

Emanuele Bocchieri

Flora of the small islands of the archipelago of Maddalena (north-eastern Sardinia) and floristic contributions regarding some of the mains islands of the Archipelago

Abstract

Bocchieri, E.: Flora of the small islands of the archipelago of Maddalena (north-eastern Sardinia) and floristic contribution regarding some of the main islands of the Archipelago. — Fl. Medit. 2: 33-64. 1992. — ISSN 1120-4052.

The author reports the results of the herborizations carried out on 22 small islands located in the archipelago of Maddalena (north-eastern Sardinia). 155 taxa denoting a remarkable genetic diversity were collected (distributed in 111 genera and 47 families). The main dangers for these habitat are reported and information regarding their geomorphology and vegetal landscape is supplied. Moreover, a notable floristic contribution concerning some of the main islands of the archipelago is supplied.

Introduction

The archipelago of Maddalena (or, of the Maddalena, as it is usually called) consists of numerous islands of various size and length of coasts (Fig. 1). The floristic information about the archipelago was very incomplete and, for the most part, it referred to the main islands. Nothing or very little was known on the plant cover of the other 20 small islands of the vast and interesting archipelago (Fig. 2), which are placed close to Maddalena, Caprera, Budelli, S. Maria etc. Some information on these minute habitats, we owe to Moris (1840-1843) and Mattiolo (1892) for the island Cappuccini; to Desole (1961) for the island Monaci and, recently, to Cesaraccio & al. (1984) who, in search of *Silene velutina* Pourret, explored some islets (Abbatoggia, Paduleddi and Stramanari) in order to know the detailed distribution of this typical Sardinian-Corsican endemic. Since a study to define the flora of the archipelago has been undertaken, I thought it interesting to contribute to that study on the base of my numerous herborizations in these microinsular environments which, being of difficult access due to the lack of landing places and/or the sea, yet often rough have an essential function in the microinsular and coastal ecosystem.

Area of study

Almost all of the small islands examined in this study are included in the municipality of La Maddalena. Only Cappuccini (Fig. 2 g 22), according to the maps of the Military Geographic Institute, belongs to the municipality of Arzachena; this fact has not been accepted by the municipality of La Maddalena that keeps claiming the right to include the island and that of Bisce (Fig. 1) in its own administrative boundaries.

The climate will be discussed in detail in a forthcoming contribution. The average annual precipitations are included among 600 and 700 mm, the average annual temperature is about 17°C, and the most frequent and rough winds are those blowing from West which, sometimes, reach and exceed 100 km/h.

For the examined islands (that can be regarded as satellites of the main islands of the archipelago) some information regarding their location, their main

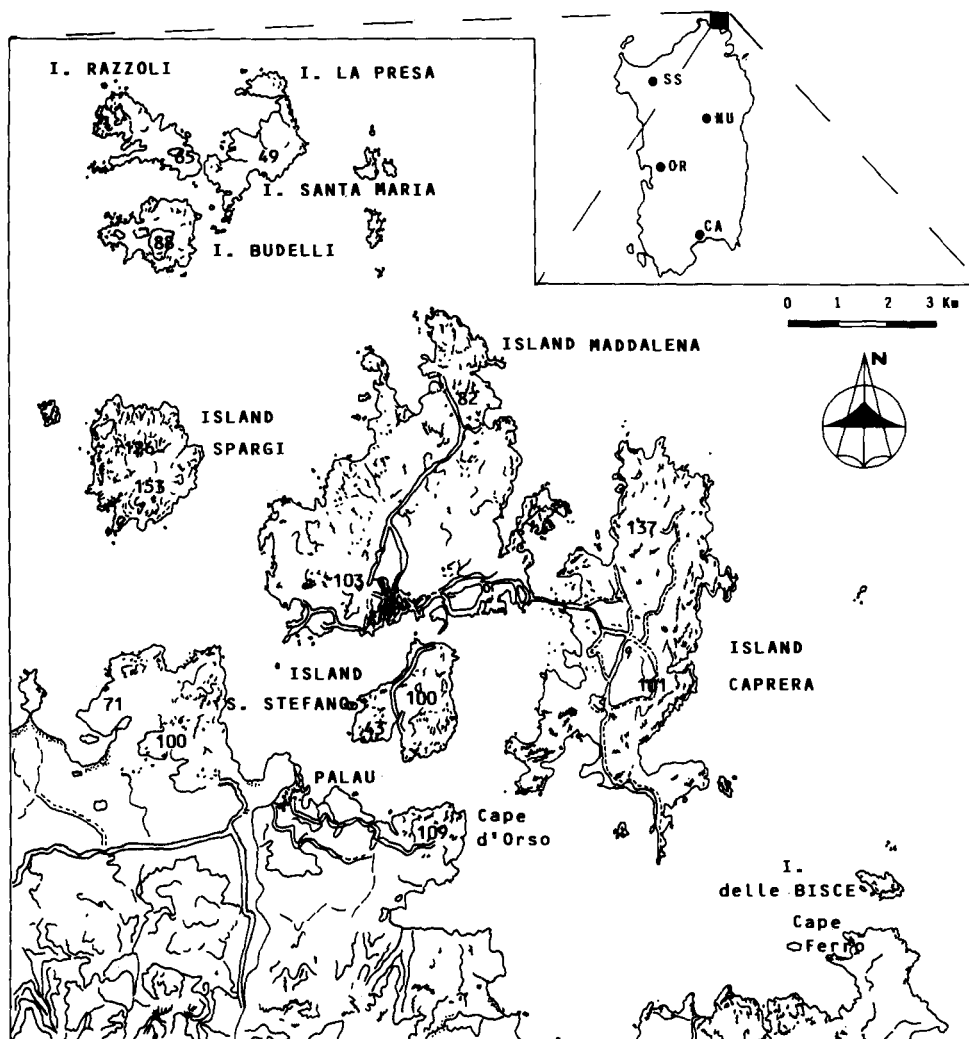


Fig. 1. The archipelago of Maddalena.

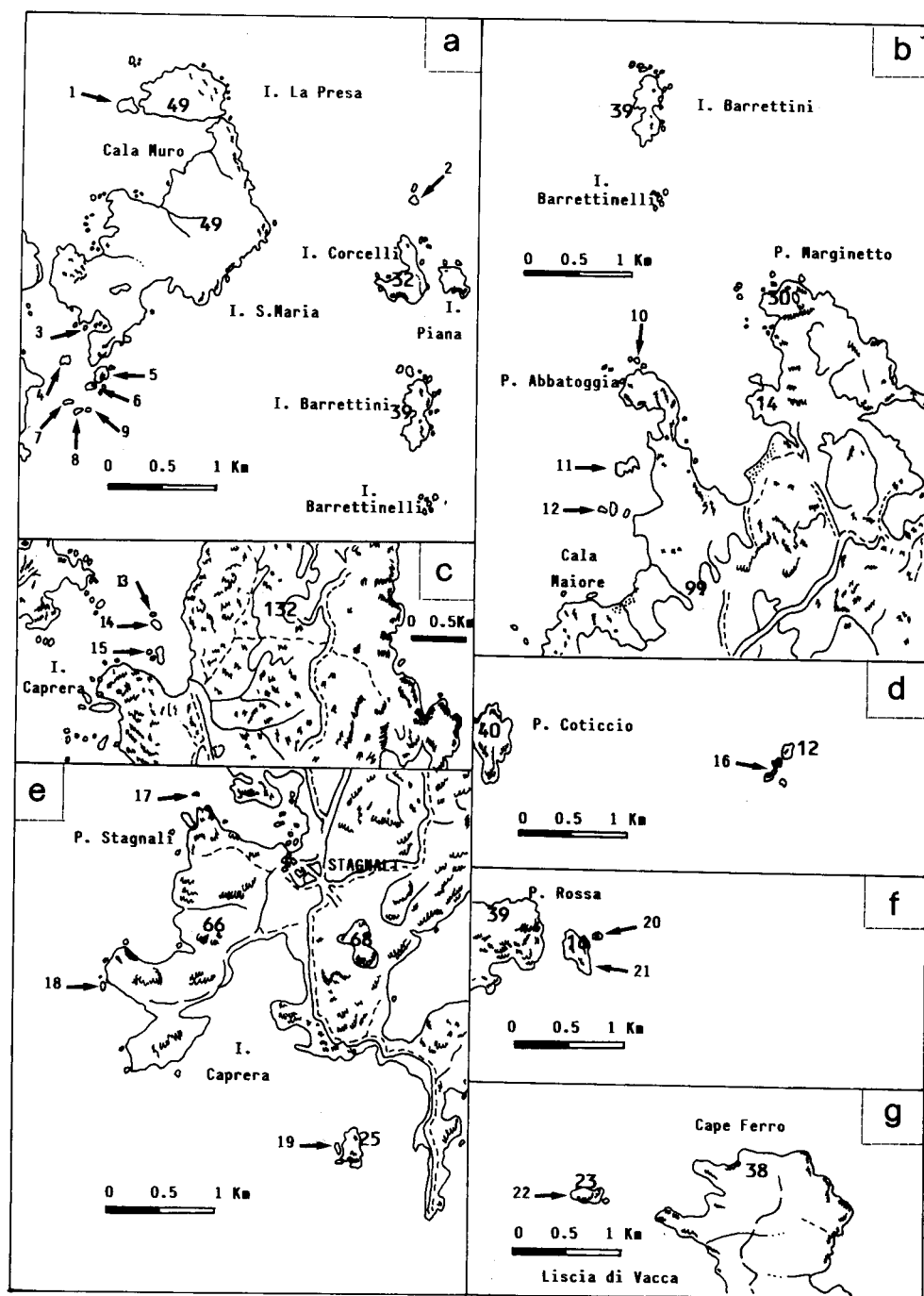


Fig. 2. The small islands examined.

geomorphological features, their area, their coasts, their altitude (when it is known), their plant cover and the species characterizing them, are here reported. For some of them the topographical maps do not give a denomination; in these cases, the islands are identified by using the diminutives of the adjacent islands (Piccola Pecora, Piccolo Porco), or the place names of the nearest localities (Cala Giorgio Marino, between Punta Fico and Punta Coda Sardegna).

Islands Abbatoggia (Fig. 2, b 10, 11, 12)

Along the north-western coast of the island Maddalena, among the Stagno Torto, Punta Abbatoggia and Cala Maiore, there is a group of islands with different areas. Only three of them are covered with a more or less luxuriant vegetation. They are included in the map sheet 168 I SE (La Maddalena), but only the largest one is identified on the topographical map (Island Abbatoggia); for this reason the other two islands are called Abbatoggia North and Abbatoggia South.

The island Abbatoggia (Fig. 2, b 11) covers an area of 18150 m², its coasts are 778 m long and its altitude is 14 m. Its geographical co-ordinates are 03°03'11" longitude and 41°15'08" latitude. The island is characterized by a soft morphology and by some small bays where a slight layer of sand barely allows for the growth of a normal psammophilous vegetation. The western sides rise briskly to a sub-horizontal area where a layer of soil has developed, supporting a typical halophilous vegetation. On the whole, 19 taxa have been collected, of which only *Silene velutina* was previously known.

The island Abbatoggia North (Fig. 2, b 10), whose geographical co-ordinates are 03°03'05" longitude and 41°15'44" latitude, covers an area of 3138 m² and its coasts are 238 m long. It is some metres high and it is constituted by leucocratic granite delimited by two basic layers, to the east and west. In the central area of the island, rare, water-swollen, small specimens of *Atriplex hastata* grow. It is the only species that it has been possible to collect there.

As for the island Abbatoggia South (Fig. 2, b 12), its geographical co-ordinates are 03°03'13" longitude and 41°14'56" latitude; it covers an area of 3961 m² and the length of its coast is of 292 m. The few species growing on the island are on its eastern side; in this area, a pedogenic process has led to the accumulation of soil possible. No information on the flora of the island, where I collected 9 species, was previously available.

Island Barrettinelli di fuori (Fig. 2 a 2)

It is included in the map sheet 168 I NE (Island Santa Maria), and its geographical co-ordinates are 03°03'05" longitude and 41°18'04" latitude; its area is 3798 m²; the length of its coasts is 290 m, and its altitude is 11 m. The island constitutes the continuation of the island Corcelli which is about 300 m away. Most of its area consists of a leucocratic granite layer. The only species that I could find on Barrettinelli di fuori is *Atriplex hastata*, which is very rare, characterized by water-swollen leaves, and survives in some nooks and crannies sheltered from the winds and the sea.

Islands of Cala Giorgio Marino (Fig. 2, a 3)

They are three islands very close to each other and almost always connected to each other at low tide; for this reason I think it is correct to join them under a single name: that of the bay in which they lie. They are included in the map sheet 168 I NE (Island Santa Maria), and their geographical co-ordinates, calculated at the middle point, are 03°05'07"

longitude and 41°17'33" latitude. We had no previous data on the flora of these islands. During my herborizations, I collected 41 entities.

Island Capicciolu (Fig. 2, a 1)

Its geographical co-ordinates are 03°04'54" longitude and 41°18'31" latitude; it is included in the map sheet 168 I NE (Island Santa Maria), covers an area of 15798 m², its coasts are 556 m long and its altitude is 28 m. It is the extreme rim of the island la Presa (from which it is separated by a strait connecting Cala Ghiarinaio in the north with Cala Muro to the south) and shares its lithological and morphological features. It consists of paleozoic metamorphites with a strong chemical and mechanical resistance. Data on the flora of island Capicciolu were not previously available. So far, I collected 32 taxa there.

Island Cappuccini (Fig. 2, g 22)

It is included in the map sheet 169 III NW (Labiadori) and, although in the maps of the Military Geographic Institute it is included in the municipality of Arzachena, it should be included in the archipelago from a geographic point of view. The island covers an area of 33037 m², the length of its coasts is 872 m, and its altitude is 23 m. It constitutes the prolongation of Punta Maistrali, which is only a few hundred metres away; it is characterized by metamorphites similar to those of the island Pecora and of Punta Maistrali. I collected 56 taxa on my herborizations on the island, which include *Raphanus raphanistrum* subsp. *landra*, the only entity previously known for the island.

The island is private property and admittance is forbidden. Following building concessions issued in 1975 and 1979, a number of constructions have been built on the island and have disfigured its central and eastern portion.

Island Carpa (Fig. 2, a 4)

Together with the islands Stramanari and Paduleddi it is located in the strait separating Budelli from Santa Maria; this strait is identified as Chiecca di Morto on the topographical maps, but it is called Porto della Madonna by tourists. It is included in the map sheet 168 I NE (Island Santa Maria) and its geographical co-ordinates are 03°05'22" longitude and 41°17'14" latitude; it covers an area of 4.820 m², the length of its coasts is 276 m and its altitude is 9 m. No previous information exists on the flora of this island; personally, I collected 40 taxa.

Islands Italiani (Fig. 2, c 13, 14, 15)

They consist of three main islands and many rocks (which have no vegetation), located NW of Cala Garibaldi and facing the Passo della Moneta. In the floristic list they are designated as Italiani North (02°59'51" longitude and 41°13'40" latitude), Italiani Centre (02°59'58" longitude and 41°13'39" latitude) and Italiani South (02°59'45" longitude and 41°13'30" latitude).

They are included in map sheet 169 IV SW (Island Caprera) and they cover an area of 11559 m²; the length of their coasts is 700 m. The lithology is the same for all and consists of the same type of leucocratic granites as the surrounding main islands; these granites are crossed by massive basic layers and quartz, and are sometimes supported by pegmatitic pockets. Italiani South, where I collected 37 entities, is generally covered with garigue of *Helichrysum italicum* subsp. *microphyllum*, and meadows of *Brachypodium retusum* and *Cynodon dactylon* which reach the coast.

The most notable of the other two (Italiani Centre 31 taxa; and Italiani North, 6 taxa) covered with vegetation is no doubt Italiani Centre (Fig. 2, c 14), extremely rough and covered in its most inaccessible parts with *Anthyllis barba-jovis*, a small phanerophyte not so far recorded in the Archipelago of Maddalena. This pioneer species grows on rocky coasts affected by salt-spray. In view of the flora associating with it, it might belong to the *Anthyllidion barbae-jovis* Brullo & De Marco, a new alliance of *Crithmo-Limonietea* suggested by Brullo & De Marco (1989); a variation of the *Anthyllido-Helichrysetum litorei* Brullo & De Marco might grow on this island. For none of these islands was information about their flora available.

Islands Monaci (Fig. 2, d 16)

It is a group of 5 islands and rocks located at about 2500 m to the East of the island Caprera (Punta Coticcio). They are included in the map sheet 169 (Island Caprera) and their geographical co-ordinates, calculated from the middle point, are 02°56'02" longitude and 41°13'00" latitude.

This small archipelago, lined up in a NE-SW direction, has an area of 15587 m², the length of its coasts is 1179 m. Its maximum height is 12 m: this means that it is sometimes over-washed by the sea. The archipelago is the outcrop of a residual rock rising to a sounding-depth of a couple of metres. Lithology is similar among all the islands; it is granitic.

The limited number of species on the islands is due to their small area and to environmental conditions; I collected 8 entities, 4 of which were already pointed out by Desole (1961).

Islands Paduleddi (Fig. 2, a 5, 6)

They are divided into Paduleddi North (Fig. 2, a 5) and Paduleddi South (Fig. 2, a 6) and are included in the map sheet 168 I SE (Island Santa Maria). They are the largest islands among those in the Chiecca di Morto and their vegetation is more homogeneous there than of the nearby islands. The largest island, Paduleddi North, covers an area of 15352 m², its geographical co-ordinates are 03°05'06" longitude and 41°17'10" latitude the length of its coasts is 569 m, and its altitude is 12 m. I collected 75 taxa.

Paduleddi South covers an area of 3939 m², the length of its coasts is 289 m, its geographical co-ordinates are 03°05'12" longitude and 41°17'06" latitude, the altitude is about 10 m. I collected 48 taxa. *Silene velutina*, pointed out by Cesaraccio & al. (1984) for the Paduleddi islets, was not found again on these two islands.

Island Pecora (Fig. 2, f 21)

It is included in the map sheet 169 IV SW (Island Caprera) and is located at more than 100 metres off the south-eastern coasts of Caprera. Its geographical co-ordinates, calculated from the trigonometric point, are 02°58'00" longitude and 41°10'54" latitude; the island covers an area of 72501 m², the length of its coasts is 1392 m and its altitude is 16 m. It consists of gneiss and magmatite crossed by sillimanite and feldspa, all belonging to the highest metamorph belt in northern Sardinia. It is the largest of the islands visited, and no botanic information was available for it until now; that is why, although the following floristic information (117 taxa in the list) does not show the entire flora of the island, is nonetheless totally new.

Island Piccola Pecora (Fig. 2, f 20)

It could be named "the island of the sea-fennel" because the dominant species covering a good portion of the island is *Crithmum maritimum*. The island is included in the map sheet 169 IV SW (Island Caprera); its geographical co-ordinates are 02°57'51" longitude and 41°11'00" latitude; it covers an area of 2601 m² and the length of its coasts is 205 m. Its lithology is similar to that of the island Pecora, but it is more washed over by the sea; the island has a very inconsistent layer of soil, forming small pockets covered, for the most part, by a slight layer of salt. It is in this habitat that *Atriplex hastata* grows; this species and the sea-fennel are the only ones found on the island.

Island Piccolo Porco (Fig. 2, e 19)

It is included in the map sheet 169 IV SW (Island Caprera) and is located some tens of metres off the west of the island Porco. Its geographical co-ordinates are 02°59'34" longitude and 41°10'26" latitude; it covers an area of 2422 m² and the length of its coasts is 245 m, and the rock is granitic. During my herborizations I collected 37 taxa, about which no information had been published before.

Island between Punta Fico and Punta Coda Sardegna (Fig. 2, e 18)

It is included in the map sheet 169 IV SW (Island Caprera) and its geographical co-ordinates are 03°01'06" longitude and 41°11'23" latitude. Is a couple of tens of metres off the southern coast of the island Caprera. It consists of granite, and the rock shows deep fractures oriented. I collected 17 entities.

Island Punta Stagnali (Fig. 2, e 17)

It is located to extreme north of Punta Stagnali, near the southern opening of the Golfo di Stagnali. The island is included in the map sheet 169 IV SW (Island Caprera) and its geographical co-ordinates are 03°00'34" longitude and 41°12'23" latitude it covers an area of 1760 m², and the length of its coasts is 171 m. I collected 28 entities during my herborizations.

Islands Stramanari (Fig. 2, a 7, 8, 9)

They are three islets included in the map sheet 168 I NE (Island Santa Maria), located at the southern opening of the Chiecca di Morto and identified as Stramanari Centre (Fig. 2, a 8; longitude: 03°05'16"; latitude: 41°17'00"; area: 1514 m²; length of the coasts: 200 m), Stramanari East (Fig. 2, a 9; longitude: 03°05'12"; latitude: 41°17'00"; area: 1230 m²; length of the coasts: 160 m; altitude: 9 m) and Stramanari West (Fig. 2, a 9; longitude: 03°05'21"; latitude: 41°17'01"; area: 1318 m²; length of the coasts: 174 m; altitude: 3 m). *Silene velutina* is the predominant species on these three islets (Cesaraccio & al. 1984). This species grows everywhere on the islets and it is present as pure coenosis or associated with other typical plant species.

The numbers of taxa that I collected on these islets are as follows: 20 on Stramanari Centre, 6 on Stramanari East and 10 on Stramanari West. The islets are made up by pink granite that is often covered with lichens belonging to the genus *Xanthoria* and giving an appealing aspect to their habitat.

Flora

The results of many herborizations carried out between July 1988 and September 1991 help compile a significant, though incomplete, list of the flora of these small habitats. My excursions, were often interrupted by sudden changes of the condition of the sea, but they were carried out at least once every season.

The specimens were identified utilizing Fiori (1923-1927), Pignatti (1982) and Tutin & al. (1964-1980). The nomenclature and systematic order are according to those of *Flora europaea*. The islands where each entity was found are reported, using my own records (!) and bibliographic data. Neither the "isole intermedie" by Moris (1837-1859) nor secondary sources of information are indicated, as for example Barbey (1884) and Martelli (1896-1904) who point out many taxa of the islands of the archipelago recorded by Gennari or Vaccari. The species collected by Gennari on Maddalena, Caprera and Santo Stefano were examined in the Herbarium CAG and are here reported as specimens examined.

Floristic list

Cupressaceae

Juniperus phoenicea L. — P caesp/P scap

Bisce: Desole (1961), (!); — Budelli: Desole (1961), (!); — Cala Giorgio Marino: (!); — Caprera: Gennari (1870), Desole (1961), (!); — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Vaccari (1894), Desole (1961), (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Presa: (!); — Razzoli: Desole (1961) — Santa Maria: Desole (1961), (!); — Santo Stefano: Vaccari (1894), Desole (1961), (!); — Spargi: Vaccari (1894), Desole (1961), (!); — Stramanari Centre: (!).

Urticaceae

Parietaria diffusa Mert. & Koch — H scap

Bisce: (!); — Caprera: (!); — Maddalena: Vaccari 1896, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — Santo Stefano: Desole 1961, (!).

Balanophoraceae

Cynomorium coccineum L. — G rhiz

Abbatoggia: (!); — Barrettini: Vaccari 1896, Desole 1961, (!); — Capicciolu: (!); — Cappuccini: (!); — Corcelli: Vaccari 1896, Desole 1961 — Piana: Desole 1961, (!); — Spargiotto: Vaccari 1894.

Polygonaceae

Polygonum aviculare L. — T rept

Caprera: Gennari 1870 — Maddalena: Vaccari 1894 — Paduleddi North: (!); — Santo Stefano: Gennari 1870.

Rumex bucephalophorus L. — T scap

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961, (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Vaccari 1894, Desole 1961 — Corcelli:

Desole 1961 — Italiani Centre: (!); — Maddalena: Vaccari 1894, Desole 1961 — Monaci: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: Desole 1961 — Presa (!); — Punta Stagnali: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961, (!); — Spargi: Vaccari 1894, Desole 1961, (!);. *Notes*: this species is reported in Florula di Caprera (Gennari 1870) without any information about the place where it was collected. There is a specimen by Gennari in CAG, whose label reports "Florula di Caprera".

Chenopodiaceae

Beta vulgaris L. subsp. *maritima* (L.) Arcangeli — H scap

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870 — Maddalena: Gennari 1870, Vaccari 1894, Desole, 1961 — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Presa: (!); — Santo Stefano: Gennari, 1870, (!);. *Specimens examined*: Maddalena, Gennari, Maggio 1861 (CAG).

Chenopodium murale L. — T scap

Bisce: (!); — Maddalena: (!); — Paduleddi North: (!); — Pecora: (!); — Porco: Desole 1961, (!); — Santa Maria: Desole 1961 — Spargi: Desole 1961.

Chenopodium album L. — T scap

Bisce: (!); — Paduleddi North: (!); — Pecora: (!);. *Notes*: we don't have any information about the presence of this species in the Archipelago; I think this species grows in many island.

Atriplex rosea L. — T scap

Bisce: (!); — Maddalena: Vaccari 1894 — Italiani South: (!); — Spargi: Desole 1961.

Atriplex hastata L. — T scap

Abbatoggia North: (!); — Abbatoggia South: (!); — Barrettinelli di fuori: (!); — Barrettini: (!); — Bisce: (!); — Budelli: Desole 1961 — Capicciolu: (!); — Cappuccini: (!); — Italiani South: (!); — Maddalena: Vaccari 1896 — Monaci: Desole 1961, (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccola Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — Punta Stagnali: (!); — Santa Maria: Desole 1961 — Spargiotto: (!); — Stramanari West: (!).

Halimione portulacoides (L.) Aellen — Ch frut

Abbatoggia: (!); — Barrettini: Desole 1961, (!); — Bisce: Desole 1961, (!); — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — P.ta Stagnali: (!); — Santa Maria: Desole 1961 — Spargiotto: (!); — Stramanari Centre: (!); — Stramanari West: (!).

Arthrocnemum perenne (Miller) Moss — Ch succ

Bisce: (!); — Cala Giorgio Marino: (!); — Maddalena: (!); — P.ta Stagnali: (!).

Arthrocnemum glaucum (Delile) Ung.-Sternb. — Ch succ

Bisce: Desole 1961 — Caprera: Gennari 1870 — P.ta Stagnali: (!).

***Salicornia europaea* L. — T scap**

Abbatoggia: (!); — Caprera: Gennari 1870 — Maddalena: Vaccari 1894.

***Salsola soda* L. — T scap**

Maddalena: Desole 1961 — P.ta Stagnali: (!).

***Salsola kali* L. — T scap**

Caprera: Vaccari 1894 — Maddalena: Moris 1858/1859, Vaccari 1894, Desole 1961, (!); — P.ta Stagnali: (!); — Santa Maria: Desole 1961.

Phytolaccaceae***Phytolacca americana* L. — G rhiz**

Paduleddi North: (!). *Notes*: no information about this species in the Archipelago was found on the ground of bibliographical data.

Aizoaceae***Carpobrotus acinaciformis* (L.) L. Bolus — Ch suffr**

Cappuccini: (!); — Maddalena: Vaccari 1899, Desole 1961. *Notes*: it is competitive with spontaneous vegetation and tends to replace it in the coastal areas of the main islands.

Portulacaceae***Portulaca oleracea* L. — T scap**

Barrettini: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: (!); — Maddalena: Vaccari 1896 — Pecora: (!); — Spargiotto: (!).

Caryophyllaceae***Sagina apetala* Ard. — T scap**

Barrettini: (!); — Bisce: (!); — Capicciolu: (!); — Caprera: Gennari 1870 — Italiani Centre: (!); — Maddalena: Gennari 1870 — Paduleddi North: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Spargiotto: (!); — Stramanari West: (!). *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Sagina maritima* G. Don — T scap**

Abbatoggia South: (!); — Barrettini: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Vaccari 1870 — Carpa: (!); — Italiani Centre: (!); — Maddalena: Gennari 1870, Vaccari 1894 — Paduleddi South: (!); — Pecora: (!); — P.ta Stagnali: (!); — Piana: (!); — Santo Stefano: Gennari 1870 — Spargiotto: (!); — Stramanari Centre: (!)

***Paronychia echinulata* Chater — T scap**

Bisce: (!); — Caprera: Gennari 1870, Vaccari 1894, Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Presa: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Desole 1961. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Spergularia macrorrhiza* (Loisel.) Heynh. — Ch suffr**

Barrettini: Vaccari 1908, Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Capicciolu: (!); — Cappuccini: (!); — Caprera: Barbey 1884, Diana Corrias 1984 — Corcelli: Vaccari 1908, Diana Corrias 1984 — Giardinelli: Cesaraccio & al. 1984 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Vaccari 1894, Desole 1961, Diana Corrias 1984 — Paduleddi North: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — Razzoli: Vaccari 1896, Diana Corrias 1984 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961, Diana Corrias 1984 — Spargiotto: Desole 1961.

***Spergularia marina* (L.) Griseb. — T scap**

Abbatoggia: (!); — Cappuccini: (!); — Pecora: (!); — Piana: (!); — Spargiotto: (!).

***Spergularia rubra* (L.) J. Presl & C. Presl — Ch suffr**

Caprera: Gennari 1870 — Maddalena: Vaccari 1894 — Pecora: (!); — Piana: (!); — Porco: (!).

***Silene velutina* Pourret — Ch/H ros**

Abbatoggia: (!); — Abbatoggia South: (!); — Stramanari Centre: (!); — Stramanari East: (!); — Stramanari West: (!). *Notes:* this endemism was pointed out by Mattiolo (1892) with reference to island Barrettini, but neither was its presence confirmed by Cesaraccio & al. (1984) or by Corrias (1985); I didn't find this species when I visited the island on august, 1988 and on february, april and august 1991. The first, sure information about this species is due to Cesaraccio & al. (1984) who pointed out this taxon on the island Abbatoggia, Stramanari East, West and Centre and on the rock Paduleddi. As for Paduleddi, I couldn't find *Silene velutina* Pourret neither on Paduleddi North or on Paduleddi South; instead I found this species on island Abbatoggia South, located at about 250 m from the South of island Abbatoggia.

***Silene gallica* L. — T scap**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Barbey 1884, Desole 1961 — Carpa: (!); — Corcelli: Vaccari 1928, Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piccolo Porco: (!); — Presa: (!) — Porco: (!) — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961 — Spargiotto: Desole 1961.

Papaveraceae***Fumaria capreolata* L. — T scap**

Barrettini: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894 — Pecora: (!) — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargiotto: Desole 1961.

Cruciferae***Raphanus raphanistrum* L. subsp. *landra* (DC.) Bonnier & Layens — T scap**

Cappuccini: (!). *Notes:* this sub species grows also on Spargiotto where it reaches larger dimensions and greater abundance. The information by Mattiolo (1892) is to be applied to this island and not to Monaci which is situated more to the North. The

information regarding Maddalena, Caprera and Spargi (Gennari 1870, Vaccari 1894, Desole 1961) is probably to be applied to this sub species.

Crassulaceae

Umbilicus rupestris (Salisb.) Dandy — G bulb

Barrettini: (!); — Bisce: (!); — Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Porco: (!); — Stramanari Centre: (!); — Stramanari West: (!). *Notes:* according to bibliography, *Umbilicus horizontalis* (Guss.) DC. (= *Cotyledon umbilicus-veneris* L. var. *horizontalis* Guss.) is more widespread in the Archipelago.

Sedum rubens L. — T scap

Barrettini: Desole 1961 — Corcelli: Desole 1961 — Budelli: Vaccari 1896, Desole 1961 — Caprera: Gennari 1870 — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piana: Desole 1961 — Porco: (!); — Razzoli: Desole 1961. *Specimens examined:* Caprera, Gennari, Maggio 1861 (CAG).

Sedum caeruleum L. — T scap

Maddalena: Vaccari 1894, Desole 1961 — Pecora: (!); — Santo Stefano: Desole 1961. *Notes:* Gennari (1870) reports this species in Florula di Caprera, but he doesn't point out the place of the collection.

Leguminosae

Calicotome villosa (Poir.) Link — P caesp

Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Pecora: (!); — Porco: Desole 1961 — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, (!); — Spargi: Vaccari 1894, Desole 1961.

Genista corsica (Loisel.) DC. — NP/Ch

Budelli: Vaccari 1899, Desole 1961 — Caprera: Gennari 1870, Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, Valsecchi 1978b, (!); — Paduleddi South: (!); — Presa: (!); — Razzoli: Vaccari 1899, Desole 1961 — Santa Maria: Vaccari 1899, Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Vaccari 1894, Desole 1961. *Specimens examined:* Caprera, Gennari, s.d. (CAG).

Vicia benghalensis L. — T scap

Caprera: Gennari 1870 — Maddalena: Vaccari 1894 — Paduleddi North: (!); — Pecora: (!); — Piana: (!); — Porco: Desole 1961 — Spargi: Vaccari 1894 — Spargiotto: (!).

Medicago littoralis Rohde — T scap

Cappuccini: (!); — Caprera: Gennari 1870 — Maddalena: Gennari: 1870 — Pecora: (!); — Santo Stefano: Gennari 1870 — Spargi: Desole 1961.

***Medicago minima* (L.) Bartal. — T scap**

Caprera: Gennari 1870 — Maddalena: Gennari 1870 — Paduleddi North: (!); — Pecora: (!); — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Trifolium glomeratum* L. — T scap**

Barrettini: Desole 1961, (!); — Caprera: Gennari 1870, Vaccari 1894 — Maddalena: Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Porco: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961.

***Trifolium campestre* Schreber — T scap**

Budelli: Desole 1961 — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Desole 1961 — Pecora: (!); — Porco: (!); — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Trifolium arvense* L. — T scap**

Caprera: Gennari 1870 — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: Desole 1961 — Santo Stefano: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Trifolium scabrum* L. — T rept**

Barrettini: (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Vaccari 1894 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — Santo Stefano: Desole 1961.

***Trifolium stellatum* L. — T scap**

Bisce: Desole 1961 — Caprera: Vaccari 1894 — Pecora: (!).

***Trifolium incarnatum* L. subsp. *molinarii* (Hornem.) Syme — T scap**

Budelli: Vaccari 1896 — Barrettini: (!); — Cappuccini: (!); — Caprera: Gennari 1870 — Paduleddi North: (!); — Pecora: (!); — Razzoli: Vaccari 1896 — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Trifolium angustifolium* L. — T scap**

Maddalena: Gennari 1870 — Pecora: (!); — Santa Maria: Desole 1961. *Specimens examined*: Maddalena, Gennari, Aprile 1867 (CAG).

***Lotus edulis* L. — T scap**

Barrettini: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Gennari 1870 — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Santo Stefano: Desole 1961.

***Lotus cytisoides* L. — Ch suffr**

Abbatoggia: (!); — Abbatoggia South: (!); — Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Barbey 1884, (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Moris 1837, Gennari 1870, Vaccari 1894, Desole 1961 — Monaci: Desole 1961, (!); — Paduleddi North: (!); — Pecora: (!); — Piana: Desole 1961 — Piccolo Porco: (!); — Porco: Desole 1961 — P.ta Fico and P.ta Coda

Sardegna: (!); — P.ta Stagnali: (!); — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Desole 1961 — Spargiotto: Desole 1961 — Stramanari Centre: (!); — Stramanari East: (!); — Stramanari West: (!);. *Specimens examined*: Santo Stefano, Gennari, Aprile 1867 (CAG). *Notes*: many indications apply to *Lotus creticus* L., taxa not observed in Sardinia.

***Anthyllis barba-jovis* L. — P caesp**

Cala Giorgio Marino: (!); — Italiani Centre: (!). *Notes*: it has not been indicated for the other islands of the Archipelago.

Geraniaceae

***Geranium purpureum* Vill. — T scap**

Paduleddi South: (!). *Notes*: although no data about this species were given, I think that it (= *Geranium robertianum* L. subsp. *purpureum* Vill.) is present in the Archipelago. Indications regarding *Geranium robertianum* L. apply to Maddalena and Caprera.

***Erodium corsicum* Léman — Ch suffr**

Budelli: Vaccari 1896, Desole 1961 — Capicciolu: (!); — Caprera: Vaccari 1894, (!); — Corcelli: Desole 1961 — Presa: Vaccari 1896, (!); — Maddalena: Vaccari 1894, Valsecchi 1978a — Razzoli: Vaccari 1896, Desole 1961 — Santa Maria: Vaccari 1896, Desole 1961.

Linaceae

***Linum strictum* L. — T scap**

Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Moris 1837, Gennari 1870, Desole 1961 — Pecora: (!); — Santa Maria: Desole 1961 — Spargi: Desole 1961.

Euphorbiaceae

***Mercurialis annua* L. — T scap**

Barrettini: Desole 1961 — Budelli: Desole 1961 — Caprera: Gennari 1870 — Carpa: (!); — Italiani Centre: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Porco: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargiotto: Desole 1961 — Stramanari East: (!).

***Euphorbia dendroides* L. — NP**

Caprera: Gennari 1870, Barbey 1884, Vaccari 1894, Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Porco: Desole 1961, (!); — Santo Stefano: Gennari 1870 — Vaccari 1894 — Spargi: Vaccari 1894.

***Euphorbia peplus* L. — T scap**

Caprera: Gennari 1870, Vaccari 1884, Desole 1961 — Maddalena: Gennari 1870, Desole 1961 — Pecora: (!); — Santo Stefano: Desole 1961 — Spargi: Desole 1961. *Specimens examined*: Caprera, Gennari, s.d., det. E. Bocchieri, 30.VIII.1990 (CAG).

Euphorbia pinea L. — Ch suffr/T scap
Piccolo Porco: (!); — Porco: Desole 1961, (!).

Euphorbia characias L. — NP
Caprera: Gennari 1870, Barbey 1884, Vaccari 1894, Desole 1961 — Maddalena: Moris 1858/1859, Gennari 1870, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Santo Stefano: Desole 1961.

Rutaceae

Ruta chalepensis L. — Ch suffr
Caprera: Gennari, 1870 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870. *Specimens examined*: Maddalena, Gennari, Maggio 1861 (CAG) — Caprera, Gennari, Aprile 1867 (CAG).

Anacardiaceae

Pistacia lentiscus L. — P caesp
Bisce: Desole 1961, (!); — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Caprera: Gennari 1870, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); Desole 1961 — Presa: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Spargi: Vaccari 1894, Desole 1961.

Rhamnaceae

Rhamnus alaternus L. — P caesp
Cala Giorgio Marino: (!); — Caprera: Gennari 1870 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Pecora: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

Malvaceae

Lavatera cretica L. — T scap
Barrettini: Desole 1961 — Bisce: (!); — Cappuccini: (!); — Carpa: (!); — Maddalena: Vaccari 1908, Desole 1961 — Pecora: (!).

Lavatera arborea L. — H bienn
Abbatoggia: (!); — Abbatoggia South: (!); — Barrettini: Vaccari 1908, Desole 1961, (!); — Bisce: Desole 1961, (!); — Capicciolu: (!); — Cappuccini: (!); — Corcelli: Vaccari 1908 — Maddalena: Vaccari 1908, (!); — Pecora: (!); — Piana: Desole 1961, (!); — Punta Stagnali: (!); — Santa Maria: Desole 1961.

Thymelaeaceae

Thymelaea hirsuta (L.) Endl. — NP
Bisce: Desole 1961 — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Vaccari 1894, Desole 1961 — Pecora: (!); — Piana: Desole 1961, (!); — Presa: (!); —

Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Vaccari 1894 — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

Cistaceae

Cistus monspeliensis L. — NP

Bisce: Desole 1961 — Budelli: Vaccari 1896, Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Vaccari 1894, Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Porco: Desole 1961 — Presa: (!); — Razzoli: Vaccari 1896, Desole 1961 — Santa Maria: Vaccari 1896, Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Vaccari 1894, Desole 1961.

Tamaricaceae

Tamarix africana Poiret — P scap

Caprera: Vaccari 1894 — Maddalena: Gennari 1870 — Pecora: (!); — Santa Maria: Desole 1961 — Spargi: Vaccari 1894.

Frankeniaceae

Frankenia hirsuta L. — Ch suffr

Abbatoggia: (!); — Abbatoggia South: (!); — Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Vaccari 1894, (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani North: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Desole 1961 — Monaci: Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961 — Spargi: Vaccari 1894 — Stramanari Centre: (!); — Stramanari West: (!);. *Specimens examined*: Maddalena, Gennari, Giugno 1865 (CAG).

Cactaceae

Opuntia ficus-indica (L.) Miller — P succ

Barrettini: (!); — Cappuccini: (!); — Caprera: Vaccari 1894, (!); — Maddalena: Vaccari 1894 — Porco: (!); — Santa Maria: Desole 1961 — Spargi: Vaccari 1894.

Lythraceae

Lythrum hyssopifolia L. — T scap

Barrettini: (!); — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Desole 1961 — Corcelli: Desole 1961 — Maddalena: Desole 1961 — Porco: (!); — Razzoli: Desole 1961 — Spargiotto: (!).

Myrtaceae

Myrtus communis L. — P caesp

Bisce: (!); — Budelli: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870, Desole 1961 — Carpa: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Santa

Maria: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961 — Spargi: Vaccari 1894, Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

Umbelliferae

Crithmum maritimum L. — Ch suffr

Abbatoggia: (!); — Barrettini: Desole 1961, (!); — Bisce: (!); — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Vaccari 1894 — Carpa: (!); — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Piccola Pecora: (!); — Piccolo Porco: (!); — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Razzoli: (!); — Santo Stefano: Gennari 1870 — Spargi: Vaccari 1894 — Spargiotto: Vaccari 1894 — Stramanari Centre: (!).

Ferula communis L. — H scap

Pecora: (!). *Notes*: the different indications about Maddalena, Caprera, Razzoli, Santo Stefano and Spargi, apply to *Ferula nodiflora* L. or *Ferula communis* L. var. *nodiflora* L.; I think that the identification and distribution of this entity are to be checked again.

Ferula arrigonii Bocchieri — H scap

Budelli: Bocchieri 1988 — Paduleddi North: (!).

Elaeoselinum asclepium (L.) Bertol. subsp. *meoides* (Desf.) Fiori — H scap

Bisce: Desole 1961, (!); — Cappuccini: (!); — Santo Stefano: Desole 1961.

Daucus carota L. subsp. *maritimus* (Lam.) Batt. — H bienn

Barrettini: (!); — Bisce: (!); — Italiani South: (!); — Maddalena: Vaccari 1896 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — P.ta Stagnali: (!).

Daucus carota L. subsp. *drepanensis* (Arcangeli) Heywood — H bienn

Cappuccini: (!); — Carpa: (!); — Italiani Centre: (!); — Paduleddi North: (!); — Piana: Desole 1961, (!).

Primulaceae

Anagallis arvensis L. — T rept

Bisce: (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Desole 1961 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Porco: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Desole 1961.

Plumbaginaceae

Limonium articulatum (Loisel.) O. Kuntze — Ch suffr

Abbatoggia: (!); — Abbatoggia South: (!); — Barrettini: (!); — Bisce: Desole 1961 — Budelli: Vaccari 1896, Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Desole 1961, Diana Corrias 1978 — Carpa: (!); — Italiani Centre: (!); — Italiani North: (!); — Italiani South: (!); — Maddalena: Vaccari 1894, Desole 1961, Diana Corrias 1978 — Paduleddi North: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: Desole 1961, (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Punta

Stagnali: (!); — Razzoli: Vaccari 1896 — Santa Maria: Vaccari 1896, Desole 1961, Diana Corrias 1978 — Santo Stefano: Vaccari 1894, Desole 1961, Diana Corrias 1978 — Spargi: Vaccari 1894, Desole 1961, Diana Corrias 1978 — Spargiotto: Vaccari 1894 — Stramanari Centre: (!).

Limonium cunicularium Arrigoni & Diana — Ch suffr

Cala Giorgio Marino: (!); — Capicciolu: (!); — Maddalena: Arrigoni & Diana 1990 — Paduleddi North: (!); — Razzoli: Arrigoni & Diana 1990 — Santa Maria: Arrigoni & Diana 1990.

Oleaceae

***Olea europaea* L. var. *sylvestris* Brot. — P caesp**

Bisce: Desole 1961, (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Vaccari 1894, Desole 1961 — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Porco: Desole 1961 — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961 — Spargiotto: (!).

***Phillyrea angustifolia* L. — P caesp**

Bisce: (!); — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Paduleddi North: (!); — Pecora: (!); — Piana: (!); — Porco: Desole 1961 — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Spargi: Vaccari 1894, Desole 1961 — Stramanari Centre: (!).

Gentianaceae

***Centaurium erythraea* Rafn — T scap**

Bisce: Desole 1961, (!); — Budelli: Desole 1961 — Caprera: Desole 1961 — Corcelli: Desole 1961 — Maddalena: Desole 1961 — Punta Stagnali: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961. *Specimens examined*: Caprera, Gennari, s.d. (CAG).

***Centaurium tenuiflorum* (Hoffmanns. & Link) Fritsch subsp. *acutiflorum* (Schott) Zeltner — T scap**

Abbatoggia: (!); — Cala Giorgio Marino: (!). *Notes*: no reference to this species is reported by bibliography.

***Centaurium maritimum* (L.) Fritsch — T scap**

Cappuccini: (!); — Caprera: Gennari 1870, Barbey 1884, Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Presa: (!); — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Vaccari 1894, Desole 1961.

Rubiaceae

***Galium aparine* L. — T scap**

Budelli: Desole 1961 — Caprera: Gennari 1870, Vaccari 1894 — Maddalena: Gennari 1870, Vaccari 1894 — Paduleddi South: (!); — Pecora: (!).

***Galium verrucosum* Hudson subsp. *halophilum* Ponzio — T scap**

Pecora: (!). Notes: I noticed this widespread and abundant species on the islands Garofani, Cavalli and Piana (in the north western Sardinia) and island Giardinelli (no linked to the island Maddalena).

***Rubia peregrina* L. — P lian**

Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, (!); — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

Boraginaceae***Heliotropium europaeum* L. — T scap**

Bisce: (!); — Capicciolu: (!); — Caprera: (!); — Maddalena: Vaccari 1894 — Pecora: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870.

***Echium plantagineum* L. — T scap**

Bisce: (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Vaccari 1896, Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Porco: (!); — Santo Stefano: Gennari 1870, Desole 1961. *Specimens examined*: Caprera, s.d., s.c., det. F. Valsecchi, 14.XI.1974 (CAG).

Labiatae***Marrubium vulgare* L. — H scap**

Caprera: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Spargi: Desole 1961.

Solanaceae***Solanum nigrum* L. — T scap**

Abbatoggia South: (!); — Barrettini: (!); — Bisce: (!); — Budelli: Desole 1961 — Capicciolu: (!); — Caprera: Gennari 1870 — Carpa: (!); — Maddalena: Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: Desole 1961, (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961.

Orobanchaceae***Orobanche minor* Sm. — T par**

Abbatoggia: (!); — Barrettini: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Presa: (!); — Porco: Desole 1961 — Santo Stefano: Desole 1961 — Spargiotto: Vaccari 1928.

*Plantaginaceae**Plantago coronopus* L. subsp. *coronopus* — H bienn

Barrettini: Desole 1961 — Bisce: Desole 1961 — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Vaccari 1894 and 1908, Desole 1961 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Piana: Desole 1961, (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961 — Spargiotto: Desole 1961.

Plantago coronopus L. subsp. *commutata* (Guss.) Pilger — T scap

Abbatoggia: (!); — Bisce: (!); — Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: (!); — Monaci: (!); — Paduleddi North: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — Spargiotto: (!).

Plantago macrorhiza Poiret — H ros

Cala Giorgio Marino: (!); — Maddalena: (!); — Paduleddi North: (!); — Pecora: (!).
Notes: no indication was given by bibliography; I think that this species is abundant at least along the coasts of the main islands.

Plantago lanceolata L. — H ros

Bisce: (!); — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Vaccari 1894, Desole 1961 — Maddalena: Gennari 1870, Desole 1961 — Pecora: (!); — Piana: Desole 1961, (!); — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961.

Plantago afra L. — T scap

Pecora: (!); — Santo Stefano: Gennari 1870; not observed by Vaccari (1894).

*Compositae**Aster squamatus* (Sprengel) Hieron. — T scap

Italiani South: (!). *Notes:* no indications about this species were given for the Archipelago; I think that this aster grows on many islands.

Logfia gallica (L.) Cosson & Germ. — T scap

Budelli: Desole 1961 — Caprera: Gennari 1870, Desole 1961, (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Piana: Desole 1961 — Porco: (!); — Presa: (!); — Razzoli: Vaccari 1896, Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Vaccari 1894, Desole 1961. *Specimens examined:* Isola della Maddalena, Gennari, Maggio 1861 (CAG).

Evax rotundata Moris — T rept

Barrettini: Corrias 1978 — Budelli: Vaccari 1896 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Corrias 1978, (!); — Corcelli: Vaccari 1896, Corrias 1978 — Maddalena: Moris 1840/1843, Vaccari 1894, Corrias 1978, (!); — Presa: Vaccari 1896 — Razzoli: Vaccari 1896 — Santo Stefano: Desole 1961, (!); — Spargi: Corrias 1978. *Specimens examined:* Caprera, Gennari, Maggio 1861 (CAG).

***Helichrysum italicum* (Roth) G. Don. subsp. *microphyllum* (Willd.) Nyman — Ch suffr**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Barbey 1884, Vaccari 1894, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Barbey 1884, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: Desole 1961 — Piccolo Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961 — Spargi: Vaccari 1894, Desole 1961 — Spargiotto: Vaccari 1894. *Specimens examined*: Caprera alli Stagnali, Gennari, Aprile 1867 (CAG).

***Inula crithmoides* L. — Ch suffr**

Bisce: Desole 1961, (!); — Cala Giorgio Marino: (!); — Maddalena: Vaccari 1894, (!). *Notes*: I think that this species is more widely distributed in the Archipelago.

***Dittrichia graveolens* (L.) W. Greuter — T scap**

Bisce: Desole 1961 — Caprera: Gennari 1870, Vaccari 1896 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1896, Desole 1961 — Pecora: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!).

***Anthemis maritima* L. — H scap**

Abbatoggia: (!); — Barrettini: (!); — Bisce: Desole 1961 — Cappuccini: (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani North: (!); — Maddalena: Moris 1840/1843 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: Desole 1961, (!); — Spargi: Vaccari 1894 — Spargiotto: Vaccari 1894 — Stramanari Centre: (!); — Stramanari East: (!); — Stramanari West: (!).

***Artemisia densiflora* Viv. — Ch suffr**

Budelli: Vaccari 1896, Cesaraccio & al. 1984, Corrias 1986, (!); — Cala Giorgio Marino: (!); — Maddalena: Moris 1840/1843, Vaccari 1894, Corrias 1986, (!); — Presa: (!); — Razzoli: Vaccari 1894, (!); — Santa Maria: Moris 1840/1843, Desole 1961, (!); — Santo Stefano: Vaccari 1894, Desole 1961, Corrias 1986 — Spargi: Cesaraccio & al. 1984, Corrias 1986. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Senecio bicolor* (Willd.) Tod. subsp. *cineraria* (DC.) Chater — Ch suffr**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Caprera: Vaccari 1894 — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Maddalena: Gennari 1870, Vaccari 1894, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: Desole 1961 — P.ta Stagnali: (!); — Santo Stefano: Vaccari 1894, (!); — Spargi: Vaccari 1894 — Stramanari Centre: (!); — Stramanari East: (!). *Specimens examined*: Maddalena, Gennari, Maggio 1861 (CAG).

***Senecio leucanthemifolius* Poir. — T scap**

Abbatoggia: (!); — Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Capicciolu: (!); — Cappuccini: (!); — Caprera: Gennari 1870 — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani North: (!); — Italiani South: (!); — Maddalena: Vaccari 1894, Desole 1961 — Monaci: Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Santa Maria: Desole 1961 —

Spargi: Desole 1961 — Spargiotto: Desole 1961 — Stramanari Centre: (!). *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Carlina corymbosa* L. — H scap**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: (!); — Presa: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961, (!); — Spargi: Vaccari 1894, Desole 1961, (!).

***Carduus cephalanthus* Viv. — T scap/H bienn**

Barrettini: (!); — Bisce: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Vaccari 1894, (!); — Carpa: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Porco: (!); — Razzoli: (!); — Santo Stefano: Vaccari 1894, Desole 1961, (!); — Spargi: Vaccari 1894, (!); — Spargiotto: (!).
Specimens examined: Isole della Maddalena e di Caprera, Gennari, Maggio 1861 (CAG).

***Galactites tomentosa* Moench — H bienn**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870, (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: (!); — Presa: (!); — Razzoli: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961, (!); — Spargiotto: (!). *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Silybum marianum* (L.) Gaertner — H bienn**

Caprera: Gennari 1870, Vaccari 1894 — Paduleddi North: (!); — Presa: (!); — Razzoli: Vaccari 1928.

***Hedypnois cretica* (L.) Dum.-Courset — T scap**

Bisce: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Vaccari 1894 — Carpa: (!); — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894 — Paduleddi North: (!); — Pecora: (!); — Presa: (!); — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Vaccari 1894, Desole 1961. *Specimens examined*: Maddalena, Gennari, Aprile 1867 (CAG).

***Hypochoeris achyrophorus* L. — T scap**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Vaccari 1894, Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Presa: (!); — Razzoli: Vaccari 1894 — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961 — Spargiotto: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Reichardia picroides* (L.) Roth — H scap**

Barrettini: (!); — Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Barbey 1884, Desole 1961 — Corcelli: Desole 1961 —

Italiani North: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Vaccari 1894, Desole 1961 — Spargiotto: Desole 1961.

***Sonchus oleraceus* L. — T scap**

Bisce: (!); — Budelli: Desole 1961 — Capicciolu: (!); — Cappuccini: (!); — Caprera: Desole 1961 — Maddalena: Gennari 1870, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Spargiotto: Desole 1961, (!); — Stramanari Centre: (!). *Specimens examined*: Maddalena, Gennari, Aprile 1867 (CAG).

***Andryala integrifolia* L. — T scap**

Barrettini: Desole 1961 — Bisce: Desole 1961 — Budelli: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870, Barbey 1884 — Corcelli: Desole 1961 — Italiani Centre: (!); — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Piccolo Porco: (!); — Porco: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961 — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

Juncaginaceae

***Triglochin bulbosa* L. subsp. *barrelieri* (Loisel.) Rouy — G bulb**

Abbatoggia: (!); — Cala Giorgio Marino: (!); — Caprera: (!); Gennari 1870, Vaccari 1894 — Maddalena: Vaccari 1894 — Pecora: (!).

Liliaceae

***Asphodelus aestivus* Brot. — G rhiz**

Bisce: (!); — Caprera: Gennari 1870, Desole 1961, (!); — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Presa: (!); — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Desole 1961.

***Urginea undulata* (Desf.) Steinh. — G bulb**

Bisce: (!); — Caprera: Vaccari 1896 — Maddalena: Vaccari 1896, Desole 1961 — Pecora: (!); — Razzoli: Vaccari 1896 — Santa Maria: Vaccari 1896.

***Urginea maritima* (L.) Baker — G bulb**

Capicciolu: (!); — Caprera: Vaccari 1894 — Corcelli: Desole 1961 — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Porco: Desole 1961 — Razzoli: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961 — Spargi: Vaccari 1894, Desole 1961 — Spargiotto: Desole 1961.

***Allium commutatum* Guss. — G bulb**

Abbatoggia: (!); — Abbatoggia South: (!); — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: (!); — Carpa: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Stramanari Centre: (!). *Notes*: I think that the information reported under the binomial *Allium ampeloprasum* L. is to be mainly referred to the examined species;

consequently it results indicated for Maddalena (Desole 1961), Bisce (Desole 1961), Budelli (Vaccari 1894), Barrettini (Desole 1961), Porco (Desole 1961), Santa Maria (Vaccari 1896), Spargiotto (Vaccari 1894, Desole 1961).

***Asparagus albus* L. — Ch frut**

Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Caprera: Vaccari 1894, Desole 1961 — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Razzoli: Desole 1961 — Santo Stefano: Gennari 1870, (!); — Spargi: (!).

***Asparagus acutifolius* L. — G rhiz**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Gennari 1870 — Carpa: (!); — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: (!); — Razzoli: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961, (!); — Spargi: (!); — Spargiotto: (!).

***Smilax aspera* L. — NP**

Barrettini: (!); — Budelli: Desole 1961 — Caprera: Vaccari 1894, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Barbey 1884, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: (!); — Santa Maria: Desole 1961 — Stramanari Centre: (!).

Amaryllidaceae

***Narcissus tazetta* L. — G bulb**

Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Stramanari Centre: (!); — Stramanari West: (!). *Notes:* I couldn't determine the sub species; *Narcissus tazetta* L. is indicated for Maddalena, Caprera, Santo Stefano, Bisce. According to bibliography *Narcissus tazetta* L. var. *bertolonii* Parl., grows on the islands Piana, Porco, Spargi e Spargiotto (Desole 1961).

***Pancratium maritimum* L. — G bulb**

Bisce: Vaccari 1908, (!); — Cala Giorgio Marino: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961, (!); — Spargi: Vaccari 1894, Desole 1961, (!).

Dioscoreaceae

***Tamus communis* L. — G rad**

Budelli: Desole 1961, (!); — Caprera: Gennari 1870, Desole 1961 — Carpa: (!); — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Porco: Desole 1961 — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Vaccari 1894, (!); — Spargi: Desole 1961, (!). *Specimens examined:* Caprera, Gennari, Maggio 1861 (CAG).

*Iridaceae**Romulea requienii* Parl. — G bulb

Barrettini: (!); — Caprera: Gennari 1870, Vaccari 1894, Diana Corrias 1983 — Corcelli: Desole 1961 — Maddalena: Vaccari 1894 and 1928, Desole 1961, Diana Corrias 1983, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Santo Stefano: Vaccari 1894, Desole 1961, Diana Corrias 1983, (!); — Spargi: (!); — Vaccari 1894, Desole 1961, Diana Corrias 1983 — Spargiotto: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

*Juncaceae**Juncus acutus* L. — H caesp

Bisce: (!); — Budelli: Desole 1961, (!); — Cala Giorgio Marino: (!); — Caprera: Gennari 1870, Barbey 1884, (!); — Maddalena: Barbey 1884, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Porco: (!); — Presa: (!); — Razzoli: Desole 1961 — Spargi: Vaccari 1894, Desole 1961, (!); — Spargiotto: Desole 1961, (!). *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

Juncus bufonius L. — T caesp

Budelli: Desole 1961, (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — Razzoli: Desole 1961 — Spargi: Vaccari 1894, Desole 1961, (!). *Specimens examined*: Caprera, Gennari, Maggio 1861 & 67 (CAG).

Juncus capitatus Weigel — T scap

Barrettini: (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Vaccari 1894 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Pecora: (!); — Porco: (!); — Spargi: (!). *Specimens examined*: Insula Caprera, Gennari, Maggio 1861 (CAG).

*Gramineae**Desmazeria marina* (L.) Druce — T scap

Barrettini: (!); Desole 1961 — Bisce: Desole 1961, (!); — Budelli: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani North: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961, (!); — Spargi: Desole 1961, (!); — Spargiotto: Desole 1961 — Stramanari Centre: (!); — Stramanari East: (!); — Stramanari West: (!). *Specimens examined*: Caprera, Gennari, Maggio 1861-67, (CAG).

Poa annua L. — T caesp

Caprera: Desole 1961 — Maddalena: Gennari 1870, Desole 1961, (!); — Pecora: (!); — Santo Stefano: Desole 1961 — Spargi: Desole 1961.

***Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman — H caesp**

Barrettini: (!); — Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Piccolo Porco: (!); — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Santa Maria: Desole 1961, (!); — Santo Stefano: Desole 1961, (!); — Spargi: Desole 1961, (!); — Stramanari Centre: (!).

***Briza maxima* L. — T scap**

Bisce: (!); — Budelli: Desole 1961 — Caprera: Gennari 1870, Desole 1961 — Corcelli: Desole 1961 — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Gennari 1870, Desole 1961 — Spargi: Vaccari 1894.

***Bromus madritensis* L. — T scap**

Cappuccini: (!); — Caprera: Gennari 1870 — Carpa: (!); — Maddalena: Barbey 1884, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Porco: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Bromus hordeaceus* L. — T scap**

Barrettini: Desole 1961 — Caprera: Gennari 1870, Desole 1961 — Corcelli: Desole 1961 — Maddalena: Vaccari 1896, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Brachypodium retusum* (Pers.) Beauv. — H caesp**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961, (!); — Budelli: Desole 1961, (!); — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Barbey 1884, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani South: (!); — Maddalena: Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: (!); — Presa: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961, (!); — Spargi: Desole 1961, (!); — Spargiotto: Vaccari 1894, Desole 1961. *Specimens examined*: Caprera, Gennari, Maggio 1861 et 1867 (CAG).

***Elymus elongatus* (Host) Runemark — H caesp**

Cala Giorgio Marino: (!). *Notes*: no information is resulting about this species, but it was probably present on some islands of the Archipelago.

***Elymus farctus* (Viv.) Runemark — G rhiz**

Bisce: Desole 1961 — Cala Giorgio Marino: (!); — Maddalena: Desole 1961 — Santa Maria: Desole 1961.

***Hordeum murinum* L. subsp. *leporinum* (Link) Arcangeli — T scap**

Pecora: (!). *Notes*: the information regarding the islands Maddalena, Caprera, Bisce, Piana, Porco, Santa Maria and Santo Stefano, is referred to *Hordeum murinum* L.

***Hordeum marinum* Hudson — T scap**

Bisce: Desole 1961 — Caprera: Vaccari 1894, Desole 1961 — Maddalena: Desole 1961 — Paduleddi North: (!); — Pecora: (!).

***Avena barbata* Pott — T scap**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Cappuccini: (!); — Caprera: Desole 1961 — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari, 1870, Vaccari 1896, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Piccolo Porco: (!); — Porco: Desole 1961 — Presa: (!); — Santo Stefano: Desole 1961, (!); — Spargi: Desole 1961, (!); — Spargiotto: (!). *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Avena sterilis* L. — T scap**

Pecora: (!); — Spargi: Vaccari 1894.

***Gaudinia fragilis* (L.) Beauv. — T scap**

Bisce: (!); — Cappuccini: (!); — Caprera: Gennari 1870, Desole 1961 — Carpa: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Porco: Desole 1961 — Presa: (!); — Razzoli: Vaccari 1896, Desole 1961 — Santa Maria: Desole 1961 — Spargi: Vaccari 1894. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Lophochloa cristata* (L.) Hyl. — T caesp**

Caprera: Gennari 1870, Vaccari 1894 — Maddalena: Gennari 1870, Barbey 1884, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!).

***Lophochloa pubescens* (Lam.) H. Scholz — T scap**

Bisce: Desole 1961 — Cappuccini: (!); — Caprera: Vaccari 1894 — Pecora: (!); — Piccolo Porco: (!).

***Lagurus ovatus* L. — T scap**

Barrettini: Desole 1961, (!); — Bisce: (!); — Cala Giorgio Marino: (!); — Cappuccini: (!); — Caprera: Barbey 1884, Vaccari 1894, Desole 1961 — Carpa: (!); — Corcelli: Desole 1961 — Italiani Centre: (!); — Maddalena: Gennari 1870, Desole 1961, (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961, (!); — Piccolo Porco: (!); — Porco: Desole 1961, (!); — Presa: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961. *Specimens examined*: Caprera, Gennari, Aprile 1867 (CAG).

***Anthoxanthum aristatum* Boiss. — T scap**

Bisce: (!); — Budelli: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870, (!); — Italiani South: (!); — Maddalena: Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: (!); — Porco: (!); — Presa: (!); — Razzoli: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Vaccari 1894, (!);. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Agrostis stolonifera* L. — H rept**

Barrettini: (!); — Bisce: (!); — Maddalena: Gennari 1870 — Caprera: (!); — Pecora: (!); — Spargiotto: (!).

***Gastridium ventricosum* (Gouan) Schinz & Thell. — T scap**

Bisce: (!); — Budelli: Desole 1961 — Maddalena: Desole 1961 — Pecora: (!); — Presa: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961.

***Polypogon maritimus* Willd. subsp. *maritimus* — T scap**

Budelli: Desole 1961 — Caprera: Desole 1961 — Maddalena: Desole 1961 — Pecora: (!); — Piana: Desole 1961 — P.ta Stagnali: (!); — Santa Maria: Desole 1961 — Santo Stefano: Desole 1961 — Spargi: Desole 1961. *Specimens examined*: Maddalena, Gennari, s.d., (CAG).

***Polypogon maritimus* Willd. subsp. *subspathaceus* (Req.) Bonnier & Layens — T scap**

Abbatoggia: (!); — Barrettini: Desole 1961, (!); — Bisce: (!); — Budelli: Desole 1961 — Cappuccini: (!); — Caprera: Gennari 1870 — Corcelli: Desole 1961 — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Vaccari 1894, Desole 1961 — Monaci: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piana: Desole 1961 — Piccolo Porco: (!); — Porco: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Spargi: Desole 1961 — Spargiotto: Desole 1961. *Specimens examined*: Caprera, Gennari, Maggio 1861 (CAG).

***Parapholis incurva* (L.) C. E. Hubbard — T scap**

Abbatoggia: (!); — Barrettini: Desole 1961, (!); — Bisce: (!); — Cala Giorgio Marino: (!); — Capicciolu: (!); — Cappuccini: (!); — Caprera: (!); — Carpa: (!); — Italiani Centre: (!); — Maddalena: Gennari 1870 — Monaci: (!); — Paduleddi North: (!); — Paduleddi South: (!); — Pecora: (!); — Piccolo Porco: (!); — Piana: (!); — Porco: (!); — Presa: (!); — P.ta Fico and P.ta Coda Sardegna: (!); — P.ta Stagnali: (!); — Santa Maria: Desole 1961 — Santo Stefano: Vaccari 1894 — Spargiotto: (!); — Stramanari Centre: (!).

***Parapholis filiformis* (Roth) C. E. Hubbard — T scap**

Bisce: Desole 1961 — Pecora: (!); — P.ta Stagnali: (!).

***Piptatherum miliaceum* (L.) Cosson — H caesp**

Bisce: (!); — Pecora: (!); — Santo Stefano: Desole 1961.

***Cynodon dactylon* (L.) Pers. — G rhiz**

Barrettini: Desole 1961, (!); — Bisce: Desole 1961 — Budelli: Desole 1961 — Capicciolu: (!); — Cappuccini: (!); — Caprera: Barbey 1884 — Carpa: (!); — Italiani Centre: (!); — Italiani South: (!); — Maddalena: Gennari 1870, Vaccari 1894, Desole 1961 — Paduleddi North: (!); — Pecora: (!); — Presa: (!); — P.ta Stagnali: (!); — Razzoli: Desole 1961 — Santa Maria: Desole 1961 — Spargi: Desole 1961 — Spargiotto: (!).

Araceae***Dracunculus muscivorus* (L. fil.) Parl. — G rhiz**

Budelli: Vaccari 1896, Desole 1961, (!); — Caprera: Diana Corrias 1982, (!); — Corcelli: Vaccari 1896, Desole 1961 — Maddalena: Gennari 1870, Barbey 1884, Vaccari 1894, Diana Corrias 1982 — Paduleddi North: (!); — Razzoli: Vaccari 1896, Desole 1961 — Spargi: Vaccari 1894, Desole 1961, (!).

Conclusions

My herborizations on 22 small islands contributed to the knowledge of their flora, and of the flora of the archipelago of Maddalena in general. So far I collected 155 taxa, belonging to 111 genera and 47 families. The flora of each island is reported in Table 1; the island Pecora houses the largest number of entities because it is also the largest island of those listed. Some others (Abbatoggia North, Barretinelli di fuori, Monaci etc.) are remarkably large, but their flora is nevertheless extremely limited.

Table 1. Floristic composition of the 22 small islands. The number of the taxa previously known is added in brackets.

Island	taxa	genera	families
Abbatoggia	19 (1)	19	15
Abbatoggia North	1	1	1
Abbatoggia South	9	9	8
Barretinelli di fuori	1	1	1
Cala Giorgio Marino	41	36	22
Capicciolu	32	30	20
Cappuccini	56 (1)	52	24
Carpa	40	37	20
Italiani Centre	31	28	15
Italiani North	6	6	4
Italiani South	38	38	18
Monaci	8 (4)	8	7
Paduleddi North	75 (1)	58	24
Paduleddi South	48 (1)	46	26
Pecora	117	88	37
Piccola Pecora	2	2	2
Piccolo Porco	37	36	16
Punta Fico	17	17	11
Punta Stagnali	28	21	12
Stramanari Centre	20 (1)	19	13
Stramanari East	6 (1)	6	5
Stramanari West	10 (1)	10	8

The harsh environmental conditions are responsible for the selection of such resistant species as can grow in such habitats. In contrast many islands located close to the Sardinian coasts house a number of additional species and bear a more homogeneous vegetal coverage because, although being far from the coast, they are not frequently storm-beaten (Bocchieri 1990); many small islands of the archipelago are subjected to such meteorological event. The most diverse families are still *Gramineae* (25 taxa) and *Compositae* (19 taxa), followed by *Leguminosae* (15 taxa) and *Chenopodiaceae* (11 taxa). Table 2 reports the number and the distribution of taxa of these families which are present, more or less abundantly, on the 22 examined islands. The floristic list points out the biodiversity on these habitats and includes new data for *Artemisia densiflora* Viv., *Dracunculus muscivorus* (L.) Parl., *Erodium corsicum* Léman, *Evax rotundata* Moris, *Ferula arrigonii* Bocchieri, *Genista corsica* (Loisel.) DC., *Limonium articulatum* (Loisel.) O. Kuntze, *Limonium cunicularium* Arrigoni & Diana, *Romulea requienii* Parl. and

Silene velutina Pourret, endemic species that are otherwise widespread only in northern Sardinia. Although many of them are not on the verge of extinction, they can be included among those "at risk" because of the fragmentation of their natural habitat caused the excessive human presence and unnatural use of the insular coasts.

I point out *Antyllis barba-jovis* L. and *Phytolacca americana* L. among the species reported in my list. They are two species not previously indicated in the archipelago. *Antyllis barba-jovis* is present in Sardinia at Capo Caccia (Valsecchi 1966) and on the islands Nibani and Rocche (personal observation by the author). *Phytolacca americana* is an exotic

Table 2. Numbers of taxa in the largest families present on the 22 small islands. (A = Gramineae; B = Compositae; C = Leguminosae; D = Chenopodiaceae).

Island	A	B	C	D
Abbatoggia	2	2	1	2
Abbatoggia North	-	-	-	1
Abbatoggia South	-	-	1	-
Barretinelli di fuori	-	-	-	1
Cala Giorgio Marino	5	6	3	2
Capicciolu	5	4	2	2
Cappuccini	12	10	4	3
Carpa	9	7	2	1
Italiani Centre	7	6	2	1
Italiani North	1	3	-	-
Italiani South	8	6	3	3
Monaci	2	1	1	1
Paduleddi North	15	12	8	3
Paduleddi South	9	9	2	1
Pecora	23	14	13	5
Piccola Pecora	-	-	-	1
Piccolo Porco	8	8	2	2
Punta Fico	4	4	1	-
Punta Stagnali	7	4	1	6
Stramanari Centre	3	4	1	1
Stramanari East	1	2	1	-
Stramanari West	1	1	1	2

species cultivated and subsponaneous (Viegi & al. 1974); it is probably spreading in the archipelago and its presence at Paduleddi North could foreshadow a more massive spread of adventitious species.

The floristic list also includes new floristic data for the main islands, resulting from my herborizations in the Archipelago; the new floristic data, not previously reported in the bibliography, concern the islands Barretini (+ 20), Bisce (+ 35), Piana (+ 16), Porco (+ 35), Presa (+ 42) and Spargiotto (+ 17).

I believe that the archipelago of Maddalena, that once appealed to famous men like Nelson, Napoleone and Garibaldi, will keep its inviolability only if tourism (with visits in limited number and supervised), navigation (anchorage, recovering of organic fluids, faeces and sweepings, speed, distance from the coasts) and all other human activities created by economic wealth are regulated. Enforcing a balance among conflicting needs is

something that cannot be put off and it is essential for a correct use of natural resources. The establishment of rules specifying the proper use of natural resources can be put into practice by issuing of a Code of environmental rules. Such a Code has previously been asked for (Bocchieri 1990) in order to stop the attitude of unrestrained irresponsibility which often coexist with concern for the environment. Those small islands can be regarded as botanical gardens, and they deserve special attention because they represent an important floristic resource; moreover, the integrity of their ecosystem enables the preservation and evaluation of their diverse genetic resources.

References

- Arrigoni, P. V. & Diana Corrias, S. 1990: Le piante endemiche della Sardegna: *Limonium cunicularium* Arrigoni & Diana. — Boll. Soc. Sarda Sci. Nat. **27**: 263-266.
- Barbey, W. 1884: *Florae Sardoae Compendium*. — Lausanne.
- Bocchieri, E. 1988: *Silene valsecchiae* e *Ferula arrigonii*, due specie nuove della Sardegna. — Boll. Soc. Sarda Sci. Nat. **26**: 305-310.
- 1990a: La flora delle isole Fico, Porri e Topi (Sardegna nord orientale). — Boll. Soc. Sarda Sci. Nat. **27**: 237-244.
- 1990b: Turismo e conservazione della natura in Sardegna: necessità di una regolamentazione. — Inform. Bot. Ital. **22**: 93-94.
- 1991: La flora delle isole dei Poveri (Sardegna nord orientale). — Boll. Soc. Sarda Sci. Nat. **28**: 191-199.
- Brullo, S. & De Marco, G. 1989: *Anthyllidion barbae-jovis* alleanza nuova dei *Crithmo-Limonietea*. — Arch. Bot. Ital. **65**: 109-120.
- Cesaraccio, G., Lanza, B. & Ricceri, C. 1984: Riconferma di *Silene velutina* Pourret per la flora italiana e contributi floristici per l'Arcipelago della Maddalena (Sardegna Nord-Orientale). — Inform. Bot. Ital. **16**: 197-199.
- Corrias, B. 1978: Le piante endemiche della Sardegna: *Evax rotundata* Moris. — Boll. Soc. Sarda Sci. Nat. **17**: 258-262.
- 1985: Le piante endemiche della Sardegna: *Silene velutina* Pourret. — Boll. Soc. Sarda Sci. Nat. **24**: 321-326.
- 1986: Le piante endemiche della Sardegna: *Artemisia densiflora* Viv. — Boll. Soc. Sarda Sci. Nat. **25**: 187-191.
- Desole, L. 1961: Ricerche sull'Arcipelago de La Maddalena. — Bull. Soc. Geogr. Ital. **25**: 89-186.
- Diana Corrias, S. 1978: Le piante endemiche della Sardegna: *Limonium articulatum* (Loisel.) O. Kuntze. — Boll. Soc. Sarda Sci. Nat. **17**: 284-288.
- 1982: Le piante endemiche della Sardegna: *Dracunculus muscivorus* (L. fil.) Parl. — Boll. Soc. Sarda Sci. Nat. **21**: 416-420.
- 1983: Le piante endemiche della Sardegna: *Romulea requienii* Parl. — Boll. Soc. Sarda Sci. Nat. **22**: 335-341.
- 1984: Le piante endemiche della Sardegna: *Spergularia macrorrhiza* (Req. ex Loisel.) Heynh. — Boll. Soc. Sarda Sci. Nat. **23**: 285-288.
- Fiori, A. 1923-1927: *Nuova Flora Analitica d'Italia*: 1-2. — Firenze.
- Gennari, P. 1870: *Florula di Caprera*. — Nuovo Giorn. Bot. Ital. **2**: 90-145.
- Mattiolo, O. 1892: *Reliquiae Morisianae* ossia elenco di piante e località nuove per la Flora di Sardegna recentemente scoperte nell'Erbario di G. G. Moris. — Atti Congr. Bot. Internaz. Genova: 374-411.
- Martelli, U. 1896-1904: *Monocotyledones sardoae*. 1-2. — Firenze.
- Moris, J. J. 1837-1859: *Flora Sardoae*. 1-3. — Torino.
- Pignatti, S. 1982: *Flora d'Italia*. 1-3. — Bologna.
- Tutin, T. G. & al. 1964-1980: *Flora Europaea*. 1-5. — Cambridge.
- Vaccari, A. 1894: *Flora dell'Arcipelago di Maddalena* (Sardegna). — Malpighia **8**: 227-277.

- 1896: Supplemento alla Flora dell'Arcipelago di Maddalena (Sardegna). — *Malpighia* **10**: 521-534.
- 1899: Secondo supplemento alla Flora dell'arcipelago di Maddalena e indice alfabetico generale. — *Malpighia* **13**: 200-210.
- 1908: Aggiunte alla Flora dell'arcipelago della Maddalena (Sardegna). — *Malpighia* **22**: 15-24.
- 1928: Nuove aggiunte alla Flora dell'arcipelago di Maddalena e contributo alla flora di alcune isole adiacenti alla Sardegna. — *Atti Soc. Nat. Mat. Modena, Ser. 6, 7*: 31-46.
- Valsecchi, F. 1966: Ricerche sulla vegetazione litorale della Sardegna: V. Flora e vegetazione del promontorio di Capo Caccia (Sardegna nord occidentale). — *Arch. Bot. Ital.* **42**: 14-45.
- 1978a: Le piante endemiche della Sardegna: *Erodium corsicum* Léman. — *Boll. Soc. Sarda Sci. Nat.* **17**: 313-317.
- 1978b: Le piante endemiche della Sardegna: *Genista corsica* (Loisel.) DC. — *Boll. Soc. Sarda Sci. Nat.* **17**: 318-323.
- Viegi, L., Cela Renzoni, G., Garbari, F. 1974: Flora esotica d'Italia. — *Lav. Soc. Ital. Biogeogr.* **4**: 125-220.

Address of the author:

Prof. Emanuele Bocchieri, Istituto di Botanica e Orto Botanico dell'Università, Viale Frà Ignazio da Laconi 13, I-09123 Cagliari, Italy