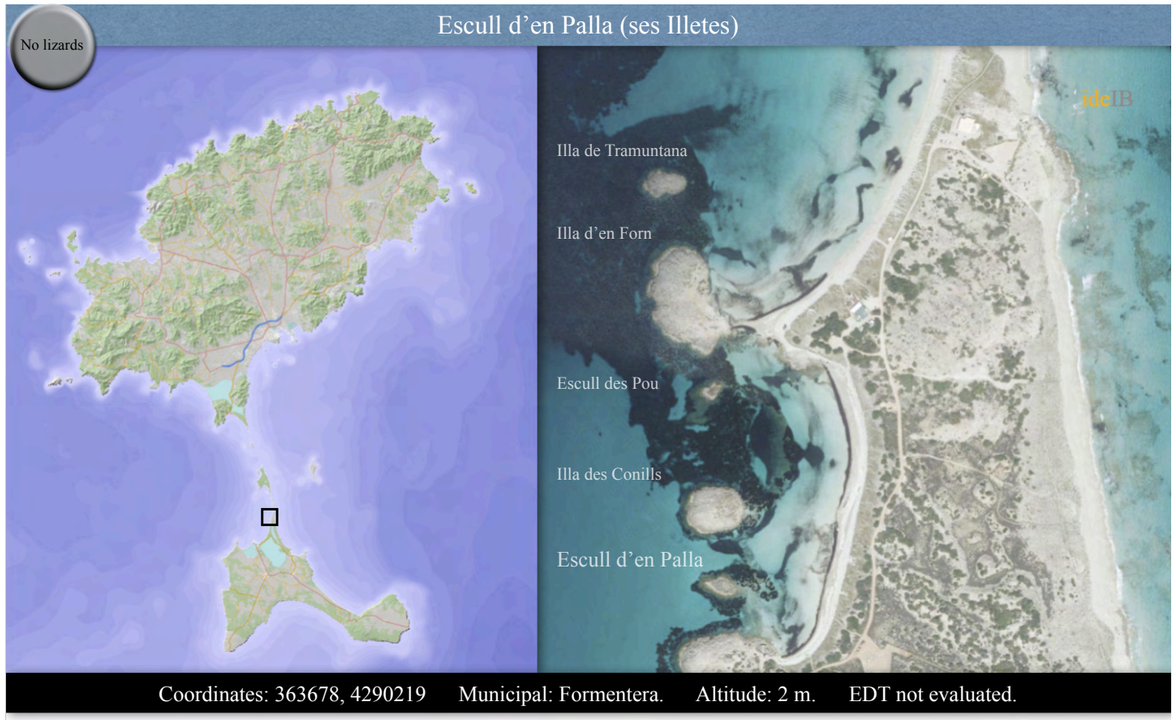
We can read in the entry catalog of ZFMK that Grün (more likely one of his subcontractors, probably Jokisch) collected 8 specimens from Conejo de Formentera on 1930-07-11, together with 18 specimens from Marotsch grande. According the same entry catalog Jokisch collected 14 lizards at Marotsch pequeña on 1030-08-30. The use of the same name, Marotsch, leads us to assume that Jokisch was also involved in the collection of the Conejo de Formentera and Marotsch grande lizards. In our opinion, the Grün company collected twice at illa des Conills (Conejo de Formentera and Marotsch pequeño) and once at illa d'en Forn (Marotsch grande) during this period.

The observation and conclusion that es Trucadors and Conejo de Formentera are not islands in the Lilge (1975) and Rodríguez Ruiz (1976) revisions is correct, although they both failed to notice that Conejo de Formentera actually is synonymous with illa des Conills, and therefore an island after all. The illa des Conills popualtion was made synonymous with *Podarcis pityusensis pityusensis* and *formenterae* by Lilge (1975), and made synonymous only with *Podarcis pityusensis formenterae* by Rodríguez Ruiz (1976).

Lizard density: Moderate (2011).

Image 224: Female (top) and two male (center and bottom) *Podarcis pityusensis* on illa des Conills.

Escull d'en Palla (ses Illetes)



Location: Escull d'en Palla is the southernmost of the ses Illetes islands, and located between illa des Conills and pujol des Pal.

Toponymy: Palla's reef (Palla is a person name).

Synonyms: None.

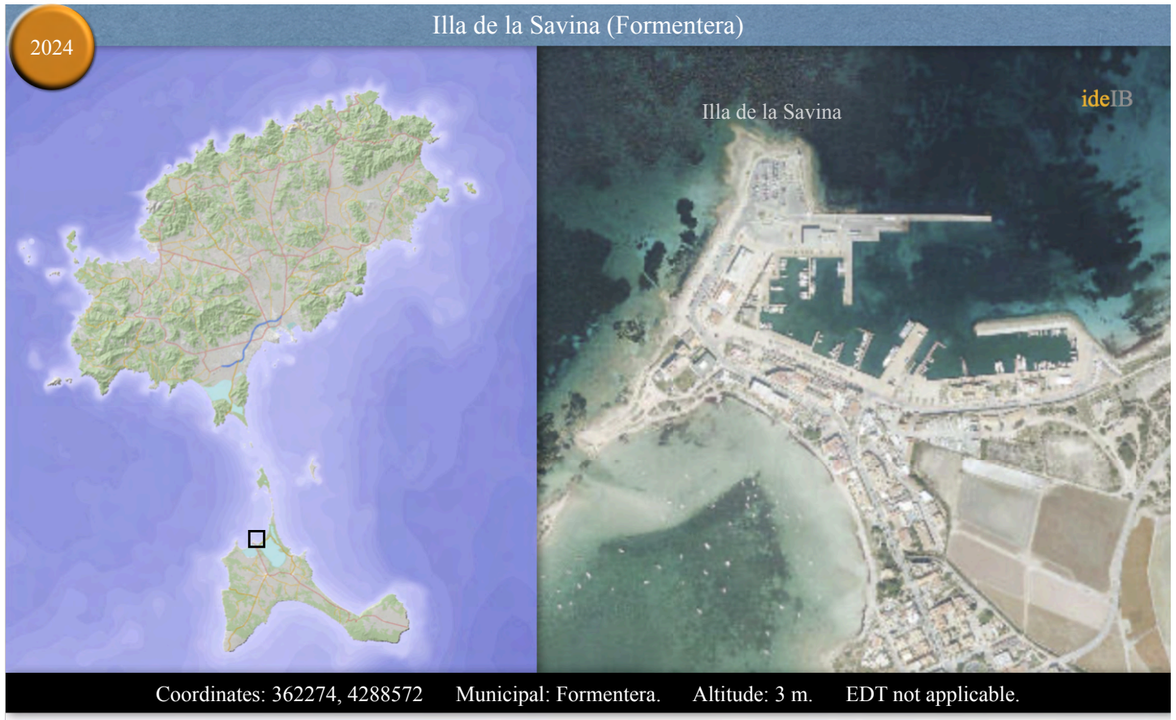
Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: Not addressed in literature.

Lizard density: No lizards.

Image 225: Escull d'en Palla as seen from illa des Conills, in front of pujol des Pal.



Location: Illa de la Savina is the island that gives its name to the commercial port of Formentera. In 1926 a lighthouse was built on it, during the post-war period a breakwater was constructed that joined illa de la Savina to Formentera and the port underwent successive expansions that completely disfigured the island into the current large car park. A population of *Podarcis pityusensis* lizards with no biogeographical interest lives there, since it is the result of individuals arriving from everywhere. A considerable mixture of morphs from all parts of Formentera and Eivissa have been found and even, in 2018, a melanistic lizard with all the characteristics of a ses Bledes lizard.

Toponymy: Savina (*Juniperus phoenicea*), a very ubiquitous tree in the Pityusic Islands. They used to be present at the harbor of la Savina in the past.

Synonyms: None.

Floral aspects: Not much left of the original vegetation.

Faunal aspects: Not investigated.

Image 226: "Illa" de la Savina (image from internet).

Image 227: "Habitat" on "illa" de la Savina; more cars than lizards.

Herpetological history: Population described as *Lacerta pityusensis sabinae* Buchholz, 1954, made synonymous with *Podarcis pityusensis pityusensis* and *formenterae* by Lilge (1975), and made synonymous only with *Podarcis pityusensis formenterae* by Rodríguez Ruiz (1976).

Lizard density: Low density, seemingly declining and maybe non-existent (2024).

Image 228: One of the *formenterae* color morphs in combination with a spare part of what is now the standard on "illa" de la Savina.

Image 229: A remarkable and obvious newcomer from ses Bledes on "illa" de la Savina.

Location: Illa de ses Parreres is located to the north of es Pujols, at the beginning of platja de ses Canyes. This small islet (4.376 m^2) is very easily reached. Like illa des Fonoll Marí, it was not included in Cirer's studies carried out in the 20th century for the same reasons of population precariousness. In 2009 van den Berg (2010) confirmed the presence of a population of *Podarcis pityusensis* lizards. In 2024, one male and two females were observed, all with light body colors, similar to the lizards that can be found in the dunes of platja de ses Canyes.

Toponymy: Parrera is a savina (*Juniperus phoenicea*) trunk to support a vine. But in Formentera there was also a savina trunk from which the fish was hung to dry. This is the case on illa de ses Parreres.

Synonyms: Illa de ses Paneres, Illa des Pujols.

Floral aspects: *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Limonium* sp. and *Crithmum maritimum*.

Faunal aspects: Not investigated.

Herpetological history: Population described as *Lacerta pityusensis formenterae* Eisentraut, 1928 (van den Berg 2010).

Lizard density: Low (2024).

Image 230: Illa de ses Parreres as seen from the shores of Racó des Pujols.

Illa de ses Parreres

Image 231: Habitat on illa de ses Parreres.

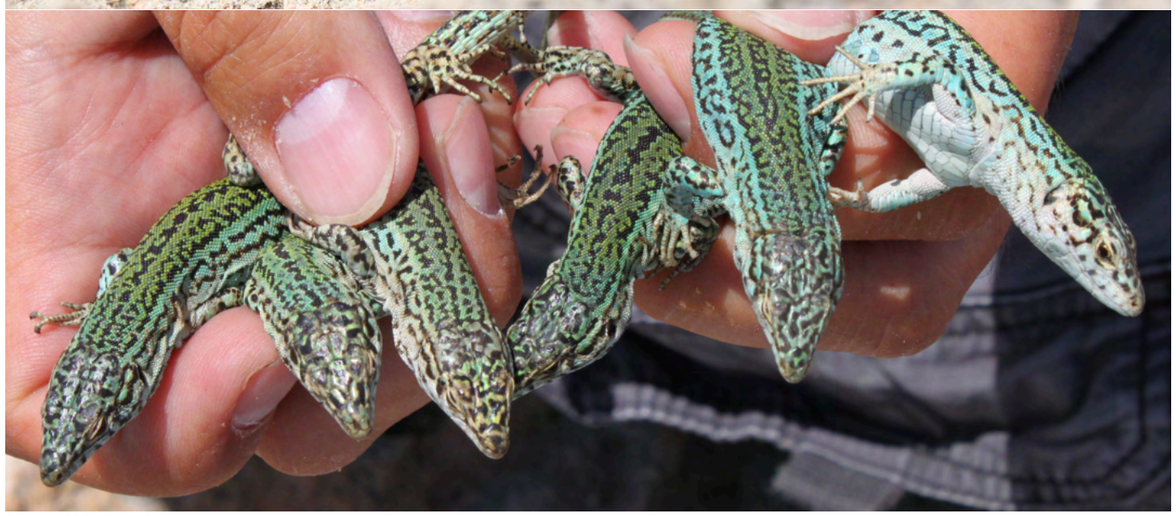


Image 232: Female (top) and six sampled male (bottom) *Podarcis pityusensis* on illa de ses Parreres.

Location: Illa des Fonoll Marí (3.446 m^2) is located in the es Pujols bay very close to the beach, from where it can be easily accessed, it has obvious scars due to the extraction of sandstone. This place has constant human visits, since the emblematic juniper pole embedded in the rocks has been used as a fish dryer. There are constantly bathers who visit it. This population was not included in Cirer's studies carried out in the 20th century, since it has always been on the verge of extinction due to the scarce vegetation that compromises its survival and it is not ruled out that it is a place affected by involuntary introductions at different historical moments. In 2009 van den Berg (2010) confirmed the presence of a population of *Podarcis pityusensis* lizards. In 2024 Cirer observed 3 specimens with small body size and bluish emerald green coloration. It is striking that this coloration is more similar to the lizards of la Mola than to those observed around es Pujols.

Toponymy: Sea Fennel island (*Crithmum maritimum*).

Synonyms: None.

Floral aspects: *Crithmum maritimum*, *Salicornia fruticosa* or *Arthrocaulon macrostachyum*, *Silene cambessedesii*, *Lotus cytisoides*, *Limonium* sp., *Eryngium maritimum* and *Mesembryanthemum nodiflorum.*

Faunal aspects: Not investigated.

Herpetological history:Population described as *Lacerta pityusensis formenterae* Eisentraut, 1928 (van den Berg 2010).

Lizard density: Low (2024).

Image 233: Illa des Fonoll Marí.

Image 234: Habitat on illa des Fonoll Marí.

Image 235: Pair (top) and juvenile (bottom) *Podarcis pityusensis* on illa des Fonoll Marí.

Location: Located in the area of s'Abeurador des Pujols, it is a reef that has been badly worn by the ancient extraction of sandstone and subsequent marine erosion. It does not support lizards.

Toponymy: Freshwater island.

Synonyms: None.

Floral aspects: Non-existent.

Faunal aspects: Non-existent.

Herpetological history: No lizards according Salvador (1986).

Lizard density: No lizards.

Image 236: Illa de s'Aigua Dolça as seen from platja des Pou.

Results

In table 7 are our results compiled. For **96** locations around Eivissa and Formentera we have recorded the official Catalan name, of which **89** are real isolated rocks, islets or islands, of which **47** had at a given moment in time a population of *Podarcis pityusensis* lizards (**49** if we add the Eivissa and Formentera populations). We were not able to record a lizard density value for just one of the populations that still exist today; es Vaixell. Populations which have become extinct or where a presence of *Hemorrhois hippocrepis* has been established are listed in table 8. Only **40** island populations of *Podarcis pityusensis* lizards remain at the moment of publication (**42** if we add the Eivissa and Formentera populations).

The absence of lizards on illot des Canaret, illot de sa Mesquida and illa d'Encalders are based on single observations in 2022. To be certain of the extinction of these three *Podarcis pityusensis* lizard populations, additional observations are needed to confirm the situation.

Location	Year	Lizard density value
Illot de sa Sal Rossa	1979	2
	1992	3
	2015	3
	2016	3
l'Esponja	1979	0
	1980	0
es Malví Gros	1979	3
	1980	3
	2016	3
	2022	4
sa Xella Grossa	1980	0
sa Xella Petita	1980	0
es Malví Pla	1979	3
	1980	3
	2013	2
	2015	3
	2023	4
Illa de ses Rates	1979	3
	1983	3
	2015	2
	2016	2
	2019	3
	2022	3
Illa des Pas Estret	2024	0
sa Corbeta	1985	0
es Dau Gros	1981	2
	1983	1
	2014	3
	2022	3
Illa Negra de Llevant	1979	1
	1983	1
	2014	2
	2023	2
Illa Plana (Eivissa)	1987	2
	2014	2
	2020	1
Illa Grossa (Eivissa)	1987	3
	2013	2
	2014	2
	2015	2
	2016	2
	2020	1
	2024	0
Illa des Botafoc (Eivissa)	2014	2
	2015	1
	2020	1
	2022	0
Escull Gros d'en Lledó	1979	0
Escull des Cap des Llibrell	-	-
en Caragoler (Cala Martina)	1979	0
es Moreneller	1979	0
Illa Redona de Santa Eulària	1979	3
	2009	3
	2013	3
	2019	3
	2023	4
Illa Llarga de Santa Eulària	1984	3
	2013	2
	2013	2
	2019	2
	2022	4
	2022	2
sa Galera des Canar	1979	0
Illa des Canar	1979	3
	1983	2
	1984	3
	1992	3
	2013	3
	2019	3
	2022	4
	2023	2

Table 7 (part 1): Lizard density values of island (white) and none island (red) populations of *Podarcis pityusensis*.

Location	Year	Lizard density value
Tagomago	1997	4
	1984	3
	2014	3
	2014	4
	2017	4
	2022	4
en Caragoler des Caló Roig	1979	0
Illot de s'Ora	1979	3
	1984	3
	2016	3
	2019	0
	2023	0
Esculls Negres (es Figueral)	-	-
Escull des Pas (Punta Grossa)	1979	0
Escull de sa Punta Grossa	1979	0
ses Deixes (Punta Grossa)	1979	0
s'Escullat de sa Punta de ses Formigues	1979	0
Escull d'en Terra de ses Formigues	1979	0
Escull de Fora de ses Formigues	1979	0
Escull des Pas (Punta des Caló des Pas)	-	-
Illa de ses Caletes	-	-
s'Escullat de Portinatx	1983	2
	2006	2
	2015	2
	2019	2
	2020	2
	2024	0
Illot des Renclí	1979	0
	2009	0
	2016	0
Penya Grossa (Cala Xarraca)	1979	0
	2018	0
Illot de sa Mesquida	1979	3
	1992	3
	2016	3
	2022	0
Illa Blanca (Badia Xarraca)	2017	1
	2018	1
	2020	0
Illot des Canaret	1979	1
	1981	1
	2014	2
	2015	2
	2022	0

Location	Year	Lizard density value
Illa d'Encalders	1979	2
	1984	2
	1992	2
	1998	2
	2015	2
	2022	0
es Cap Bernat	1982	0
	1998	0
Illa des Bosc de Sant Miquel (Eivissa)	2014	3
Illa Murada	1979	4
	1984	4
	2016	4
	2022	3
Illot Gros de Rubió	-	-
Illa de sa Cala d'Albarca	1992	0
s'Illot des Racó de Dalt s'Illeta	-	-
sa Margalida	1979	1
	1980	1
	1998	1
	1999	1
	2015	2
	2017	2
	2023	1
es Picatxo	1980	0
	2023	0
Illeta de Cala Salada	1979	3
	1983	3
	1992	3
	2016	3
	2022	2
	2022	1
es Palleret	1986	0
Escull Llarg de ses Punxes	2014	0
Illa des Bosc de sa Conillera	1979	1
	2014	3
	2019	3
	2023	3
sa Conillera	1979	3
	1986	3
	2013	3
	2014	3
	2017	3
	2019	3
	2023	4

Table 7 (part 2): Lizard density values of island (white) and none island (red) populations of *Podarcis pityusensis*.

Location	Year	Lizard density value
Escull de sa Conillera	1986	0
Escull de Tramuntana	-	-
Escull Vermell	2023	4
Bleda na Plana	1979	4
	1984	4
	2013	4
	2016	4
	2022	4
Esculls d'en Ramon	1984	0
Bleda na Bosc	1979	4
	2013	3
	2016	3
	2023	3
es Vaixell	-	-
Bleda na Gorra	1979	4
	2013	3
	2023	3
es Frare	-	-
s'Espardell de s'Espartar	1980	2
	1984	2
	2014	3
	2016	3
	2022	3
	2023	1
s'Espartar	1979	3
	1984	3
	2013	3
	2014	3
	2022	3
	2022	4
s'Escull de s'Espartar	1980	2
	2014	2
	2023	3
Escull de Cala d'Hort	1979	0
	1983	0
	2014	0
sa Galera de Tramuntana	1979	0
	1985	0
	2014	0
es Vedrà	1978	3
	1979	3
	1985	3
	2013	3
	2015	3
	2022	2
	2023	2
	2024	3

Location	Year	Lizard density value
es Vedranell	1979	3
	2016	3
	2023	1
Illeta Grossa de Porroig	1979	0
	1980	1
	1985	1
	1986	1
	2015	1
	2022	1
Illeta Petita de Porroig	1980	0
	2015	0
Esculls de punta de la Rama	1992	0
Escull d'en Terra de sa Punta de ses Portes	1983	0
	2017	1
	2023	1
en Caragoler Gros	1979	2
	1992	1
	2017	2
	2022	1
en Caragoler Petit	1979	0
	2017	0
Illa des Penjats	1983	3
	1984	3
	1992	2
	2015	3
	2022	4
Illeta Negra Grossa	1979	4
	1983	4
	1999	4
	2017	3
	2022	1
Illeta Negra Petita	1979	0
	1983	0
Illa des Porcs	1979	4
	1984	4
	2022	3
s'Espalmador	1979	3
	1984	3
	1992	3
	2011	3
	2018	3
	2022	3
Illa de sa Torreta	1979	3
	1984	2
	1992	3
	2011	3
	2018	3
	2023	3

Table 7 (part 3): Lizard density values of island (white) and none island (red) populations of *Podarcis pityusensis*.

Location	Year	Lizard density value
Illa de Casteví	1979	1
	1984	1
	2011	1
	2023	2
Illa de s'Alga	1979	1
	1984	1
	1992	1
	2011	2
	2022	3
s'Espardell	1979	3
	1984	2
	2014	1
	2015	3
	2022	3
s'Espardelló	-	-
es Trucadors (Formentera)	1983	2
	2009	2
	2011	2
	2015	2
Illa de Tramuntana (ses Illetes)	1980	0
	2009	0
Illa d'en Forn (Formentera)	1979	0
	1980	1
	2011	2
	2015	2
	2022	1
	2024	1
Escull des Pou (ses Illetes)	1979	0
Illa des Conills (ses Illetes)	1979	1
	1980	1
	2009	2
	2011	2
Escull d'en Palla (ses Illetes)	1979	0
Illa de la Savina (Formentera)	1980	2
	2011	2
	2013	2
	2018	1
	2024	0
Illa de ses Parreres	1979	3
	1984	2
	2009	1
	2011	1
	2014	1
	2024	1
Illa des Fonoll Marí	2009	1
	2011	1
	2024	1
Illa de s'Aigua Dolça	-	-

Table 7 (part 4): Lizard density values of island (white) and none island (red) populations of *Podarcis pityusensis*.

Discussion

By now it will be clear that much has gone wrong, especially during the 1920s and 1930s of the 20th century, regarding the terra typica of a lot of the *Podarcis pityusensis* populations. We must not forget that there was much room for confusion of tongues. At that time the official language in the Balearic Islands was still Spanish, but we must assume that most local people without official functions simply spoke Catalan. The German speaking intermediaries, like Hermann Grün and Jost Jokisch, probably also spoke Spanish at best, since the location data was also indicated in a kind of Spanish in most cases. In any case, the locations on the sea charts used by the subspecies describers were written in Spanish, the official language. That this has led to subspecies names based on Spanish spellings of location names is inevitable, and is what it is; forever fixed in a synonym. Worse still, in some cases the correct location was overlooked with such a Spanish location name (see table 9). This too will remain fixed in the synonyms forever, but in the event that we proceed to abolish subspecies in *Podarcis pityusensis*, like the case of *Podarcis lilfordi* (Pérez-Cembranos et al. 2020) or *Podarcis filfolensis* (Sciberras & Sciberras 2024), it may be important to identify the correct describer of the population, and this research has attempted to answer that question.

There are two more things that have not yet been covered in the text on the locations. Isla Cana larga on a map of Jost Jokisch, refering to sa Galera des Canar, which equals the entry of Ses Cana larga by Herman Grün in the ZFMK catalog, and the entry of Isla de la Salinas by Jost Jokisch in the ZFMK catalog, both not being resolved yet.

Cana larga is perhaps the best example that the middlemen (Herman Grün and Jost Jokisch) were indeed only middlemen in many cases. It is clear that in this case they had no idea of the exact situation on the ground. In any case, it is impossible that lizards were collected on sa Galera des Canar. The most likely explanation is that these lizards came from the nearby illa Llarga de Santa Eulària.

In the case of Isla de la Salinas we have to look in the corner of an island close to a saltworks, or salinas. There might be three options; escull d'en Terra de sa Punta de ses Portes (not very close), illa des Conills (ses Illetes) (already used and named as Marotsch pequeño) or illot de sa Sal Rossa. We would put our money on the latter given the proximity of the old salt charger of sa Sal Rossa or de la Xanga.

As already mentioned in the introduction and what has created some urgency for this article is the disturbing situation of the snake presence on Eivissa and Formentera leading to the disappearance of lizards on very large parts of Eivissa and the extinction event at illot de s'Ora back in 2016. In the summer of 2013, while sailing in the area of illa Llarga de Santa Eulària, Antònia Cirer noticed strange behavior from the seagulls and swam towards the island. The lizards were scarcer and more elusive than they had

Image 237: We are losing the battle (image from video Les serps invasores, una amenaça per a la conservació de la sargantana pitiüsa).

Population	Period	Event
Escull de Tramuntana	20th century	Failed introduction by Eisentraut (1930)
sa Galera de Tramuntana	20th century	Failed introduction by Eisentraut (1930)
Illot de s'Ora	After 2016	Extinct by *Hemorrhois hippocrepis*
s'Escullat de Portinatx	After 2020	Extinct by *Hemorrhois hippocrepis*
Illot des Canaret	After 2020	Probably extinct by *Hemorrhois hippocrepis*
Illot de sa Mesquida	After 2020	Probably extinct by *Hemorrhois hippocrepis*
Illa d'Encalders	After 2020	Probably extinct by *Hemorrhois hippocrepis*
Illa Murada	2024	4 *Hemorrhois hippocrepis* caught by Cofib (Romero 2025)
Illa Llarga de Santa Eulària	2024	43 *Hemorrhois hippocrepis* caught by Cofib (Romero 2025)

Table 8: Extinct island populations of *Podarcis pityusensis* or island populations at immediate risk of extinction. The absence of lizards on illot des Canaret, illot de sa Mesquida and illa d'Encalders are based on single observations in 2022. To be certain of the extinction of these lizard populations, additional observations are needed to confirm the situation.

been in previous years and the island looked like a garbage dump. Two possible causes were considered; an excess of nesting seagulls or the presence of some snakes which would also be the cause of the anomalous behavior observed in the birds. The presence of snakes on the illa Llarga de Santa Eulària has not been confirmed at that moment, despite some suspicions had risen. During a visit in 2022 to this island, the lizard density seemed to have returned to normal values. It was probably the arrival of a single snake that could have caused a momentary distortion, but not a permanent alteration. Unfortunately, this needs to be reconsidered again, given the bizarre number of snakes captured by Cofib in 2024 on illa Llarga de Santa Eulària. This threat remains throughout the archipelago and it is a matter of time before the snakes reach all islets, with the consequent extinction of all native lizard populations, as *Hemorrhois hippocrepis* do so hidden in the bilges of pleasure boats, or just by swimming over to an islet.

Conclusion

The lack of adequate measures to prevent new imports of *Hemorrhois hippocrepis*, despite being regulated by law, certainly does not deserve a beauty prize (Diario de Ibiza editorial 2025). Also the lack of an adequate protection protocol does not make us hopeful for a good outcome. We are left with only 40 remaining island populations. Are the resources released by the government sufficient to tackle the problem? How many staff does Cofib have to provide all the islands with traps, and also very importantly, to maintain these traps? Is a single boat allocated for this purpose enough? Is the Cofib staff equipped to make an assessment of the lizard populations? Do they even have time for that?

These questions remain unanswered, and that has to change. The government must now finally take seriously the responsibility assigned to them. Yes, this will costs money and effort, but doing nothing too. The introduction of invasive snakes is causing a rapid change in the fauna, especially on the island of Eivissa, and we will all notice and suffer from that soon (Álvarez et al. 2010, Ayllon 2015, Lapiedra-González 2022). Get all involved and competent people together and at least come up with a adequate plan of action. If we fail to do this it will be very unlikely that we will be able to make a lizard density assessment of the 40 remaining *Podarcis pityusensis* island

populations in 10 years.

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Subspecies	Issue
Lacerta lilfordi schreitmülleri Müller, 1927	Doubtful terra typica of "Insel Malvin bei Ibiza". Assigned to es Malví Gros. Could also have been assigned to es Malví Pla.
Lacerta lilfordi affinis Müller, 1927	Completely wrong terra typica of "Insel Guardia bei Ibiza" provided by pet shop Scholze & Pötschke. Assigned to es Malví Pla. Could better have been assigned to illa Negra de Llevant or illa des Botafoc.
Lacerta lilfordi miguelensis Eisentraut, 1928	Completely wrong terra typica provided by Hermann Grün, who gave the impression that Illa des Bosc de Sant Miquel was an island.
Lacerta lilfordi frailensis Eisentraut, 1928 *Lacerta lilfordi frailensis* Müller, 1928	Wrong terra typica: "Isla del Fraile, dem Westzipfel der Insel Esparto an der Westküste Ibizas vorgelagert" which corresponds to es Frare. However, the original location where Hermann Grün collected the lizards was on s'Espardell de s'Espartar. Zeno Kamer provided Müller (1928) the same wrong terra typica: "Westlich von der Pityusen Insel Esparta gelegen Felsen-inselchen Fraile".
Lacerta lilfordi grisea Eisentraut, 1928 *Lacerta lilfordi grueni* Müller, 1928	Wrong terra typica "Isla Trocados, nördlich von Formentera" by collector Martin Eisentraut. Wrong terra typica "Isla dos Trocados bei Espalmador, Pithyusen" by collector Hermann Grün. Both descriptions are based on a supposed island, which es Trucadors is not.
Lacerta pityusensis algae von Wettstein, 1937	Wrong annotated terra typica "Isla Alga (= Isla Pouet) nördlich von Formentera". Without this annotation the subspecies would refer to the population of illa de s'Alga, with annotation to the population of illa d'en Forn, which is not a real island.
Lacerta pityusensis subformenterae Buchholz, 1954	Completely misjudged in terms of placement terra typica "Conejo de Formentera", collector Hermann Grün, which should refer to illa des Conills in stead of pujol de n'Adolf on es Trucadors.
Lacerta pityusensis sabinae Buchholz, 1954	Wrong terra typica "Isla Sabina", because illa de la Savina is not an island. Collector Jost Jokisch.

Table 9: Described subspecies of *Podarcis pityusensis* that should have been consigned to the trash bin based on irregularities in their terra typica.

Image 238: We might really going to miss this in the future (photo: Sebastian Candela).

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