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Policy context of the endemic flora of the Maltese Islands in a changing taxonomic landscape

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Policy context of the endemic flora of the
Maltese Islands in a changing taxonomic
landscape

Clara Agius

A dissertation presented to

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and

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In

Partial fulfilment of the requirements

for the degree of

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Signature of Student

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Date

To Mum and Dad

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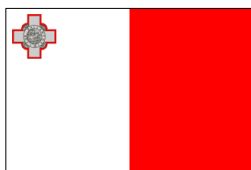
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Abbreviations

AEI – Area of Ecological Importance

CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora

EC – European Commission

EU – European Union

IUCN - International Union for Conservation of Nature

MEPA – Malta Environment and Planning Authority

NSO – National Statistics Office

PA – Protected Area

SAC – Special Area of Conservation

SSI – Site of Scientific Importance

Abstract

The degradation of the environment since the Industrial Revolution has been a turning point for legislation, leading to many countries, including EU states, to create legislations that conserve the environment. These legislations are based on scientific facts. This can create a divide between policy and science, as science and scientific methods are constantly changing, while policy has to keep up. Scientific facts of yesterday, may not necessarily be the same as today. This divide between science and policy may have implications on the designation of Protected Areas. One of the criteria of a Protected Area is the protection of an ‘important’ species and its habitat. It is critical that a species is identified correctly. However, as scientific knowledge is subjective, one expert opinion may not necessarily agree with another expert opinion. This paper has explored the numerous debates on endemic, sub-endemic and possibly endemic plant species, as these are the basis of the designation of Special Areas of Conservation in the Maltese Islands. Databases were constructed to show the presence of these species in Natura 2000 sites and other Protected Areas, along with the policies, both national and international, that protect them. The results have indicated that numerous Protected Areas may lose one of their main criteria for being set up. Due to the debates on the endemic status of the species, if the species were to be found elsewhere and lose its endemic status, there would need to be a re-evaluation of the Protected Area. This dissertation calls for a new approach in integrating science with policy.

Keywords: Policy, Natura 2000, Protected Areas, Maltese Islands, endemic species, debate

Chapter 1: Introduction

1.1 Taxonomy, policy and conservation

The environment is being destroyed at a significantly fast rate, which has increased since the start of the Industrial Revolution, almost 200 years ago. Since then, humans have intensified the degradation and destruction of the environment, critically changing the habitat within which a large number of species reside resulting in a decline in biodiversity (IUCN, 2013). European Union states have introduced legal measures to ensure protection of the habitats and their species (European Commission, 2014). This legislation is based on scientific knowledge, however, unlike policy, scientific knowledge is continuously changing, and currently there is no system through which policy can keep up with science.

Scientific knowledge allows us to have a more thorough understanding of the natural world, based on the empirical evidence that scientists gain through their research, implying that accepted scientific facts are subject to change at any moment. This creates a divide between science and policy; policy is based on accepted scientific facts, however new updates in science, in this case changes in taxonomy of species, should include recent changes in policy whenever these are discovered.

Policy protects habitats in which priority species are present (Council Directive 97/62/EC of 27 October 1997 , 2007). It is therefore critical that the species identification is correct. Identification of species can prove to be quite difficult, and the concept of 'species' is subjective (Queiroz, 1998). A few examples of species concepts are: the 'Biological Species Concept', which defines a species as able to interbreed, resulting in a fertile offspring (Mayr, 1942), the 'Ecological Species Concept', which recognises species as those organisms occupying the same niche (Valen, 1976) and the 'Evolutionary Species Concept' recognises species as a lineage of organisms having the same evolutionary trends (Simpson, 1951). Expert

opinion is subjective, and may not necessarily agree with another expert opinion on the same species.

This dissertation examines the effects of these processes on the Maltese Islands, an EU member island state, located in the Central Mediterranean Sea. The habitat in which priority species are present is protected. Closely related species are occasionally difficult to distinguish. This may lead to the discovery that priority species may actually not be so. Priority species includes plants that are 'endemic' to the region, and this dissertation will explore the changes in status of endemic plant species on Protected Areas in the Maltese Islands.

1.2 Physical Geography of the Maltese Islands

The Maltese Archipelago, consisting of Malta, Gozo, Comino and their satellite islands, are located in the Central Mediterranean Region, 96km away from Sicily, and 290km from North Africa. Formed during the Oligo-Miocene period, the islands are made up of sedimentary rocks, and one may also find Quaternary deposits of the Pleistocene period (Schembri, 1993).

The main islands are tilted towards the North-East, giving the characteristic steep cliffs (rdum) on the South-western side of the islands. It is upon these cliffs that one may find a large number of endemic plants, species that are found only in one geographic location and nowhere else in the world. These rupestral communities have remained mostly untouched since they stand in inaccessible habitats, both from humans as well as from rough seas (Schembri, 1993).

1.3 Nature protection in the Maltese Islands

The Maltese Archipelago, having a population density of 1,327.4 inhabitant per km², is the most densely populated state in the EU (Eurostat, 2012), and are even more impacted from high flows of tourism (an increase by 9% of inbound tourists during the period between January and August 2014 when compared to the previous year) (NSO, 2014).

An important thing to keep in mind is that species only have geographical boundaries, not political boundaries. Political boundaries are man-made for legislative purposes. However, the Maltese Islands, being surrounded by the Mediterranean Sea, have the same geographical and political boundaries.

In 1989, the Red Data Book for the Maltese Islands was published, giving a large number of people a perspective on the current local situation of important species that occur on the islands. A year later, in 1990, a structure plan was documented to provide guidance on land use in the Maltese Islands, to encourage economic development while making sure that there is sufficient space for future developments, to increase efficiency in land-use, as well as to improve the quality of the environment (MEPA, n.d.).

1991, the first Environment Protection Act was implemented as an attempt to protect the environment. In 2001, a new law replaced the first Act, and its main purpose was not just environmental protection (as in the previous Act), but it also included sustainable development (The Government of Malta, 2002). The current 'Flora, Fauna and Natural Habitats Regulations' of the Maltese Islands are known as the Environment Protection Act of 2006, designated as Legal Notice 311 of 2006 (LN311/2006). The principal reason behind the creation of this law was to protect the natural environment of the Maltese Islands along with its rich biodiversity.

Special Areas of Conservation (SAC) are strictly protected areas, implemented through Article 3 of the EC Habitats Directive. Article 3 calls for the establishment of protected sites, in order to preserve and protect the natural habitat of ‘priority species’, including those species listed in the Directive’s Annexes (Council Directive 97/62/EC of 27 October 1997 , 2007). Sites of Scientific Importance are defined as those areas that contain individual or groups of species and geological features. The presence of an endemic species or its particular habitat, is a criterion when designating these sites. Areas of Ecological Importance are formed to protect those areas within which typical or rare habitats are present (Ministry for the Development of Infrastructure, 1990).

1.4 What is an ‘endemic’ species?

In biological terms, endemic species are those taxa that are confined to a specific region, to which they portray its biological diversity (Stace, 1980). Legally, an endemic species refers to those species that are restricted to the Maltese Islands and the Central Mediterranean region only (including Sicily, Pantelleria, Pelagian Islands and Islands off the coast of Tunisia) (ENVIRONMENT PROTECTION ACT (CAP. 435), 2006)).

There are 22 named endemic plant species present in the Maltese islands (Ellul, 2014), most of which are protected by Regulation 26 in the Environment Protection Act of the Maltese Islands (LN311/2006). In LN311/2006, Schedule X represents those endemic species present in the Maltese Islands that are excluded from protection due to their high frequency and population stability. Four of the protected endemic species (*Hyoseris frutescens*, *Cremnophyton lanfrancoi*, *Cheirolophus crassifolius* and *Allium lojaconoi*) are also protected internationally, through the Habitats Directive, IUCN Red List and BERN convention (Council Directive 97/62/EC

of 27 October 1997 , 2007; IUCN, 2014; BERN Convention, 2002). Apart from the species themselves, the law also protects their surrounding habitat. The presence of an endemic species is therefore a criterion for declaring a habitat as a Special Area of Conservation for Natura 2000, or as a Protected Area.

Policy regulating the protection of these plants is nonetheless subject to opinions held by botanists that ultimately determine the taxonomic status of these species. Quite a number of species are currently under taxonomic debate, mainly due to the different opinions that each botanist has. These debates may arise either due to the difficulty in identifying species due to similarities, which in turn will create more confusion on the family or genus that the species should be put in, or even due to controversy arising when ranking and naming of the species. Not all botanists use the same methods when identifying species (this may also depend on the funds they have to carry out research (Mifsud – personal communication, 2014), and they also do not have the same methods in nomenclature, although there are standards within the Binomial Nomenclature System. For example Delforge, an orchid taxonomist, refuses to give sub-species or other ranks, other than the ‘species’ rank (D. Stevens -personal communication, 2014).

Scientific research is continuously advancing and changing, and therefore policy experts might not know the taxonomic value of each species. In addition to this, recently genetic and molecular studies suggest that morphometric criteria for delineating species boundaries are frequently unsatisfactory and, as such, the status of a number of endemic plants is now being called into question.

As already mentioned, there are a number of protected areas in the Maltese islands to ensure conservation for the endemic species. These are protected either at a national level,

international level, or both. By the end of 2008, 20% of the Maltese islands were designated as protected areas through legislation (MEPA, n.d.).

Over the years, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) in the Maltese Islands have been on the increase, due to the fact that since Malta joined the European Union (EU), major dedications were contributed towards asserting biodiversity. Therefore under the EU's Habitat's Directive and Bird's Directive, Natura 2000 has been established (MEPA, n.d.).

1.5 The rationale for the work

As previously stated, several areas in the Maltese Islands are protected on the basis of the endemic species within their boundaries. The development of molecular methods for identifying species and for constructing phylogenies has led to a re-evaluation of the status of various species (Blondel & Aronson, 1999). It is important to have a clear framework determining action to be taken, if any, should taxonomic opinion suggest that a species formerly considered endemic would now no longer be so.

It should be borne in mind that there is no single 'taxonomic opinion' and it is usual for different taxonomists to have different opinions on the identity and status of species. As such, how should these expert opinions influence policy? Should plants (and, by extension, their habitats) that have been protected for a number of years not have protection if the plant is no longer listed as endemic? Such a framework does not yet exist; the names of species are built into regulations with very little room for change. The situation where an endemic plant is no longer endemic has not yet arisen but may do so in future.

1.6 Research Statement

This work aims to review the taxonomic status of each endemic plant of the Maltese Islands. This has been done through a thorough and critical review of the literature concerning the taxonomy of each plant. Where the taxonomic or biogeographic status (endemicity) of a plant is unclear, the policy implications of such lack of clarity were explored.

Areas that have been protected due to the presence of endemic species have been studied, and species present in these areas that are under current taxonomic dispute have been noted. One has to realize that due to subjective opinions of experts, law protecting the species might have to change, which would also therefore affect the designations of SACs.

It is important to understand thoroughly the law that protects endemic species in the Maltese Islands. What factors are considered when creating these policies, how familiar are the policy-makers with classifying a plant as endemic, do a number of taxonomists have a say when creating a policy, or is it only a matter of opinion subject to one expert? All of these questions will help analyse the data that has been collected to thoroughly understand the implications or benefits of the current policy system that surrounds the endemic flora of the Maltese Islands.

1.7 Structure of study

Chapter 2: Literature Review

A thorough review of literature comprising of endemism and areas of endemism, methods of species delineation, policies (both national and international) that protect endemic flora in the Maltese Islands, and a brief review on the Protected Areas and Natura 2000 sites in the Maltese Islands.

Chapter 3: Methodology

A description of the methods used to carry out this dissertation, including interviews with botanists and policy experts, a review of the taxonomic status of each species, and a study on Protected Areas and Natura 2000 sites to evaluate the presence of endemic and sub-endemic species in these areas.

Chapter 4: Results and Analysis

Presentation of the results, including species lists in Natura 2000 sites and other Protected Areas, and their protection in other policies (both national and international) and a thorough literature review of endemic and sub-endemic species to identify any taxonomical disputes. An analysis on the results obtained follows.

Chapter 5: Conclusion

An overview of the analysis of results, along with other conclusions and recommendations.

Chapter 2: Literature Review

2.1 Endemism

Endemism is when a species is geographically isolated and has a restricted distribution (Stace, 1980). This geographical restriction makes the species more vulnerable to extinction risk (Franceschinelli, Stehmann, Melo-Silva, & Neto, 2013; Schembri & Sultana, 1989). Nevertheless, this restriction has made them more specialized thus more adapted to the harsh environment (Anacker, Whittall, Goldberg, & Harrison, 2010; Imbert, Youssef, Carbonell, & Baumel, 2012) . Evolution may pursue general trends, however the biotic and abiotic factors of the geographical region in which the taxon is present, will ultimately be the driving force of its evolution (Rosenzweig, 1995).

Rarity is not a criterion for the protection of an endemic species (Sapir, Shmida, & Fragman, 2003). However endemism is still considered to be a good base for conservation purposes since they are more vulnerable to extinction (Franceschinelli, Stehmann, Melo-Silva, & Neto, 2013) , and usually the endemic taxa only require one government policy to protect them (Scherson, Albornoz, Moreira-Munoz, & Urbina-Casanova, 2014).

The use of molecular biological techniques is increasingly being used to assess the status and identity of endemic plants (Hamrick & Godt, 1996). Studies have shown that species occurring in small restricted areas have a lower range in genetic diversity than the ones that occur over larger areas (Franceschinelli, Stehmann, Melo-Silva, & Neto, 2013). Being localized has restricted the gene flow, therefore also limiting the genetic diversity within the population (Loveless & Hamrick, 1984), although this depends on the size of the population and the size of the area (Franceschinelli, Stehmann, Melo-Silva, & Neto, 2013).

In Malta, one can find paleoendemic species (taxa that were widely distributed but are now restricted to one geographic location (Stace, 1980)), neo-endemics species (an “evolutionary

young” taxon that is not currently widely distributed (Stace, 1980)), as well as sub-endemic species (species found in the Maltese Islands and neighbouring restricted regions (MEPA, n.d.)). Determining the evolutionary trend of taxa needs a thorough bio-geographical analysis since these cannot be easily classified as such (Imbert, Youssef, Carbonell, & Baumel, 2012). Knowing better an endemic species would help in their conservation management, as well as in studying the evolutionary path through which they have gained their endemic status (Imbert, Youssef, Carbonell, & Baumel, 2012).

Table 2.1 : Endemic species, their families and nomenclatural reference [Families follow the scheme in the International Plant Name Index (www.ipni.com)]

Family	Species	Nomenclatural reference
Alliaceae	<i>Allium lojaconoi</i> Brullo, Lanfranco & Pavone	Webbia 35: 296. (1982)
Alliaceae	<i>Allium melitense</i> (Sommier & Caruana Gatto ex Borg) Ciferri & Giacomini	Nomencl. Fl. Ital. 1: 99. (1950)
Asteraceae	<i>Anthemis urvilleana</i> (De Candolle) Sommier & Caruana Gatto	Boll. Reale Orto Bot. Giardino Colon. Palermo, ser. 2 1(2): 178. (1915)
Asteraceae	<i>Cheirolophus crassifolius</i> (Bertoloni) Susanna	Pl. Syst. Evol. 214: 157. (1999)
Asteraceae	<i>Jasonia bocconeii</i> (Brullo) M. Pardo & R. Morales	Acta Bot. Malacit. 29: 224. (2004)
Asteraceae	<i>Helichrysum melitense</i> (Pignatti) Brullo et. al.	Giorn. Bot. Ital. 122, Suppl. 1: 45. (1988)
Asteraceae	<i>Hyoseris frutescens</i> Brullo & Pavone	Candollea 43: 717. (1988)
Brassicaceae	<i>Matthiola incana</i> subsp. <i>melitensis</i> Brullo, Lanfranco, Pavone & Ronsisvalle	Giorn. Bot. Ital. 122:(1) 45. (1988)

Family	Species	Nomenclatural reference
Chenopodiaceae	<i>Atriplex lanfrancoi</i> (Brullo & Pavone) G. Kadereit & Sukhor	Amer. J. Bot. 97: 1682. (2010)
Chenopodiaceae	<i>Salsola melitensis</i> Botschantzev	Novosti Sist. Vysš. Rast. 13: 95. (1976)
Euphorbiaceae	<i>Euphorbia melitensis</i> Parlatores	Fl. Ital, 4: 478. (1869)
Fabaceae	<i>Anthyllis hermanniae</i> subsp. <i>melitensis</i> Brullo & Giusso	Novon 16(3): 309. (2006)
Iridaceae	<i>Romulea melitensis</i> Béguinot	Bot. Jahrb. Syst. 38(4-5): 327. 1907
Orchidaceae	<i>Anacamptis urvilleana</i> (Sommier & Caruana Gatto)	Boll. Reale Orto Bot. Palermo, n.s., 1:273. (1915)
Orchidaceae	<i>Ophrys bombyliflora</i> Link forma <i>parviflora</i> Mifsud	J. Eur. Orch. 41 (3-4): 616. (2009)
Orchidaceae	<i>Ophrys iricolor</i> Desf. subsp. <i>hospitalis</i> (P. Delforge) Mifsud & L. Lewis	J. Eur. Orch. 45(1): 117. (2013)
Orchidaceae	<i>Ophrys melitensis</i> (Salk.) Devillers-Tersch. & Devillers	Naturalistes Belges 75 (Orchid. 7): 380. (1994)

Family	Species	Nomenclatural reference
Orobanchaceae	<i>Orobanche muteli</i> (F. W. Scultz) var. <i>melitensis</i> Beck	Čas. Nár. Mus., Odd. Přír. 140(3-4): 130. 1972
Plumbaginaceae	<i>Limonium melitense</i> Brullo	Willdenowia 17. 13. (1988)
Plumbaginaceae	<i>Limonium zeraphae</i> Brullo	Bot. Not. 133: 285. (1980)
Polypodiaceae	<i>Polypodium vulgare</i> L. subsp. <i>melitense</i> Peroni, G. Peroni & Mifsud	Bot. Complutensis 37: 43. 2013
Zannichelliaceae	<i>Zannichellia melitensis</i> Brullo, Giusso & Lanfranco	Fl. Medit. 11: 379. (2001)

2.2 Island Biogeography

MacArthur and Wilson (1967) introduced a theory on island biogeography. This theory states that islands reflect a balance between the rate at which species colonize islands, and the rate at which established species start dying off. This theory also states that the rate of population growth is directly proportional to the amount of natural resources that the species may need to survive (e.g. water). This balance would be expected to remain fixed unless one of the variables fluctuates. MacArthur and Wilson also said that unless the species evolves, it will become more at risk of extinction, mainly due to the invasion of other species, thus it should always adapt perfectly to its habitat (Wilson, 2010).

The glacial periods of the Pleistocene epoch have probably caused the Mediterranean islands not to be covered by ice-sheets (Blondel & Aronson, 1999). These islands have therefore become refugia for those species that were unable to survive on the European mainland due to unfavorable weather conditions. At the end of this epoch, some plant species may have gained their endemic status since they were the only remaining population within a geographic boundary (Medail & Diadema, 2009).

Composite historical and environmental factors, including, but not only, the glacial periods, have determined the location of these refugia (Medail & Diadema, 2009; Blondel & Aronson, 1999). Mediterranean refugia are also known as “phylogeographical hotspots”, as species that hold unique genetic diversity having unique evolutionary processes, are present within these hotspots (Medail & Diadema, 2009).

“Why should we care? What difference does it make if some species are extinguished, if even half of all the species on earth disappear?” - (Wilson, n.d.). The main reason why a small

archipelago like the Maltese Islands should conserve its rich biodiversity, especially its endemic species, is because these species stand out and give a name to the islands; they contribute to the national identity, thus they are Malta's pride. Each species is intrinsically valuable and should be preserved.

“The drive toward perpetual expansion—or personal freedom—is basic to the human spirit. But to sustain it we need the most delicate, knowing stewardship of the living world that can be devised.” (Wilson, 2010)

2.3 Species delineation

The process of speciation brings new species to the scientific world, and it is one of the most debatable subjects (Queiroz, 1998). To understand speciation, it is essential to understand the gene flow of the species between populations, and see where it diverges (Mallet, 1995). As previously mentioned, the species concept raises considerable amounts of debate due to the various subjective opinions of scientists (Queiroz, 1998).

The process of understanding the lineage of a species is very complex, because of the diversity of species that diverge on every level, thus creating more species at a different evolutionary level (Queiroz, 1998). Other variables also come into place, including climate and human activities that intervene in the evolution of species, making it more difficult to understand the evolutionary path of a species (Mallet, 1995). Criteria in delineating species are subject to opinion, however, no criterion is certain, especially due to subjective opinions (Queiroz, 1998).

The creation of boundaries is essential when delineating species (Sanders, Malhotra, & Thorpe, 2006). However, it is difficult to choose which method is best to delimit the species, and what

type of data should be collected (Jr & Marshall, 2004). These methods need to be applied at molecular levels, morphological levels and ecological levels (Sanders, Malhotra, & Thorpe, 2006). There has been an increase in the usage of molecular tools to understand evolution, especially ecological speciation (Rieseberg, Tim, & Kane, 2010). However, all methods of delimiting species have their pros and cons, especially when different methods are used to delimit the same species, and the results are different. So it is therefore up to the researcher himself to choose in his opinion the best possible way to do so (Jr & Marshall, 2004).

2.4 Areas of endemism

Areas of endemism show the history of biogeography, and thus they have been under study to observe and identify processes that lead to endemism (Crother & Murray, 2011; Harold & Mooi, 1994). If a species is present in one region and not the other, then that region is considered to be an area of endemism (Crother & Murray, 2011; Szumik & Goloboff, 2004). This concept however is under debate, since it is a matter of perspective (Crother & Murray, 2011). To define areas of endemism, it is essential for the species not to be under taxonomic dispute, and to have good information on the habitat that the species is found in (Morrone, 1994).

2.5 Protected areas

A protected area is a geographical area that has been given priority through policy that protects it from being damaged, in order to preserve its biodiversity integrity (Pediaditi, et al., 2011). This is considered to be the most effective way in which biodiversity is preserved (Blondel & Aronson, 1999). Currently, national legislation protects 20% of the land cover of the Maltese

Islands (MEPA, n.d.). Globally, protected area coverage is “at least 17% of terrestrial and inland water areas, and 10% of coastal and marine areas” (IUCN, 2014).

Many factors influence conservation planning, the most important being the availability of resources while using the best data available with the best methods possible (Arponen, 2012). Due to the limited resources and financial aid, there is more pressure on defining the areas and species that need protection, which results in the prioritization of species (Sapir, Shmida, & Fragman, 2003).

2.6 Natura 2000

Natura 2000 is a network of nature protected areas across all European member states in collaboration with the United Nations Convention on Biological Diversity (CBD). The aims of these protected areas are to integrate the human population with the environment, in a sustainable way, in order to conserve the habitats and ensure the survival of significant species (Council Directive 97/62/EC of 27 October 1997 , 2007; European Commission, 2009). This means that humans are not excluded from Natura 2000 sites, but they are allowed to live in harmony with the natural environment, without modifying the processes that occur within (European Commission, 2014).

Under the European Union legislation, each member state is obliged to contribute in the Natura 2000 network (MEPA, n.d.). Natura 2000 is the main strategy for the protection of biodiversity in the EU (European Commission, 2014), that has been founded under the European Commission Habitats Directive in 1992 (European Commission, 2014; MEPA, n.d.). Up to 2008, over 25,000 sites, accounting for 20% of the total land area in the EU, have become part of the Natura 2000 network (European Commission, 2009). Natura 2000

is made up of two main parts; Special Protection Areas (SPA) under the Birds Directive, founded in 1979, and Special Areas of Conservation (SAC) under the Habitats Directive, founded in 1992 (European Commission, 2009).

2.7 Natura 2000 in Malta

With the assistance of national experts, Malta's first Natura 2000 site was presented in 2004. Currently, there are 28 SACs and 13 SPAs (See Figure 2.1 and Table 2.2) that are part of the network, which amount to 13.25% land area cover, around 42km² (Natura 2000, n.d.). Each site requires large amounts of details that are grouped into datasheets and borderline maps, presented in Commission Decision 97/266/EC (MEPA, n.d.). These terrestrial protected sites all vary ecologically, from saline marshes, to sandy beaches and dunes, to garrigue and maquis areas, caves and other area of biogeographical importance. Most of these sites are situated along the coastline of the Maltese Islands, the majority of which are on the south-western coast (See Figure 2.1) (Natura 2000, n.d.). Humans are allowed to work the land, but they must do so under very strict regulations to ensure that it is worked in a sustainable way (making sure that Sustainable Indicators are used in the process). Such activities that are permissible include fishing, farming, as well as sustainable tourism (European Commission, 2014; Natura 2000, n.d.). To make sure that these sites are carefully managed, it is critical that all stakeholders are involved in the planning of these sites, and to keep the public informed on the existence of these sites (Natura 2000, n.d.).

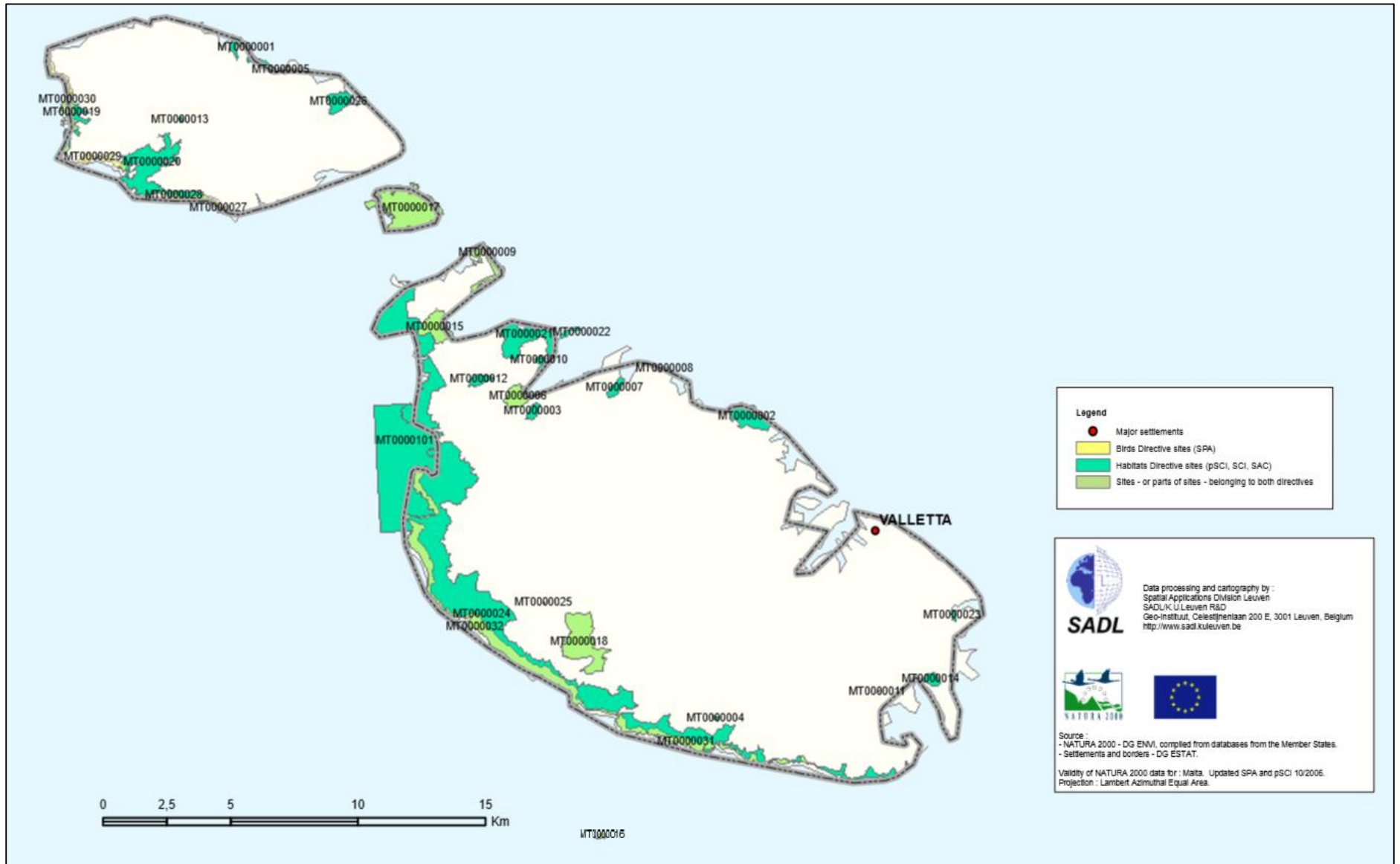


Figure 2.1: Map of the Maltese Islands showing Natura 2000 sites [adapted from: (European Commission, 2009)]

Table 2.2: Table showing Natura 2000 site names, codes, location and area (European Commission, 2014)

Site Code	Site Name	Area (ha)	Longitude	Latitude
MT0000001	Għajn Barrani Area	54,56	E 14°16'16"	N 36°4'8"
MT0000002	Pembroke Area	96,80	E 14°28'51"	N 35°56'3"
MT0000003	Il-Ballut tal-Wardija (l/o San Pawl il-Baħar)	20,37	E 14°23'10"	N 35°56'27"
MT0000004	Il-Maqluba (l/o Qrendi)	2,62	E 14°27'30"	N 35°49'55"
MT0000005	Ir-Ramla Area	7,42	E 14°17'2"	N 36°3'45"
MT0000006	Simar (l/o San Pawl il-Baħar)	58,30	E 14°22'46"	N 35°56'47"
MT0000007	Is-Salini	23,67	E 14°25'21"	N 35°56'49"
MT0000008	L-Għadira s-Safra	1,54	E 14°26'42"	N 35°57'8"
MT0000009	Ramla Tat-Torri / Rđum Tal-Madonna Area	74,91	E 14°22'26"	N 35°59'26"
MT0000010	Xagħra tal-Kortin	12,61	E 14°23'24"	N 35°57'23"
MT0000011	Għar Dalam	0,17	E 14°31'44"	N 35°50'15"
MT0000012	Wied Il-Miżieb	24,65	E 14°21'51"	N 35°57'10"
MT0000013	Iċ-Ċittadella	2,07	E 14°14'25"	N 36°2'51"
MT0000014	Il-Ballut (l/o Marsaxlokk)	23,34	E 14°33'4"	N 35°50'26"
MT0000015	L-Għadira Area	97,74	E 14°20'46"	N 35°58'19"
MT0000016	Filfla	6,58	E 14°24'33"	N 35°47'18"
MT0000017	Kemmuna, Kemmunett, Il-Haġriet ta' bejn il-Kmiemen, L-Iskoll ta' Taħt il-Mazz	294,66	E 14°20'14"	N 36°0'47"
MT0000018	Buskett - Girgenti	225,38	E 14°24'14"	N 35°51'38"

Site Code	Site Name	Area (ha)	Longitude	Latitude
MT0000019	Dwejra - Qawra Area, inkluż Hagret il-General	86,93	E 14°11'38"	N 36°2'56"
MT0000020	Xlendi - Wied tal-Kantra Area	296,30	E 14°12'53"	N 36°1'53"
MT0000021	L-Imġiebaħ / Tal-Miġnuna Area	176,47	E 14°23'10"	N 35°57'56"
MT0000022	Il-Gżejjer ta' San Pawl / Selmunett	10,75	E 14°24'7"	N 35°58'1"
MT0000023	Il-Magħluq tal-Baħar (l/o Marsaskala)	4,42	E 14°33'45"	N 35°51'44"
MT0000024	Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sa Il-Ponta ta' Bengħajsa	2.316,29	E 14°20'14"	N 35°53'50"
MT0000025	Għar ta' l-Iburdan	0,12	E 14°23'13"	N 35°52'30"
MT0000026	Il-Qortin tal-Magun u l-Qortin il-Kbir	53,49	E 14°18'38"	N 36°3'10"
MT0000034	L-Inħawi ta' Ta' Ċenċ	140,00	E 14°15'43"	N 36°1'9"

2.8 Maltese Legislation

The Maltese legislation protects most of those species that are considered to be endemic through Regulation 26, only omitting a few species that are so common that they are not considered to be in need of protection. As already mentioned in Section 1.4, the species that are omitted from Regulation 26, are listed in Schedule X. Four of these species are endemic plant species to the Maltese Islands. These are *Orobanche muteli* (F. W. Scultz) var. *melitensis* Beck, *Allium melitense* (Sommier & Caruana Gatto ex Borg) Ciferri & Giacomini, *Jasonia bocconei* (Brullo) Pardo & Morales and *Anthemis urvilleana* Sommier & Caruana Gatto.

The Maltese law however, does not refer to an endemic species as being a species found only within the Maltese boundaries, but gives the following definition:

“endemic” means those species found in Malta and which are either species of biogeographical importance or species whose native distribution range is limited to Malta only or to the Central Mediterranean region only, whereby the latter region includes Sicily and circum-Sicilian islands (including Pantelleria and the Pelagian Islands), the Maltese Islands and islands off Tunisia. Such endemic species also include possibly endemic species whose taxonomic status or identity requires further analysis”

– (ENVIRONMENT PROTECTION ACT (CAP. 435), 2006)

Therefore this means that through Maltese legislation, even those species that are currently under taxonomic debate merit protection, whether they occur solely on the Maltese Islands, or within other locations in the Central Mediterranean region.

2.9 Policy: national and international laws

The budget and resources to implement policy and monitor the protected areas are limited, this is a common occurrence among many countries (Arponen, 2012; Miller, et al., 2006; Padiaditi, et al., 2011), and therefore on-going research needs to take place to ensure the effective use of financial resources (Arponen, 2012). Effective management can only be done if all stakeholders are involved (Padiaditi, et al., 2011).

Traditionally, the main aim of conservation biology has been to protect species that have been given a rare status, however it should also aim at the increasing abundance of common species, since this has a stronger influence on the ecosystem rather than rare species becoming extinct (Arponen, 2012; Miller, et al., 2006; Padiaditi, et al., 2011).

Therefore it is essential to give importance to the monitoring of criterion species when setting up a conservation policy to maintain ecosystem integrity (Arponen, 2012; Padiaditi, et al., 2011).

Most of the factors threatening the ecosystem integrity nowadays (which can be either human-induced impacts or biological-induced impacts), will not have immediate effect, but will appear in the next few decades. This brings up the need for constant observation of the species' status to study and observe what is happening in the long run (Rossi, et al., 2014). Internationally, protected areas are approved through legislation such as International Conventions, NGOs, and other establishments (e.g. IUCN) (Davila, Beintez, Barrios, Cruz-Agon, & Alvarez-Girard, 2011; Padiaditi, et al., 2011).

To create policy to protect endemic species and area of endemism, requires the most recent update of the database concerning the vascular flora of the Maltese Islands (Rossi, et al., 2014). Using GIS, the presence of endemic species can be plotted on maps to identify their distribution and biodiversity hotspots. Environmental data should be collected frequently to understand the correlation between the changes in the environment and the distribution of the taxa, although low budget and timely restrictions create difficulties (Georges, Adams, & McCord, 2002).

Standards for prioritizing species can vary, from an aesthetical point of view, to biological (Arponen, 2012), and this is usually done with the help of the IUCN Red List (Miller, et al., 2006; Rossi, et al., 2014). However, conservation should not only be established on the species status, but should also include other factors such as endemism and the rate at which the species are becoming more vulnerable. (Arponen, 2012).

Chapter 3: Methodology

3.1 Aim of the project

The aim of this project is to integrate the constant changes in taxonomy of endemic species with policy to identify the implications of changes in the taxonomy, as well as unclear biogeographic status of endemic species on policy. Policy and science evolve at different paces. Policy is a slow process and laws are not changed all the time, unlike science. Researchers are constantly pushing science forward and new technologies are being discovered. This also applies to botany; new methods of identifying species are being used, and this has put species in a place of uncertainty, whether they have been correctly identified or not.

3.2 Definition of terms

The following terms are defined as they have been used throughout the dissertation. The terms 'sub-endemic' and 'possibly endemic' are being used in preference to other terminology as these are the terms used in Malta Environment and Planning Authority (MEPA) documents and in local legislation.

Endemic species: Species present in one restricted geographic location, in this case, the Maltese Islands (Malta, Gozo and their satellite islands).

Sub-endemic species: Species present in the Maltese Islands as well as in other restricted territories close by, including Sicily and Pantelleria.

'Possibly endemic' species: Species that are currently not considered endemic but may turn out to be so, pending current taxonomic review.

3.3 Data collection and representation

3.3.1 *Important species present in Natura 2000 sites and other protected areas*

In this project, all Natura 2000 and some Protected Areas have been studied. The Protected Areas that have been used in this project are the following: 'Western shore of Qalet Marku', 'Qortin ta' Ghajn Damma', 'Wied il-Mizieb', 'Il-Qattara' and 'L-Ghadira ta' Sarraflu'.

Datasheets representing species found in all land-based Natura 2000 sites were downloaded from MEPA [www.mepa.org.mt]. Plant species were then extracted from this data and set in a table format. Each species was then searched in the Maltese Law (LN311/2006 and LN200/2011), the Habitats Directive, the National Red Data Book, the IUCN Red List, BERN Annexes and CITES Annexes (See ANNEX E for definitions of the policies), and thus each table represents a database on each policy that protected the species, if any. These are represented in ANNEX C and ANNEX D. 'Other Policies' in these tables refers to LN200/2011, IUCN Red List, BERN Appendix and CITES Annex. The endemic, sub-endemic and possibly endemic species, whether protected or not, were then extracted from the tables to make it visually easier to analyse, since the aim of this project is the presence and dispute of these species in protected sites. The same process was done for those species that were documented in the Protected Areas mentioned earlier. Data of important species present in the Protected Areas was obtained by Prof. Louis Cassar and Dr Sandro Lanfranco through various studies and flora mapping (2003).

The data from ANNEX C and ANNEX D was transferred to an EXCEL spreadsheet. Pie of pie charts were chosen to represent the data in these tables since they highlight and offer a good representation of the endemic species as a percentage of the whole documented species. In the pie charts, endemic species represent all those endemics that are protected either by LN311/2006 only, as well as endemic species that may be protected

through any other legislation as represented in the tables. The same applies to sub-endemic and possibly endemic species.

The following symbols are used in the tables and represent as follows:

●	Endemic	RR	Very Rare
X	Extinct	I	Note Known
E	Endangered	Rest (MI)	Restricted to the Maltese Islands
V	Vulnerable	?	Uncertainty
R	Rare	★	Uncertain taxonomic status

(Schembri & Sultana, Red Data Book for the Maltese Islands, 1989)

3.3.2 Interviews

Three interviews have been conducted in this dissertation, whose questions can be viewed in ANNEX A. The purpose of these interviews was to determine and prove the various opinions of botanists, scientists and policy experts. Mr Edwin Lanfranco, Mr Darrin Stevens and Mr Stephen Mifsud were interviewed. Mr Edwin Lanfranco and Mr Stephen Mifsud are experts on Maltese botany, and Mr Darrin Stevens, although he also has a high knowledge of Maltese botany, is also a policy expert, working as a Public Officer responsible for biodiversity with MEPA. The reason behind choosing only three experts is that during the period of study, these were the only local experts that were available for interviewing. Mr Edwin Lanfranco and Mr Darrin Stevens were interviewed in person, whereas the interview with Mr Stephen Mifsud was conducted through email. The interviews can be viewed in ANNEX B.

The first question asked was to determine the methods that each person has on identifying an endemic species. The reason behind this is that not all scientists believe that all methods are appropriate when identifying a species, and the interview was aimed at achieving different opinions on the subject.

The second question regarded the opinion of all interviewees on how much they value the opinion of other researchers, meaning, is everyone's opinion and field results valuable, or does one has to have a broad experience in the field before gaining recognition? The aim of this question was to confirm that opinions vary from one person to the other.

The third question regarded their personal methods of identification and examination of a species. Although Mr Darrin Stevens, as a policy expert, could not answer on the ways he identifies and examines species, he was able to give his own opinion on the various methods of species examination. Mr Edwin Lanfranco and Mr Stephen Mifsud gave their opinion from their own personal experience.

The fourth question was asked to see the various opinions that each of the three experts had on the ranking of the species. There are various debates on the ranking of the species, and it was important to confirm that opinions vary even on the rank of a species, both from the point of view of scientists, as well as from the point of view of policy experts.

The fifth question was aimed at learning on the personal opinion that each of the three experts has on the endemism of the endemic species in the Maltese Islands. This question is the keystone of the interview since through it, various opinions on each species could be asserted from the three experts.

The last question sought the opinion of both the botanists as well as the policy expert on how they believe that policy may keep up to date with the constant taxonomic changes. Although it was kept in mind that not all three interviewees were policy experts, their opinion was considered to be still relevant and valuable.

3.3.3 Endemic, sub-endemic and possibly endemic species

Endemic, sub-endemic and possibly endemic species of the Maltese Islands were each explored and analysed through literature. The updated list of endemic species (based on opinion) was acquired from Ellul (2014). The aim of this data collection was to explore current taxonomic debates on these species, considering the history of changes that the species have been through. Each species was looked up in the Euro+Med database (a reliable on-line checklist on European and Mediterranean vascular plants, financed by the European Union) to verify the current species rank as well as to obtain the synonyms that the species is also known by.

Chapter 4: Results and Discussion

4.1 Review of the endemic flora of the Maltese Islands

4.1.1 *Allium lojaconoi* Brullo, Lanfranco & Pavone

(Maltese Dwarf Garlic / 'Tewm Irqiq ta' Malta)



Figure 1.1: *Allium lojaconoi* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was previously referred to as *Allium parviflorum*. However in 1982, Brullo et. al. discovered that this is a distinct species, endemic to the Maltese Islands, although the two bear resemblance (Schembri & Sultana, 1989).

Synonyms: None (Euro+Med, 2006-2014)

Debates on taxon: There are currently no debates on the distinctiveness of this species.

4.1.2 *Allium melitense* (Sommier & Caruana Gatto ex Borg) Ciferri & Giacomini

(Maltese Leek / Kurrat ta' Malta)



Figure 1.2: *Allium melitense* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first discovered in the Maltese Islands by Sommier and Caruana Gatto in 1915, and decided that it was a variant of *Allium ampeloprasum*. Later on in 1950, more studies were done on this species by Cifferi and Giacomini and they changed its rank to species, and its name to *Allium melitense*, thus making it an endemic to the Maltese Islands.

Synonyms:

- *Allium ampeloprasum* var. *melitense* (Euro+Med, 2006-2014; S. Mifsud, 2002-2014)
- *Allium commutatum* var. *melitense* (S. Mifsud, 2002-2014)

Debates on taxon: There are debates on whether this species is distinct from other species of the same genus. It appears to be very closely related to *Allium ampeloprasum*, in fact, the difference between the two appears to be size, since *A. melitense* seems to be smaller than *A. ampeloprasum* (Schembri & Sultana, 1989; Lanfranco E. , 2014). In fact, when Sommer & Caruana Gatto (1915) first discovered it in the Maltese Islands, they decided that it was *A. ampeloprasum*, although they could see some distinctions, and suggested that it may be a variety (*A. ampeloprasum* var. *melitense*).

Mr Stevens (2014), believes that the whole genus *Allium* needs to be reassessed since the species may be variants of each other, and it is difficult to distinguish them based on morphology alone. Therefore there needs to be further studies on this species since there are still major debates on its distinction (Schembri & Sultana, 1989; Stevens D. , 2014)

4.1.3 *Anacamptis urvilleana* Sommer & Caruana Gatto (Maltese Pyramidal Orchid / Orkida Piramidali ta' Malta)



Figure 1.3: *Anacamptis urvilleana* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first recorded by Sommer and Caruana Gatto in 1915 as *Anacamptis urvilleana*, and stated that it is endemic to the Maltese Islands. Borg (1927) agreed that this species was endemic, however he considered it to be a variety of *Orchis pyramidalis*, and thus called it *Orchis pyramidalis* var. *sommeriana* (Borg, 1927).

Synonyms:

- *Anacamptis pyramidalis* subsp. *urvilleana* (S. Mifsud, 2002-2014)

Debates on taxon: This species is very closely related to *Anacamptis pyramidalis*, however they are reproductively isolated from each other, meaning that no hybridisation can occur (Pons, Clariso, Casademont, & Arguimbau, 2013). The main difference between the two species is that they have different flowering periods, although they may also vary in habitat (Stevens D. , 2003). However this raises the debate on how to distinguish the two species outside of their flowering period.

4.1.4 *Anthemis urvilleana* Sommer & Caruana Gatto
(Maltese Sea Camomille / Bebuna tal-Baħar)



Figure 1.4: *Anthemis urvilleana* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was previously referred to as *Anthemis maritima* by Delicata and Giulia, although when studied by Caruana and Gatto (1915), they argued that this species was actually *Anthemis urvilleana*. This species was also previously known as *Anthemis secundiramea*, although lately it has re-gained its name to *A. urvilleana* (Lanfranco E. , 2014).

Synonyms:

- *Anthemis secundiramea* subsp. *urvilleana* (Euro+Med, 2006-2014; S. Mifsud, 2002-2014)

Debates on taxon: This species is sometimes considered to be *Anthemis cosyrensis*, which is found in Pantelleria, although other botanists (such as Brullo) states that they are two different species (Schembri & Sultana, 1989). The Euro Med Plant Base considers *A. secundiramea* subsp. *urvilleana* as the accepted taxonomic rank of this species, thus referring to *A. urvilleana* as its synonym (Euro+Med, 2006-2014).

4.1.5 *Anthyllis hermanniae* subsp. *melitensis* Brullo & Giusso
(Maltese Yellow Kidney Vetch / Hatba s-Sewda ta' Malta)

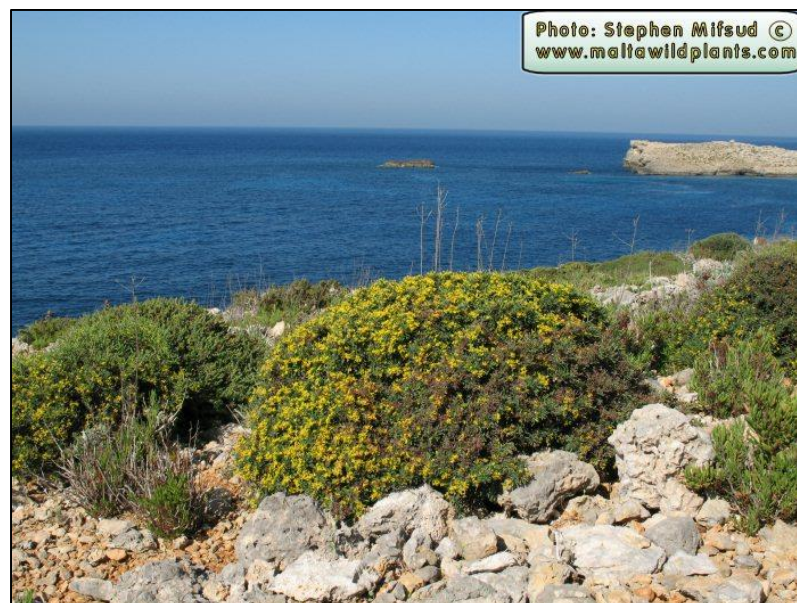


Figure 1.5: *Anthyllis hermanniae* subsp. *melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species has been recently described as endemic to the Maltese Islands. Several species of *Anthyllis bermanniae* were studied and re-assessed, and it was found that although the species present in the Maltese Islands is similar to *A. bermanniae*, it merits the rank of a sub-species as it has significant differences (S. Mifsud, 2002-2014).

Synonyms:

- *Aspalathus cretica*

Debates on taxon: Currently there are no debates on this species.

4.1.6 *Atriplex lanfrancoi* (Brullo & Pavone) G. Kadereit & Sukhor
(Maltese Cliff Orache / Bjanka tal-Irdum)



Figure 1.6: *Atriplex lanfrancoi* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first described by Brullo and Pavone (1987) as the endemic *Cremnophyton lanfrancoi*. Recent studies have shown that the genus *Cremnophyton* should be absorbed by the genus *Atriplex* (Mifsud, 2013). Therefore in 2010, Kadereit

and Sukhor studied this species and named it *Atriplex lanfrancoi*. Sommer and Caruana Gatto (1915) may have referred to this species as *Atriplex molle*.

Synonyms: *Cremonophyton lanfrancoi* (Euro+Med, 2006-2014)

Debates on taxon: Some botanists disagree with the genus change since this species resembles more with the characteristics of the genus *Cremonophyton* rather than with *Atriplex* (Lanfranco E. , 2014).

4.1.7 *Cheirolophus crassifolius* (Bertoloni) Dostál (Maltese Rock-Centaury / Widnet il-Baħar)



Figure 1.7: *Cheirolophus crassifolius* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was described first by Zerafa in 1827, but gave it a name that had already been used for another species, *Centaurea spathulata*. In 1829, Bertoloni renamed it to *Centaurea crassifolia*. In 1973, Dostál changed its genus to *Palaeocyamus* (Schembri & Sultana, 1989). In 1999, Susanna changed its genus to *Cheirolophus crassifolius*.

Synonyms:

- *Palaeocyamus crassifolius* (Euro+Med, 2006-2014; S. Mifsud, 2002-2014)
- *Centaurea crassifolia* (Euro+Med, 2006-2014; S. Mifsud, 2002-2014)

Debates on taxon: This species is distinct, however, botanists debate on its genus, since it is believed that this species does not fit within the genus *Cheirolophus*, but should remain in the genus *Palaeocyamus*, even though it is the only species in this genus (Lanfranco E. , 2014). It is also important to study well genera *Centaurea* and *Serratula* and their relationship with the genus *Cheirolophus* since these are similar to each other (Stevens & Lanfranco, 2006; Pons, Clariso, Casademont, & Arguimbau, 2013).

4.1.8 *Euphorbia melitensis* Parlatore

(Maltese Spurge / Tenghud tax-Xaghri)

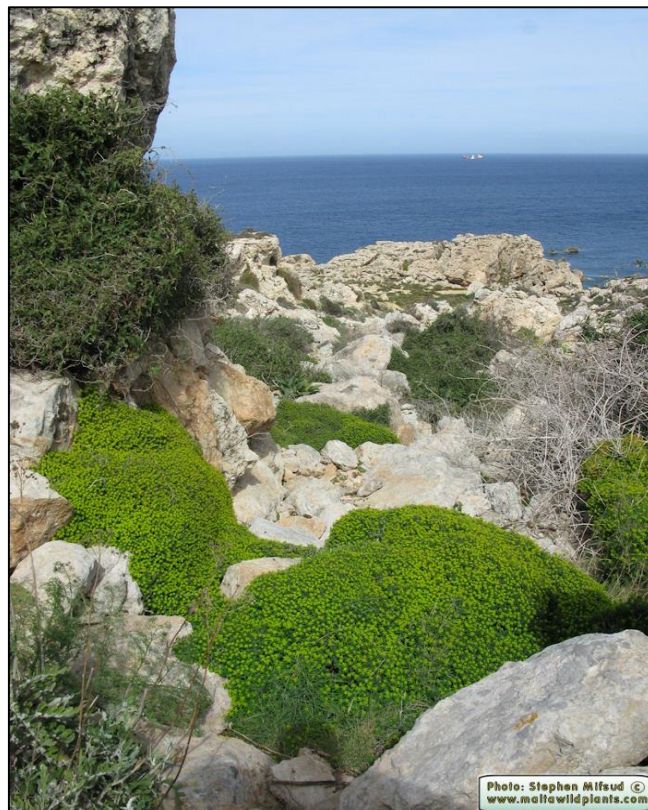


Figure 1.8: *Euphorbia melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first recorded by Parlatore in 1869, and although there are quite a number of debates on whether it is actually a distinct species or not, until now it remains *E. melitensis*.

Synonyms:

- *Euphorbia bivonae* var *melitensis* (Euro+Med, 2006-2014)
- *Euphorbia spinosa* (European Environment Agency, n.d.; Euro+Med, 2006-2014)

Debates on taxon: In various Maltese floras, this species has been considered to be a synonym to *Euphorbia spinosa* (Borg, 1927; Sommier & Caruana Gatto, 1915). However there are various other scientists that do not agree, and believe that it is more closely related to *Euphorbia bivonae* var. *papillaris* (Schembri & Sultana, Red Data Book for the Maltese Islands, 1989). It is also believed to be very closely related to *E. bivonae* and *E. papillaris* (Pons, Clariso, Casademont, & Arguimbau, 2013).

There are a number of other species within the family Euphorbiaceae found in different regions that are actually variants of the same species. These are *E. spinosa* (Italy), *E. bivonae* (Sicily), *E. tunetana* (Tunisia), *E. papillaris* (Egadi) and *E. melitensis* (Malta) (Stevens D. , 2014).

Kew does not accept any other names other than *Euphorbia melitensis*, and believes that other names or ranks that have been given to it are synonyms (e.g. *Euphorbia spinosa* subsp. *melitensis* and *Euphorbia spinosa* var. *melitensis*) (Euro+Med, 2006-2014; Kew Royal Botanical Gardens, 2010). There are also other botanists that insist on keeping this species distinct, such as Parlato himself and Caruel, where they explained why they preferred to keep this species distinct (Parlato & Caruel, 1867).

Even though there are numerous debates on this species, it is listed in Schedule X of LN311/2006, since it is so common in the Maltese Islands and its population is not currently threatened. Therefore solving this debate would be more useful for the sake of science rather than policy-wise.

4.1.9 *Helichrysum melitense* (Pignatti) Brullo, Lanfranco, Pavone & Ronsisvalle
(Maltese Everlasting / Sempreviva t' Ghawdex)



Figure 1.9: *Helichrysum melitense* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species has gone through various nomenclature changes. In 1853, it was first recorded by Delicata as *Helichrysum rupestre*. In 1980, Pignatti recognised this taxon as being endemic, and changed its rank to subspecies, calling it *H. rupestre* subsp. *melitense*. In 1988, further studies by Brullo, Lanfranco, Pavone and Ronsisvalle determined that this merits the ranks of a species, and therefore it is now known as *Helichrysum melitense*.

Synonyms: None

Debates on taxon: Lately, an unpublished study by Xiberras has shown that it is possible that *H. melitense* may not actually be distinct from *H. rupestre* since the difference between the two was in leaf length and leaf breadth, which is not enough to suggest that these are two different species (Xiberras, 2013). The Euro Med Checklist also lists this species as 'Preliminary Accepted', as clearly more research needs to be done on this species (Euro+Med, 2006-2014).

4.1.10 *Hyoseris frutescens* Brullo & Pavone

(Maltese Hyoseris / Żigland ta' Ghawdex)



Figure 1.10: *Hyoseris frutescens* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was described quite recently, in 1988, by Brullo and Pavone. Lately, in 2010, Peruzzi & Vangelisti changed its rank to a subspecies, and renamed it to *Hyoseris lucida* subsp. *frutescens*. However the Euro+Med Plant Base states that this is a synonym, and only accepts as the actual name of the plant *Hyoseris frutescens* (Euro+Med, 2006-2014).

Synonyms:

- *Hyoseris lucida* subsp. *frutescens* (Brullo & Pavone) Peruzzi & Vangelisti (Euro+Med, 2006-2014)

Debates on taxon: Peruzzi and Vangelisti, in 2010 argue that this may be a subspecies of *Hyoseris lucida* (Euro+Med, 2006-2014). This creates confusion on both the ranks and endemic status of the species.

4.1.11 *Jasonia bocconeii* (Brullo) Pardo & Morales

(Maltese Fleabane / 'Tulliera ta' Malta)



Figure 1.11: *Jasonia bocconeii* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was firstly recorded as *Jasonia glutinosa*, and in 1979, it was re-assessed by Brullo who changed it to *Chiliadenus bocconeii* (Schembri & Sultana, 1989). However in 2004, Pardo and Morales have re-absorbed this species within the genus *Jasonia*, and is now therefore *Jasonia bocconeii* (IPNI, n.d.).

Synonyms:

- *Chiliadenus bocconeii* (S. Mifsud, 2002-2014)

Debates on taxon: There are no debates on the distinctiveness of this species, apart from the genus in which it belongs to, as it has had its genus changed quite frequently in the past.

4.1.12 *Limonium melitense* Brullo

(Maltese Sea Lavender / Limonju ta' Malta)



Figure 1.12: *Limonium melitense* (Photo: C. Agius, 2014)

History of taxon: Schembri and Sultana (1989) state that *L. melitense* was most likely previously referred to as *Statice cosyrensis* Gussone (Schembri & Sultana, 1989). However in 1915, Sommier and Caruana Gatto found a similar species to *S. cosyrensis* in the Maltese Islands and considered it to be its variety, calling it *Statice cosyrensis* var. *melitensis* (Sommier & Caruana Gatto, 1915). In 1988, Brullo discovered this species to be distinct from others, although he described it as being very similar to the species that fall within the *Limonium bocconeii* group (such as *L. flagellare* (Lojac.) Brullo and *L. ponzoi* (Fiori and Béguinot) Brullo) (Brullo S. , 1988).

Synonyms: None (Euro+Med, 2006-2014)

Debates on taxon: This species is quite similar to another endemic species located in the Maltese Islands, *Limonium zeraphae* Brullo (Brullo S. , 1988; Spiteri, 2014), although Brullo states that there are quite a number of variances that distinguish the two (Brullo S. , 1988). There are also debates on whether the two species are actually distinct from each other or whether they are both variants of *Limonium*, and according to new studies, it is difficult to find a cut-off point between these species (Spiteri, 2014).

4.1.13 *Limonium zeraphae* Brullo

(Zerapha's Sea Lavender / Limonju ta Żerafa)



Figure 1.13: *Limonium zeraphae* (Photo: C. Agius, 2011)

History of taxon: This species was first recorded under the name *Statice reticulata* (1827) and later on as *Statice cancellata* (1753) (Sommier & Caruana Gatto, 1915; Brullo S. , 1980). Brullo carried out studies in 1980 on *L. zeraphae* and found that this is actually a distinct species (Brullo S. , 1980).

Synonyms: None (Euro+Med, 2006-2014)

Debates on taxon: As previously mentioned in Section 4.2.12, there is difficulty in distinguishing *L. zeraphae* from *L. melitense*, as both species are visually very similar, are both diploid (if one were to study them at a genetic level), and may actually be variants of the same species (Spiteri, 2014). Sommer and Caruana Gatto also mentioned that there is lack in agreement on distinguishing these species (which were referred to under the genus *Statice* in their book), but they did mention that it was probably an endemic to the Maltese Islands (Sommer & Caruana Gatto, 1915).

4.1.14 *Matthiola incana* subsp. *melitensis* Brullo, Lanfranco, Pavone and Ronsisvalle

(Maltese Stocks / Ġizi ta' Malta)



Figure 1.14: *Matthiola incana* subsp. *melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first recorded in 1988.

Synonyms: None (Euro+Med, 2006-2014)

Debates on taxon: There are no actual debates on the identification to this taxon. Some argue that *M. incana* subsp. *melitensis* might merit the rank of a species since it is morphologically distinct and has constant characteristics (Lanfranco E. , 2014).

4.1.15 *Ophrys bombyliflora* forma *parviflora* Mifsud

(Small flowered bumblebee orchid / Naħla tal-fjura ż-Żghira)



Figure 1.15: *Ophrys bombyliflora* forma *parviflora* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This form was discovered very recently in 2009, when Mifsud realised that the flower of this form was quite smaller than the *Ophrys bombyliflora*, and after further studies ranked it as a form of *O. bombyliflora*, endemic to the Maltese Islands (S. Mifsud, 2002-2014)

Synonyms: None

Debates on taxon: There needs to be further studies on the genus *Ophrys*, especially in the neighbouring island Sicily, where most likely the same form of this taxon is found (Lanfranco E. , 2014). There is also the debate on whether to distinguish each plant by the resemblance of its pollinator (Stevens D. , 2014).

4.1.16 *Ophrys iricolor* subsp. *hospitalis* (Delforge) Mifsud & Lewis
(Maltese Blue Orchid / Dubbiena Bikrija Maltija)



Figure 1.16: *Ophrys iricolor* subsp. *hospitalis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was previously thought to be *Ophrys mesaritica* (Delforge 1993), however it was later changed to *Ophrys hospitalis* by Delforge in 2012. In 2013, Mifsud and Lewis decided that it is a subspecies of *Ophrys iricolor* and therefore changed its rank, giving it the name *Ophrys iricolor* subsp. *hospitalis* (Lewis & Mifsud, 2013).

Synonyms:

- *Ophrys hospitalis* (S. Mifsud, 2002-2014)
- *Ophrys iricolor* subsp. *mesaritica* (S. Mifsud, 2002-2014)
- *Ophrys fusca* subsp. *iricolor* (S. Mifsud, 2002-2014)

Debates on taxon: Species that fall within the *Ophrys* genus may not necessary be distinct from one another, but may be ranked as forms rather than species, since they vary according to their pollinator, indicating the need for further study (Lanfranco E. , 2014).

4.1.17 *Ophrys melitensis* (Salkowski) J. & P. Devillers-Terschuren
(Maltese Spider Orchid / Brimba s-Sewda)



Figure 1.17: *Ophrys melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was previously known as *Ophrys sphogodes* subsp. *melitensis* (from 1992), but in 1994, J. Devillers-Terschuren and P. Devillers changed its rank to species and called it *Ophrys melitensis* (S. Mifsud, 2002-2014).

Synonyms:

- *Ophrys sphogodes* subsp. *melitensis* (S. Mifsud, 2002-2014)

Debates on taxon: This is not a fixed species since most of its specimens are different from each other (Stevens D. , 2003; Lanfranco E. , 2014). As previously mentioned, further studies are needed on the genus *Ophrys* (Lanfranco E. , 2014).

4.1.18 *Orobanche muteli* F.W. Scultz var. *melitensis* Beck

(Maltese Dwarf Sorrel Broomrape / Budebbus tal-Ingliż abjad)



Figure 1.18: *Orobanche muteli* var. *melitensis* (Photo taken by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: A flowering plant very similar to *Orobanche nana* but with white flowers was observed by Beck in Malta, and considered it to be an endemic form of *O. nana* in 1972. Mifsud considers it to be a case of widespread albinism (S. Mifsud, 2002-2014)

Synonyms:

- *Orobanche nana* subsp. *melitensis* (S. Mifsud, 2002-2014)
- *Orobanche nana* (Euro+Med, 2006-2014)

Debates on taxon: There are various debates on this species. The fact that it is not yet certain whether it should be ranked as a species or a sub-species or any other rank makes it confusing to anyone trying to identify the plant, especially since it has various synonyms. Stephen Mifsud argues that this plant should be given the rank of a form, rather than that of a sub-species (S. Mifsud, 2002-2014).

4.1.19 *Polypodium vulgare* subsp. *melitense* A. Peroni, G. Peroni & Mifsud

(Maltese Polypody / Polipodjum ta' Malta)



Figure 1.19: *Polypodium vulgare* subsp. *melitense* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This sub-species has been very recently described (2013), where it was found to be sharing characteristics with both *Polypodium vulgare* as well as with *Polypodium cambricum* (S. Mifsud, 2002-2014).

Synonyms: None

Debates on taxon: There are no debates on distinguishing this species. However there is doubt whether it should be a distinct species or a sub-species (Lanfranco E. , 2014).

4.1.20 *Romulea melitensis* Beguinot

(Maltese Sand Crocus / Żagħfran tal-Blat)



Figure 1.20: *Romulea melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was first described in 1907 by Beguinot.

Synonyms:

- *Romulea columnae* subsp. *melitensis*

Debates on taxon: This species resembles another species from the genus *Romulea*, which makes it difficult to distinguish between the two (Schembri & Sultana, 1989; Lanfranco E. , 2014). The original description may have not been on a typical species. Therefore more studies are needed to be done, especially to the whole genus *Romulea* (Lanfranco E. , 2014). Others argue that this species is a sub-endemic species, and it is the same as the one found in Sicily (Stevens D. , 2014; Pons, Clariso, Casademont, & Arguimbau, 2013).

4.1.21 *Salsola melitensis* (Botschantzev) Brullo

(Maltese Salt Tree / Xebb)

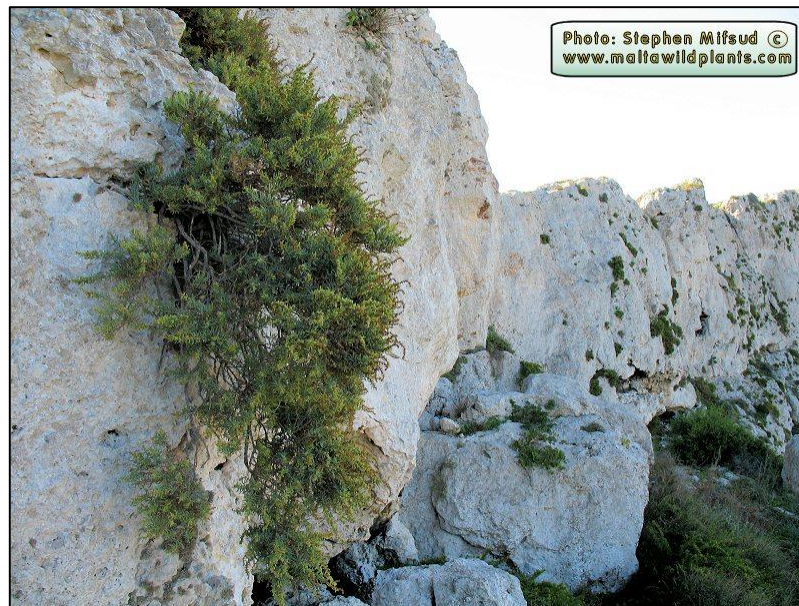


Figure 1.21: *Salsola melitensis* (Photo by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: This species was probably previously known as *Salsola vermiculata* (Brullo S. , 1982). Botschantzev described it as *Salsola melitensis* in 1976. Later on, this species had its name changed frequently from *S. melitensis* to *Darniella melitensis*, and lately it has been re-absorbed with the genus *Salsola*, although it may still be referred to as *D. melitensis*.

Synonyms:

- *Darniella melitensis* (Euro+Med, 2006-2014)

Debates on taxon: There are no debates on distinguishing this species. The only issue that might raise confusion is its genus, since *Darniella* is often included within the genus *Salsola* (Pons, Clariso, Casademont, & Arguimbau, 2013).

4.1.22 *Zannichellia melitensis* Brullo, Giosso Del Galdo & Lanfranco

(Maltese Horned Pondweed / Harira tal-Ilma ta' Malta)



Figure 1.22: *Zannichellia melitensis* (Photo taken by Mr. Stephen Mifsud [www.maltawildplants.com])

History of taxon: Sommier & Caruana Gatto in 1915, Borg in 1927, and Haslam et al in 1977, referred to this species as being *Zannichellia palustris* or as *Zannichellia pedunculata* (= *Zannichellia palustris* var *pedicellata*). However, further studies have shown that *Z. melitensis* varied anatomically and morphologically, as well as in its habitat preferences (Brullo, Galdo, & Lanfranco, 2001; Mifsud, 2009).

Synonym:

- *Zannichellia palustris* subsp. *palustris* (Euro+Med, 2006-2014)

Debates on taxon: Some scientists have still not accepted the change in the identification of the species. For example Kew accepts the taxon as being a synonym to the subspecies *Zannichellia palustris* subsp. *palustris* (Euro+Med, 2006-2014; Kew Royal Botanical Gardens, 2010). In the National Red Data Book, it is also listed as *Z. palustris*, however, it was highlighted that the Maltese populations of this species required further investigations since there was lack of clarity in distinguishing this species (Schembri & Sultana, 1989).

However, the genus *Zannichellia* has a complex taxonomy. Many of its taxa are not recognised at the appropriate level, these are confused by many. There are also some doubts on the identification of some of the species, since it is believed that some were not correctly distinguished as species, and the studies were based on a few samples (Lansdown, 2013).

4.2 Review of the sub-endemic flora priority species in the Maltese Islands

Table 4.1: Sub-endemic species and priority species, their families and debates [Families follow the scheme in the International Plant Name Index (www.ipni.com)]

Family	Species	Debates on taxon
<i>Aristolochiaceae</i>	<i>Aristolochia clusii</i> Lojacono	No
<i>Asteraceae</i>	<i>Calendula stellata</i> Cavanilles	Yes
<i>Iridaceae</i>	<i>Crocus longiflorus</i> Rafinesque	No
<i>Apiaceae</i>	<i>Daucus carota</i> subsp. <i>drepanensis</i> (Lojac.) Heywood	No
<i>Apiaceae</i>	<i>Daucus carota</i> subsp. <i>rupestris</i> (Guss.) Heywood	No
<i>Poaceae</i>	<i>Desmazeria pignattii</i> Brullo & Pavone	No
<i>Euphorbiaceae</i>	<i>Euphorbia exigua</i> subsp. <i>exigua</i> Kramer & Westra	Yes
<i>Elatinaceae</i>	<i>Elatine gussonei</i> (Sommier) Brullo, Lanfranco, Pavone	No
<i>Asteraceae</i>	<i>Filago pyramidata</i> Linnaeus	Yes
<i>Iridaceae</i>	<i>Iris pseudopumila</i> Tineo	No
<i>Iridaceae</i>	<i>Iris pallida</i> Lam. subsp. <i>pallida</i>	Yes
<i>Asteraceae</i>	<i>Jacobaea maritima</i> N. G. Passal et. al.	Yes
<i>Scrophulariaceae</i>	<i>Linaria pseudolaxiflora</i> Lojacono	No
<i>Orchidaceae</i>	<i>Ophrys fusca</i> Link subsp. <i>fusca</i> (Delforge) Kreutz	Yes
<i>Scrophulariaceae</i>	<i>Orobanche sanguinea</i> C. Presl	No
<i>Hyacinthaceae</i>	<i>Scilla peruviana</i> Linnaeus	Yes
<i>Asteraceae</i>	<i>Senecio leucanthemifolius</i> Poir	Yes
<i>Hyacinthaceae</i>	<i>Drimia maritima</i> (Linnaeus) Stearn	Yes

4.2.1 *Calendula stellata* Cavanilles

(Sicilian Marigold / Suffejra ta' Sqallija)

Debates on taxon: There are various debates on this species, especially concerning its status, since this species has a number of synonyms (Euro+Med, 2006-2014), meaning that various scientists refer to this species by different names, thus pointing out that these are distinct. This species is known as *Calendula sicula* in the Maltese Islands, and is considered to be a sub-endemic species (S. Mifsud, 2002-2014). It is difficult to distinguish this species from *C. suffruticosa* subsp. *fulgida* var. *fulgida*. Sommer and Caruana Gatto (1915) separated the species found in Malta from those found in Sicily (Schembri & Sultana, 1989). In LN311/2006, it is also referred to as *C. sicula*, however since it is listed in Schedule X, it is not protected.

4.2.2 *Crocus longiflorus* Rafinesque

(Yellow Throated Crocus / Żagħfran Selvaġġ)

Debates on taxon: There are no debates on the nomenclature of this species, although it is sometimes referred to as *Crocus longiflorus* var. *melitensis* (Euro+Med, 2006-2014; Schembri & Sultana, 1989). There are no direct reference to this species in LN311/2006, however since it is a sub-endemic species, it is a legally protected species.

4.2.3 *Daucus carota* subsp. *drepanensis* (Lojac.) Heywood

(Lampedusa Carrot / Zunnarija ta' Lampedusa)

Debates on taxon: Although this species has a number of synonyms, there are currently no taxonomic debates on this species (Euro+Med, 2006-2014). There are no direct references to this species in LN311/2006 schedules, however Regulation 26 protects this species as it is a sub-endemic species.

4.2.4 *Daucus carota* subsp. *rupestris* (Guss.) Heywood

(Cliff carrot / Zunnarija tal-Blat)

Debates on taxon: There are various synonyms to this species (Euro+Med, 2006-2014), this species is not currently under taxonomic debates. It may be confused with *Daucus gingidium* (Schembri & Sultana, Red Data Book for the Maltese Islands, 1989). It is considered to be a sub-species to the Maltese Islands, and is thus protected under Regulation 26 of LN311/2006, although its name does not appear directly in any Schedule of this national law.

4.2.5 *Elatine gussonei* (Sommier) Brullo

(Maltese Waterwort / Elatine)

Debates on taxon: This species is currently undergoing research, but it is currently accepted as a distinct species (Euro+Med, 2006-2014). It is related to *Elatine hydropiper* and *Elatine macropoda*, and in fact it has featured in literature under these names (Schembri & Sultana, 1989). This species, being sub-endemic, is protected under Regulation 26 of LN311/2006.

4.2.6 *Euphorbia exigua* subsp. *exigua* Kramer & Westra

(Maltese Dwarf Spurge / Tengħud Irqiq ta' Malta)

Debates on taxon: This species may also be referred to as *Euphorbia exigua* var. *pycnophylla*. The distinction between these taxa is currently being reviewed by a team based at the University of Malta; Gretkowska, Borg, Galea, Mifsud, Briffa, and Lanfranco (S. Lanfranco – personal communication, 2014).

4.2.7 *Filago pyramidata* Linnaeus

(Maltese Cudweed / Kabuċċinella ta' Malta)

Debates on taxon: This species is known under various synonyms (Euro+Med, 2006-2014). This species is referred to as *Filago cossyrensis* in the Maltese Islands, and is considered to be a sub-species to the region, however it is listed in Schedule X of LN311/2006, thus it is not protected (S. Mifsud, 2002-2014).

4.2.8 *Iris pallida* Lam. subsp. *pallida*

(Sicilian Iris / Fjurduliz Sqalli)

Debates on taxon: The distinctiveness of this species is still unclear, although it is known to be native to Former Yugoslavia, and is believed to be introduced to the Maltese Islands (Euro+Med, 2006-2014). It has various synonyms, however it is mostly referred to as *Iris sicula* in the Maltese Islands, and is considered to be a sub-endemic species to the region (S. Mifsud, 2002-2014). However, the species is considered to be a subspecies of *Iris pallida* and therefore does not merit the rank of a 'species'. *I. sicula* is still listed in Schedule III of LN311/2006, thus meaning that there needs to be updates to the schedule, as the species has since changed its status and is no longer endemic nor native, thus it does not merit protection.

4.2.9 *Jacobaea maritima* N. G. Passal et. al.

(Sicilian Silver Ragwort / Kromb il-Baħar Isfar)

Debates on taxon: There are a number of synonyms that all refer to this species, however it is not currently undergoing taxonomic debates (Euro+Med, 2006-2014). This species is still being referred to as *Senecio bicolor* in the Maltese Islands, as well as *Jacobaea maritima* subsp. *sicula*, and it is not referenced directly in LN311/2006, however since it is a sub-endemic to the Maltese Islands, it is protected under Regulation 26 of the same national

law (S. Mifsud, 2002-2014). This species may therefore need to undergo taxonomic review as some botanists (e.g. S. Mifsud) may argue that it is a sub-species since it varies slightly from *Jacobaea maritima*.

4.2.10 *Ophrys fusca* Link subsp. *fusca* (P. Delforge) Kreutz

(Maltese Brown Orchid / Dubbiena ta' Malta)

Debates on taxon: This species is still under a number of taxonomic debates on its rank and status. Mifsud considers this species to be *Ophrys caesiella*, a sub-endemic species to the Maltese Islands, which was previously confused with *Ophrys fusca* (S. Mifsud, 2002-2014). On the other hand, *O. caesiella* is not an accepted name in the Euro Med Plant Base, but is considered to be the synonym of *O. fusca* subsp. *fusca* (Euro+Med, 2006-2014). It is clear that more research needs to be done to eliminate such debates.

4.2.11 *Orobanche sanguinea* C. Presl

(Bloody Broomrape / Budebbus)

Debates on taxon: This species is accepted in the Euro Med Plant Base, and there are no current taxonomic debates (Euro+Med, 2006-2014). *O. sanguinea* was previously referred to as *Orobanche densiflora* var. *melitensis*, and was presumed to be endemic, however later studies have found that it is actually *O. sanguinea* (S. Mifsud, 2002-2014). This species is indigenous to the Maltese Islands and is currently not protected by national law.

4.2.12 *Scilla peruviana* Linnaeus

(Sicilian Squill / Ghansal ikħal)

Debates on taxon: This species is native to the Maltese Islands, and is found spread in various countries of the Mediterranean region, through which it has various synonyms (Euro+Med, 2006-2014). Plants with blue inflorescence have been previously described

as *Scilla clusii* (Schembri & Sultana, Red Data Book for the Maltese Islands, 1989). This species is referred to as both *Scilla sicula* as well as *Scilla peruviana* var. *sicula* in the Maltese national law (LN311/2006). It is essential that more research is done on this species as clearly there are some debates on both the rank and the status of the species.

4.2.13 *Senecio leucanthemifolius* Poir

(Pygmy Groundsel / Kubrita Nana)

Debates on taxon: This species is referred to by various synonyms, including *Senecio pygmaeus*, as it is known in the Maltese Islands and considered to be a sub-species (S. Mifsud, 2002-2014). However, *S. pygmaeus* is not considered to be an accepted name, but is actually a synonym to *S. leucanthemifolius*, which is not a sub-endemic species to the Maltese Islands (Euro+Med, 2006-2014). In the Maltese national law, this species is referred to as both *S. pygmaeus* as well as *Senecio leucanthemifolius* var. *pygmaeus*, indicating that more research needs to be done to eliminate such debates since this would entail its protected status.

4.2.14 *Drimia maritima* (Linnaeus) Stearn

(Seaside Squill / Basal tal-Ghansar)

Debates on taxon: This species has had quite a few nomenclature changes, and is still referred to by various synonyms, including *Urginea pancration* in LN311/2006. Some botanists suggest that the species present on the Maltese Islands are endemic to the region, however more in-depth studies are needed to clarify this debate (S. Mifsud, 2002-2014).

4.3 Natura 2000 Special Areas of Conservation: Important plant species and management practices

4.3.1 L-Inhawi ta' Ghajn Barrani (MT0000001)

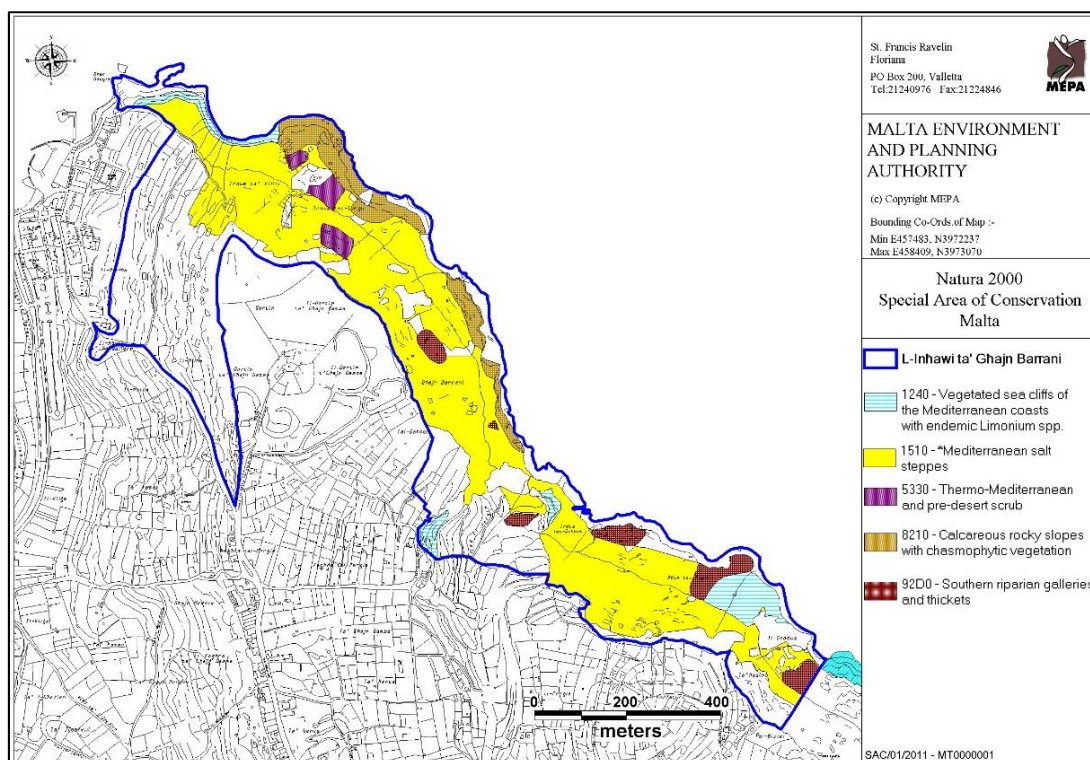


Figure 1.23: SAC map of 'L-Inhawi ta' Ghajn Barrani' (MEPA, n.d.)

Table 1.2: Endemic, sub-endemic and possibly endemic plant species present in 'L-Inhawi ta' Ghajn Barrani' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Crocus longiflorus</i> var. <i>melitensis</i> (= <i>Crocus longiflorus</i>)	RR, Rest (MI)	Regulation 26	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancrati</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

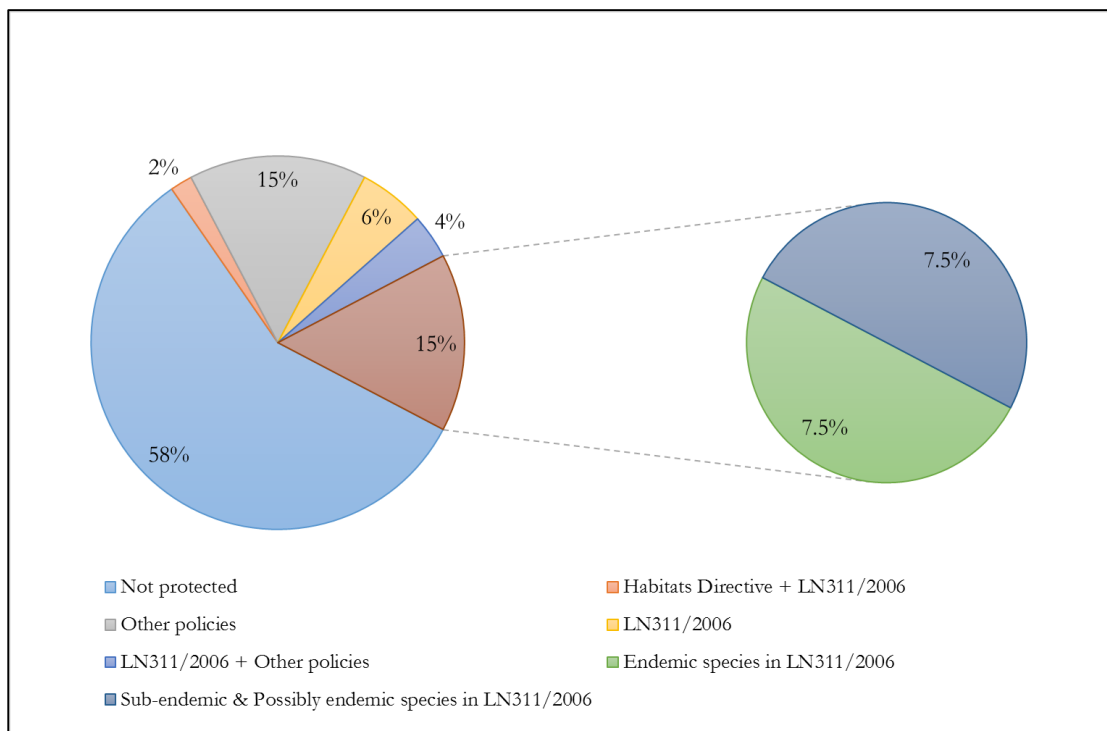


Figure 1.24 : Percentage of species protected by policy in 'Għajn Barrani', with an emphasis on the endemic, sub-endemic and possibly endemic plant species

Out of the 52 plant species that were documented at Għajn Barrani, 8 species (15%) are endemic in terms of LN311/2006. Half of these are protected endemic species to the Maltese Islands (*Salsola melitensis*, *Hyoseris frutescens*, *Matthiola incana* subsp. *melitensis*, *Euphorbia melitensis*), while the other half are protected sub-endemic species or species that require further study because they are possibly endemic (*Crocus longiflorus*, *Desmazeria pignattii*, *Senecio leucanthemifolius*, *Drimia maritima*).

Six of these species (75%) are currently under debate, on their rank, on their distinctiveness or even on their name, since they are occasionally referred to by different names by various botanists; all of which lead to a debate on their endemic status. A serious situation would arise if studies would lead to a change in the endemism of the species, as this would raise the question of whether or not the area should remain protected for that species. However in Għajn Barrani, since there are a number of endemic plant species, a change in the endemic status of one species will not be as critical, since other protected species remain

in the area. If a thorough study is conducted on all these species and there is a change in their endemic status, the area would then need to be reviewed in terms of its boundary lines since the other 25% of the species may not cover the same area as the priority species.

Apart from the endemic species present in the area, there are a number of species that are also protected, nationally or internationally. For example 2% of the species are protected both nationally through LN311/2006, as well as through the Habitats Directive, 4% of the species are protected by both LN311/2006 as well for other reasons (such as the IUCN). However this still brings us back to the previous point. Any change in status of the species will result in a debate on the protection of the area.

4.3.2 *L-Inhawi ta' Pembroke (MT0000002)*

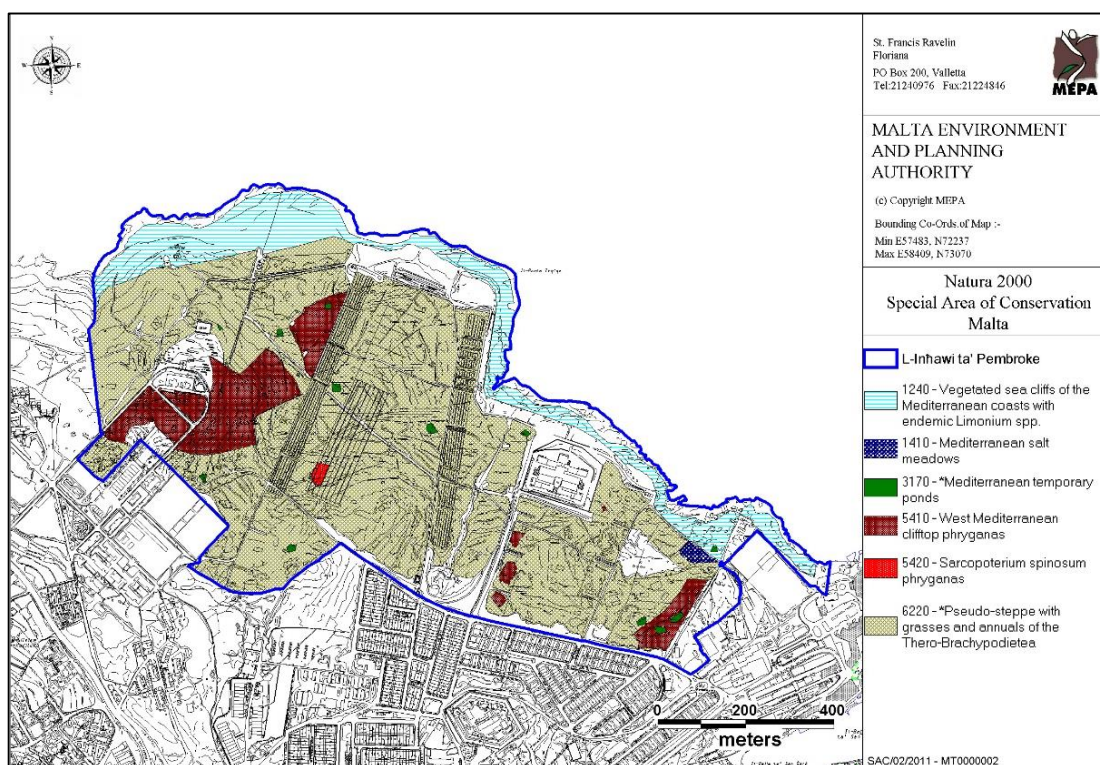


Figure 1.25: SAC map of 'L-Inhawi ta' Pembroke' (MEPA, n.d.)

Table 1.3 : Endemic, sub-endemic and possibly endemic plant species present in ‘L-Inħawi ta’ Pembroke’ [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermannaiae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Elatine gussonei</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

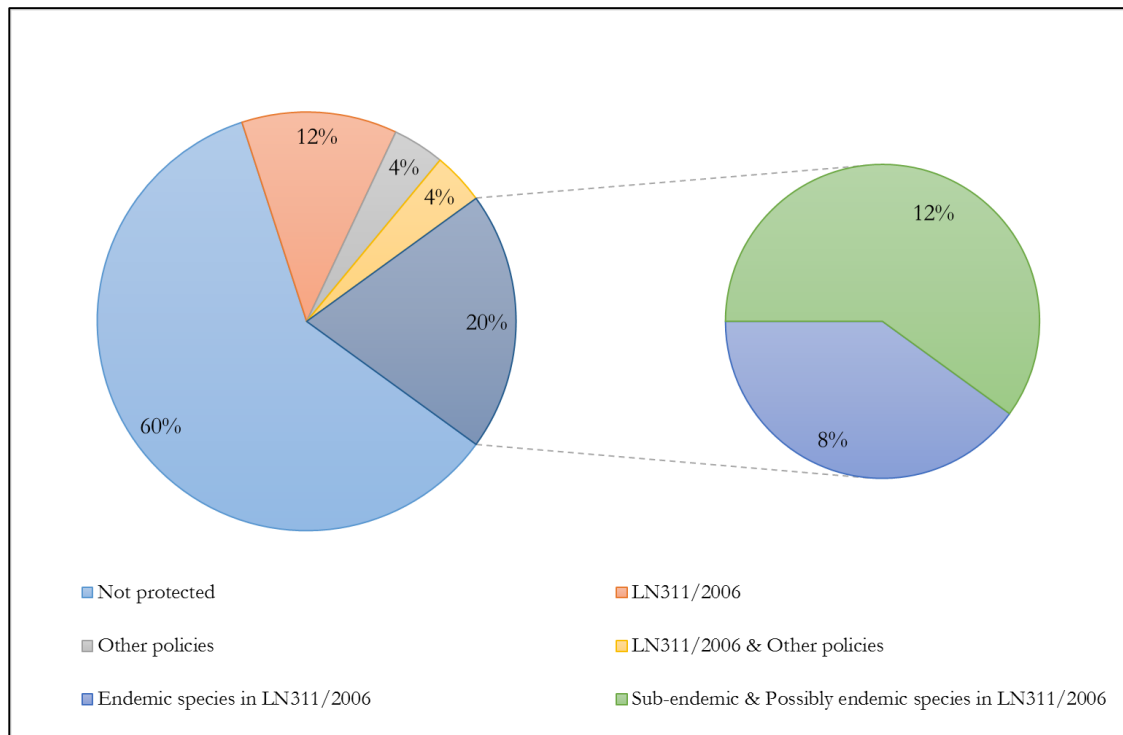


Figure 1.26 : Percentage of species protected by policy in 'L-Inhawi ta' Pembroke', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

20% of the 25 important species documented in “L-Inhawi ta’ Pembroke” site are endemic, sub-endemic and possibly endemic species. The protected species that are endemic to the Maltese Islands (*Allium lojaconoi* and *Anthyllis hermanniae*) make up to 8% of the documented priority species. Protected sub-endemic and possibly endemic species make up to 12% of the documented priority species, and these include *Elatine gussonei*, *Orobanche sanguinea* and *Scilla peruviana*.

Only *Allium lojaconoi* is not under current taxonomic debates. The other four species are currently under debate because they are not distinct, are used under different names by different botanists, there is disagreement on their rank, etc., which therefore leads on confusion regarding their endemism. If there were to be changes in the endemic status of these species, the area would lose most of its ecological importance, as these represent 16% of the important species present in the area. Although this percentage may not seem high, one has to note that these species are of high value, some of which also protected

internationally as can be seen from Table 4.3. These changes would also cause the need to review the boundaries of “L-Inhawi ta’ Pembroke” since the remaining species that is not at risk of changing its status (*Allium lojaconoi*) will not cover the same area as the other four species.

One should also note from Table 4.3 that there are actually ten endemic, sub-endemic and possibly endemic plant species present in the area, however only half of these are protected as the rest are listed in Schedule X of LN311/2006. Even though there may be debates on these species, a change in their status may not be as critical since they may still not merit protection due to their abundance and lack threats on their population.

60% of the species in this area are not protected nationally or internationally. There are also no species present that are protected in the Habitats Directive. However, 4% of the species are listed in “Other policies”, meaning that they are protected in other laws (e.g. *Juncus acutus* is listed in the IUCN Red List – Least Concern). Therefore this area is not only protecting endemic species, but also other species of both national and international importance.

4.3.3 *Il-Ballut tal-Wardija* (MT0000003)

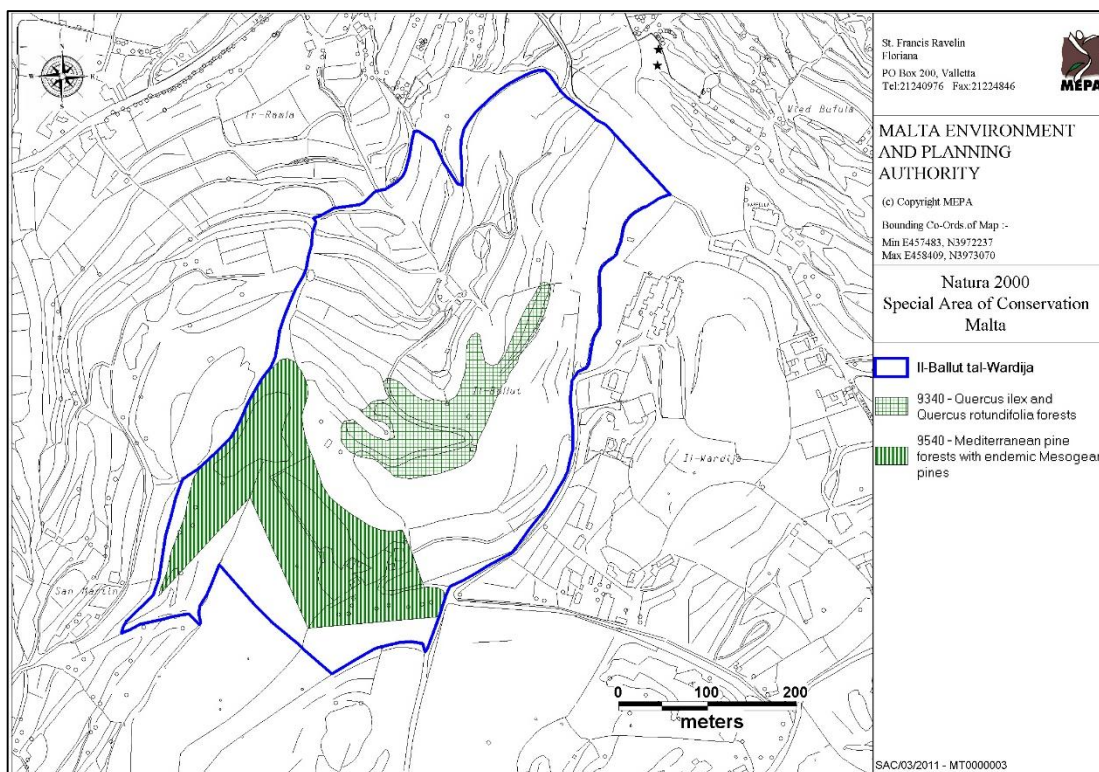


Figure 1.27: SAC map of 'Il-Ballut tal-Wardija' (MEPA, n.d.)

Table 1.4: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Ballut tal-Wardija' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes

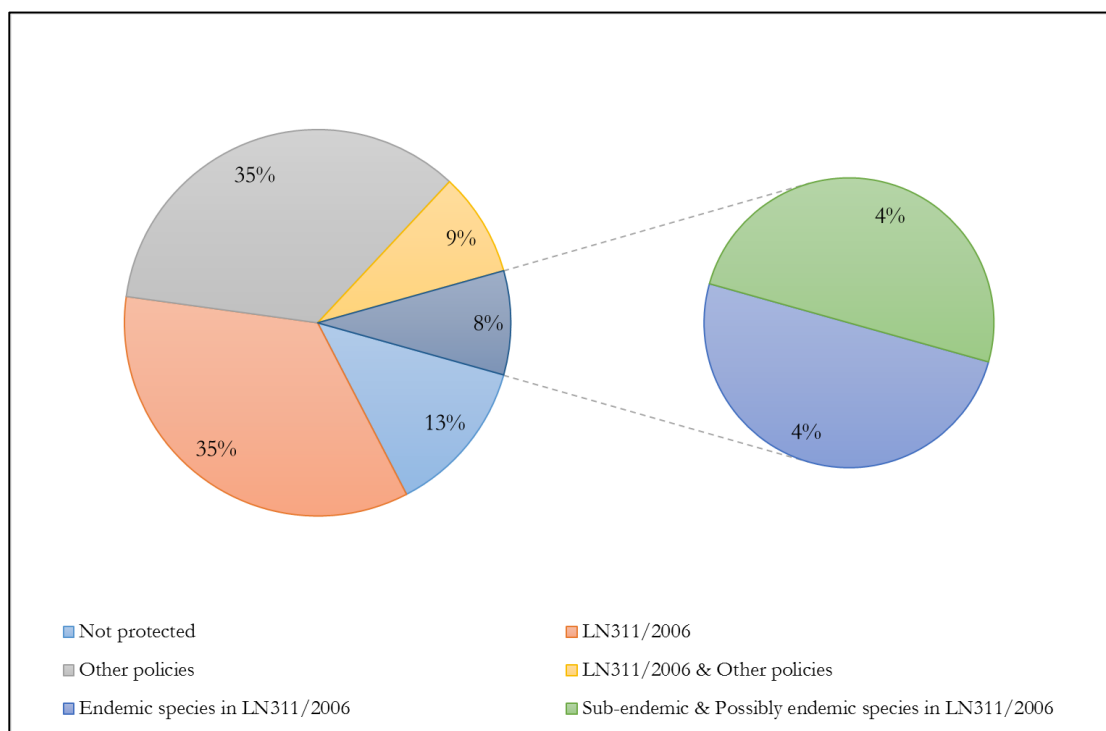


Figure 1.28: Percentage of species protected by policy in 'Il-Ballut tal-Wardija', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Endemic, sub-endemic and possibly endemic protected species represent 8% of the important species present in 'Il-Ballut tal-Wardija', consisting of *Anacamptis urvilleana* (a protected endemic species) and *Jacobaea maritima* (a protected sub-endemic species). There are other endemic species present in the area (*Jasonia bocconeii*, *Phelipanche nana* subsp. *melitensis*), but these are listed in Schedule X in LN311/2006, and are thus exempted from protection under Regulation 26.

Both of the protected species mentioned earlier are under some form of taxonomic debate. *Anacamptis urvilleana* is sometimes referred to as *Anacamptis pyramidalis* subsp. *urvilleana*,

which means that it is unclear to whether the species merits the rank of a 'species', or that of a 'sub-species'. This species is also under debate because it is difficult to distinguish it from *Anacamptis pyramidalis* unless it is flowering season. In the case of *Jacobaea maritima* (which in the MEPA datasheet was listed as *Senecio bicolor*), it is still sometimes referred to as *Senecio bicolor*, which confuses the person on which genus it belongs to. Also, it is sometimes referred to as *Jacobaea maritima* subsp. *sicula*, which raises the debate on its rank, and if it is actually distinct from other species.

The fact that this area only has two endemic plants (in terms of LN311/2006) makes it more critical on the protected area if there had to be a change in their endemic status. This would pose a debate on whether the protected area would still be considered as an area of ecological importance, or whether there has to be a change in its boundary lines to protect only the other important non-endemic species present.

Anacamptis urvilleana is also protected internationally, in Annex II and IV of the Habitats Directive. If this species were to lose its endemic status or is found to be elsewhere, there would also be the need for revision of this directive as it may no longer require protection. 35% of the species documented in this area are not protected, whereas another 35% are non-endemic species protected in other policies other than LN311/2006, including both national policies (LN200/2011) as well as international policies (IUCN Red Data List). 13% of the species are protected through the Maltese national policy only (LN311/2006), whereas 9% of the species are protected both through the Maltese national policy as well as through other policies (e.g. *Quercus ilex* is protected through LN311/2006 and LN200/2011).

4.3.4 *Il-Maqluba (limiti tal-Qrendi) (MT0000004)*

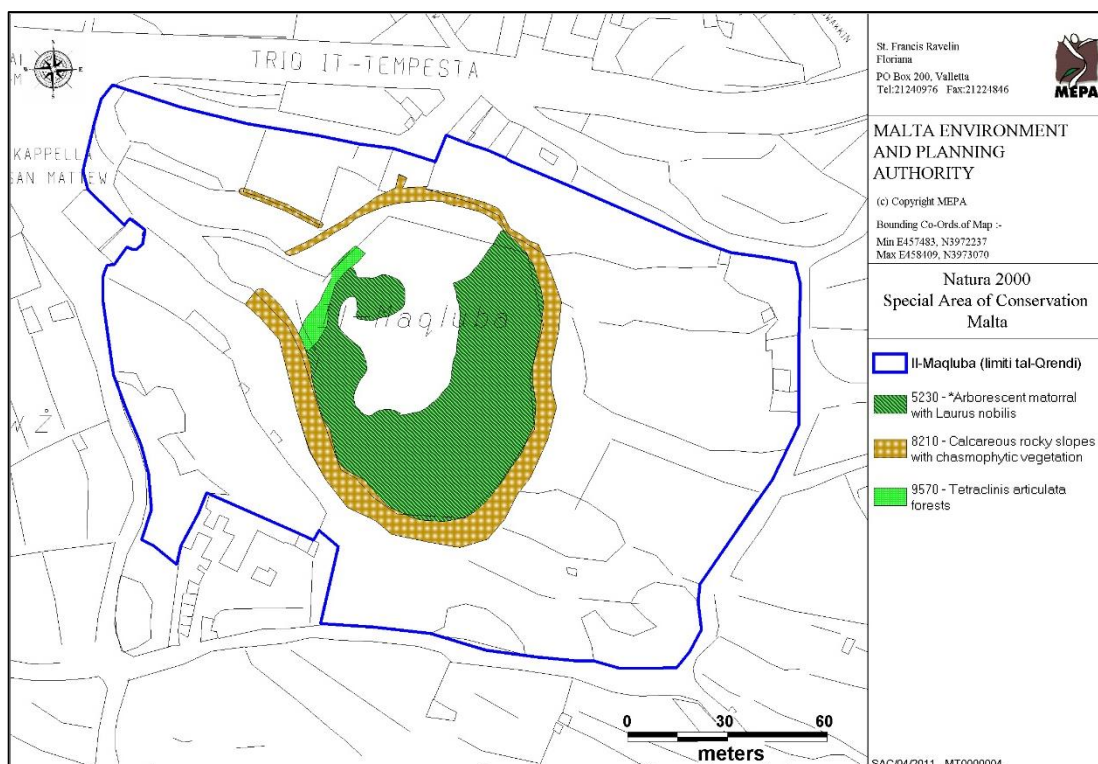


Figure 1.29: SAC of 'Il-Maqluba' (MEPA, n.d.)

Table 1.5: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Maqluba' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes

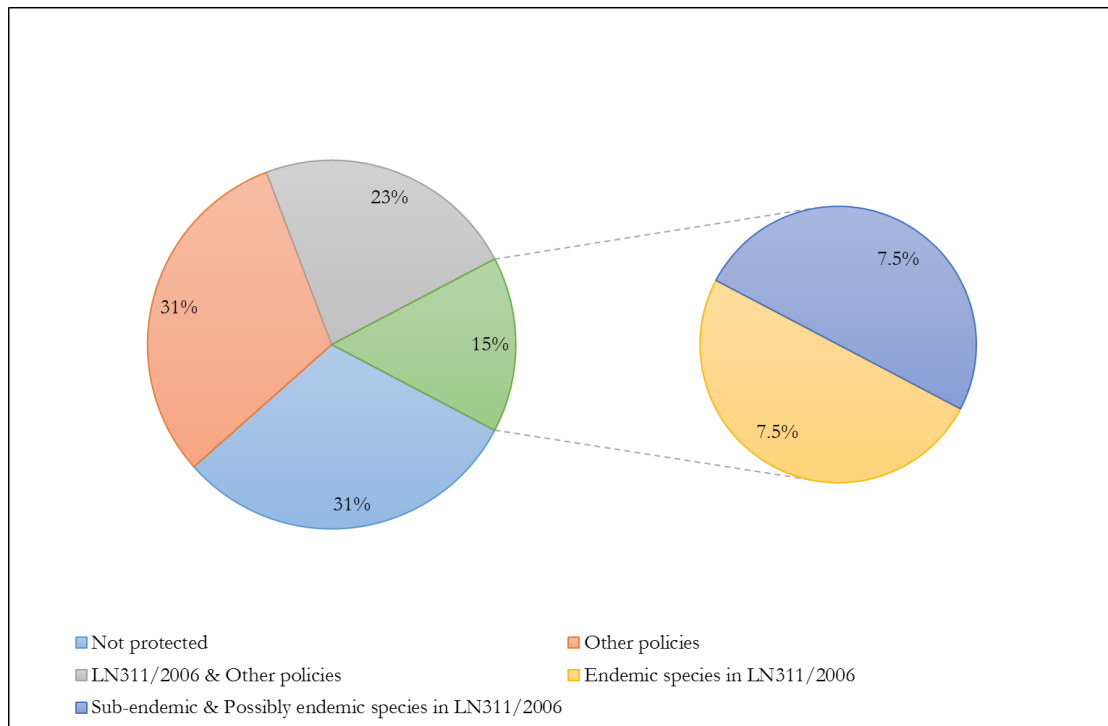


Figure 1.30: Percentage of species protected by policy in 'Il-Maqluba', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Thirteen important plant species have been documented in 'Il-Maqluba' region, two of which (15%) are protected endemic, sub-endemic or possibly endemic species. These two species are *Salsola melitensis* (endemic) and *Iris pallida* subsp. *pallida* (possibly endemic). *Iris pallida* subsp. *pallida* is currently under taxonomic debate, and although it is currently still protected by LN311/2006 as it was previously a sub-endemic species, if botanists were to clarify that it is not endemic, the status and significance of the protected area will be altered, thus the area may need reviewing in order to adjust its boundary lines to provide substantial protection for the remaining important species present. This also implies that *Salsola melitensis* would be the only remaining primary criterion for the protection of 'Il-Maqluba' area. The advantage with *S. melitensis* is that there are currently no debates on its endemism, and would thus still need to be protected.

Out of the 13 important species documented in 'Il-Maqluba' area, 31% are not protected nationally or internationally. Another 31% of the species are protected through policies other than LN311/2006, for example *Punica granatum* is listed in the IUCN Red List (Least Concern), and *Pistacia lentiscus* is protected through Schedule I of LN200/2011. The rest (23%), are protected through both LN311/2006 and other reasons, e.g. *Tetraclinis articulata*.

4.3.5 *L-inhawi tar-Ramla* (MT0000005)

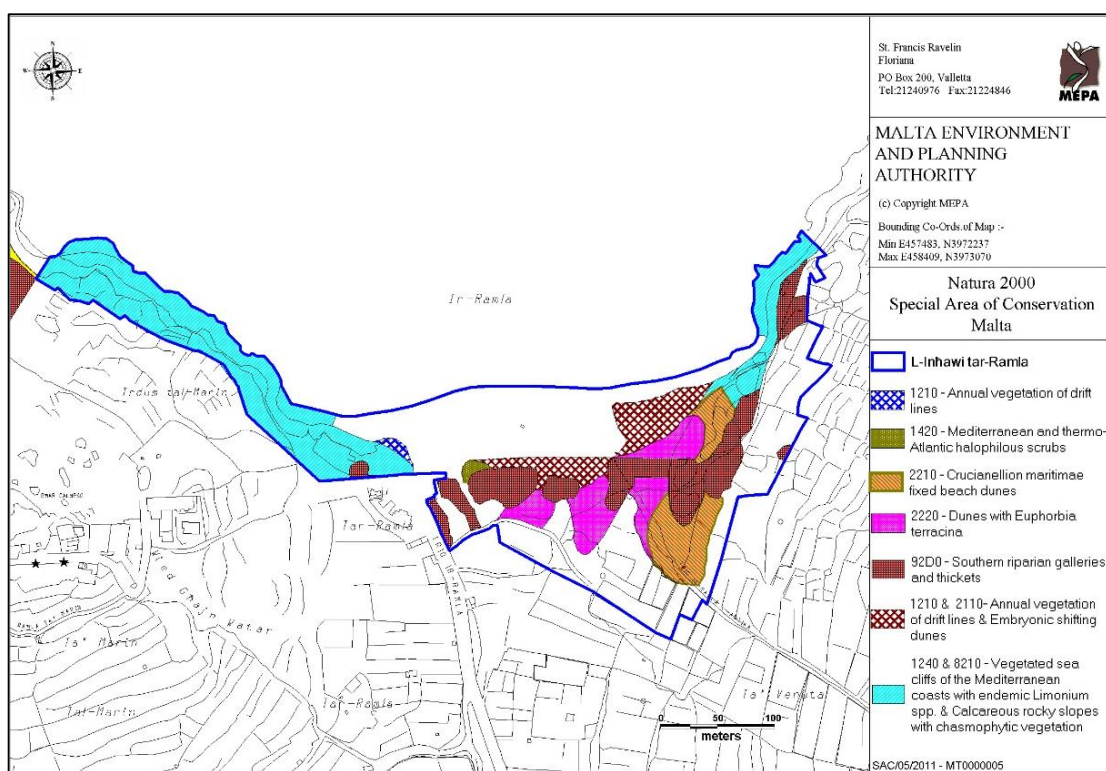


Figure 1.31 : SAC map of 'L-inhawi tar-Ramla ' (MEPA, n.d.)

Table 1.6: Endemic, sub-endemic and possibly endemic plant species present in 'L-inħawi tar-Ramla' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Desmazzeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

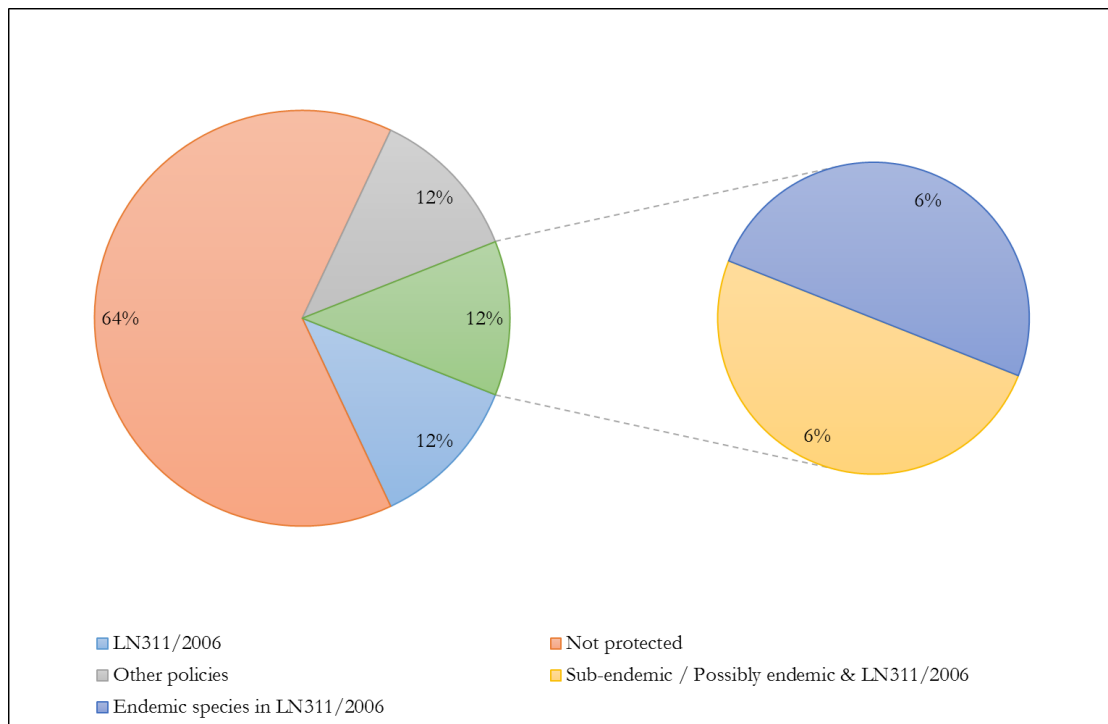


Figure 1.32: Percentage of species protected by policy in 'L-Inhawi tar-Ramla', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the fifty important species that have been identified in 'L-Inhawi tar-Ramla', six are endemic, sub-endemic and possibly endemic species, protected through LN311/2006. *Salsola melitensis*, *Limonium melitense* and *Romulea melitensis* are the endemic plants that make up 6% of the species list of the area, whereas *Desmazeria pignattii*, *Jacobaea maritima* and *Senecio leucanthemifolius* are sub-endemic and possibly endemic plant species that make up another 6%.

Out of these six species, only *Salsola melitensis* and *Desmazeria pignattii* are not currently under any taxonomic debate. The other plant species are in need of further study since they are all under debate on how they can be distinct from other species under the same genus, meaning that they may not possibly be endemic. Their rank is also under debate, since most are known by other synonyms that have the status of a 'sub-species' or a 'variation'.

E.g. *Senecio leucanthemifolius* is also known as *Senecio leucanthemifolius* var. *pygmaeus*, which makes it difficult for one to understand whether this species is a distinct species, or if it is actually a variation.

Once these debates reach a status of clarification, it would be easier to create borderlines of protection for the species, as well as clarify which species should be protected and which not. However this is highly impossible as each debate arises from significant opinions of experts and there may never be agreement.

Five species (four endemic and one sub-endemic) are present in this area but are listed in Schedule X, since they are quite an abundant population and are not currently experiencing any threats. This also means that even though some of them may be under some form of debate, if their endemic status is changed, this will not alter the significance of this Natura 2000 site since these were already not protected when this site was declared as a SAC.

There is quite a high percentage (64%) of species that are not protected nationally or internationally, meaning that it is the presence of endemic, sub-endemic and possibly endemic species that have been a criterion to the creation of this SAC. This therefore emphasises the importance of having clarifications on the protected species, especially those endemic to the Maltese Islands.

4.3.6 *Is-Simar (limiti ta' San Pawl il-Bahar) (MT0000006)*

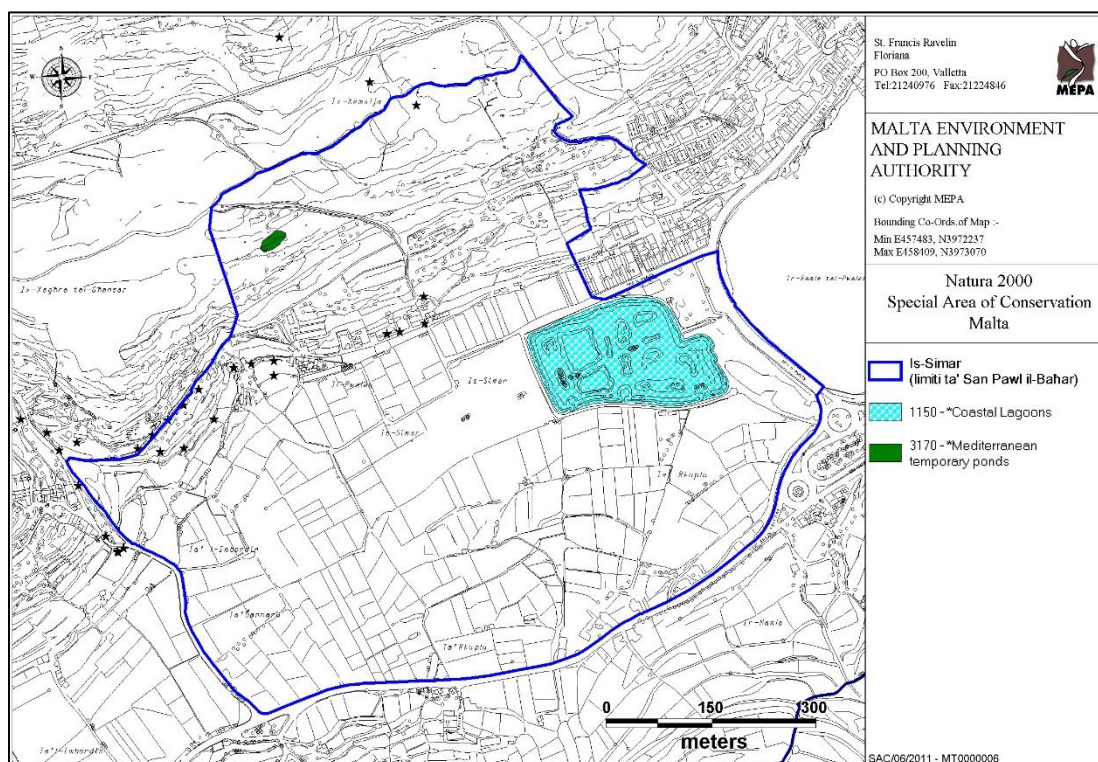


Figure 1.33: SAC map of 'Is-Simar' (MEPA, n.d.)

Table 1.7: Endemic, sub-endemic and possibly endemic plant species present in 'Is-Simar' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not Listed	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Elatine gussonei</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

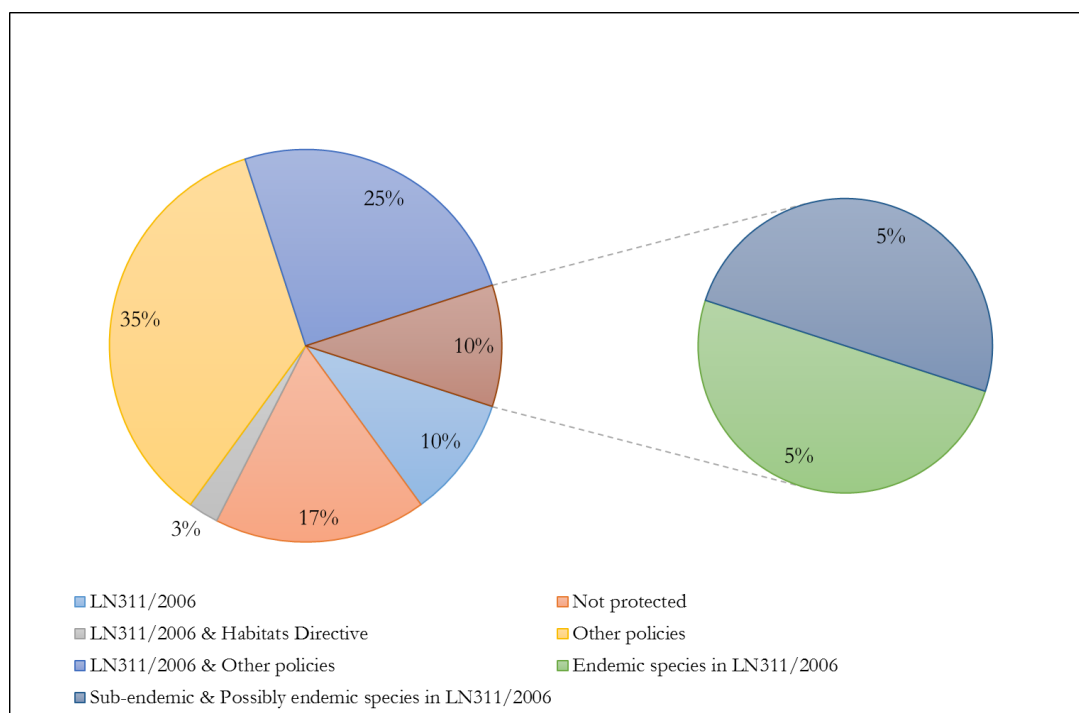


Figure 1.34: Percentage of species protected by policy in 'Is-Simar', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

5% of the documented important species in this area are protected endemic species to the Maltese Islands, and another 5% are sub-endemic and possibly endemic species. *Anacamptis urvilleana* and *Zannichellia melitensis* are both protected endemic species present in 'Is-Simar', whereas *Elatine gussonei* is a protected sub-endemic species present in this region. *Iris pallida* subsp. *pallida* is a possibly endemic species, which has lost its endemic status, but is still currently undergoing research as some are still referring to it as *Iris sicula*, which is known to be a sub-endemic species to the Maltese Islands. Since all of these species are currently under debates, (on their rank, status, and even their name due to them being referred to by different names) if they lose their endemic status, the protected area will be affected.

There is only a small percentage (17%) of the documented species that are not protected by policy, meaning that this area is used to protect both endemic species in terms of LN311/2006, as well as other species that are of ecological importance. However this does not mean that if a species loses its endemic status there will not be any implications, it is quite the opposite.

The presence of an endemic species in a region is of high importance and its habitat would need to be protected, which is one main reason behind the establishment of Natura 2000 sites. Once this species is no longer considered endemic, the area would lose part of its value, and will need to be revised in order to eliminate those regions within the site that were protected specifically for that species. Policy-makers need to then see what should be done if one of the conservation reasons is abolished, as this will not only impact this region, but will also have an effect on other sites of ecological importance.

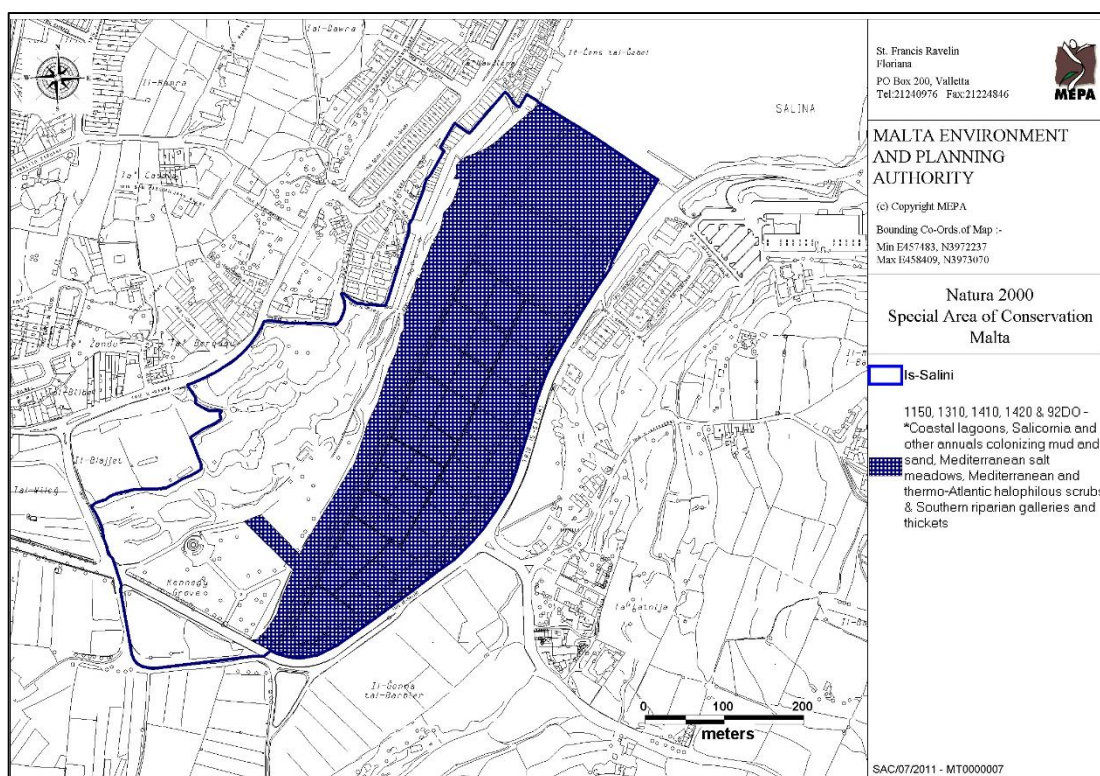
4.3.7 *Is-Salini* (MT0000007)

Figure 1.35: SAC map of 'Is-Salini' (MEPA, n.d.)

Table 1.8: Endemic, sub-endemic and possibly endemic plant species present in 'Is-Salini' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes

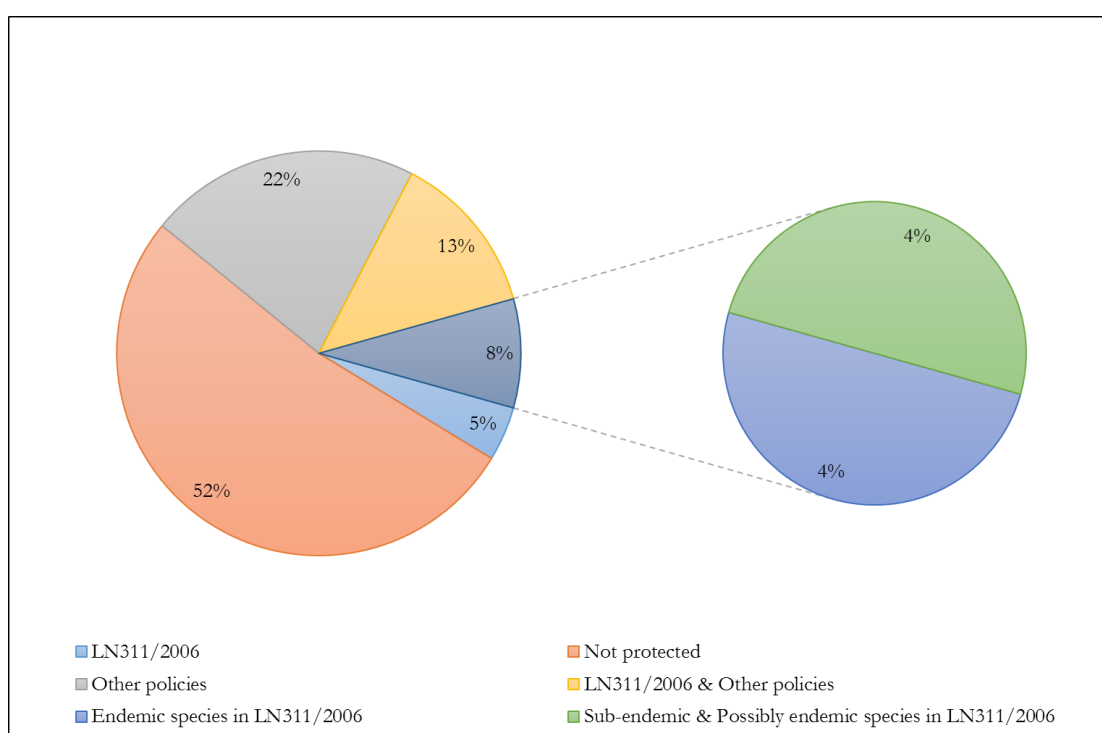


Figure 1.36: Percentage of species protected by policy in 'Is-Salini', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the 23 documented important species in 'Is-Salini', 8% (2 species) are endemic species in terms of LN311/2006. *Allium lojaconoii*, is a protected endemic species to the Maltese Islands, while *Iris pallida* subsp. *pallida* is a possibly endemic species. However this species is currently listed as *Iris sicula* in LN311/2006, and is thus protected as a sub-endemic species, even though scientists consider *I. sicula* as a synonym of *I. pallida* subsp.

pallida. Considering that there are a number of debates on this species, it remains protected until further clarifications, as LN311/2006 also protects species that are possibly endemic. *Allium lojaconoi* is not currently under any taxonomic debates, however *Iris pallida* subsp. *pallida* needs to undergo taxonomic review as there are quite a number of debates on its status.

More than half of the species present in this area are not protected, therefore the fact that the endemic species make up 8% is quite high, meaning that if one of the species were to lose its endemic status then this area of conservation would need to be changed. However, it is good to note that *Allium lojaconoi* is not currently under any debates and it is considered to be a distinct species (Lanfranco – personal communication, 2014).

4.3.8 L-Ghadira s-Safra (MT0000008)

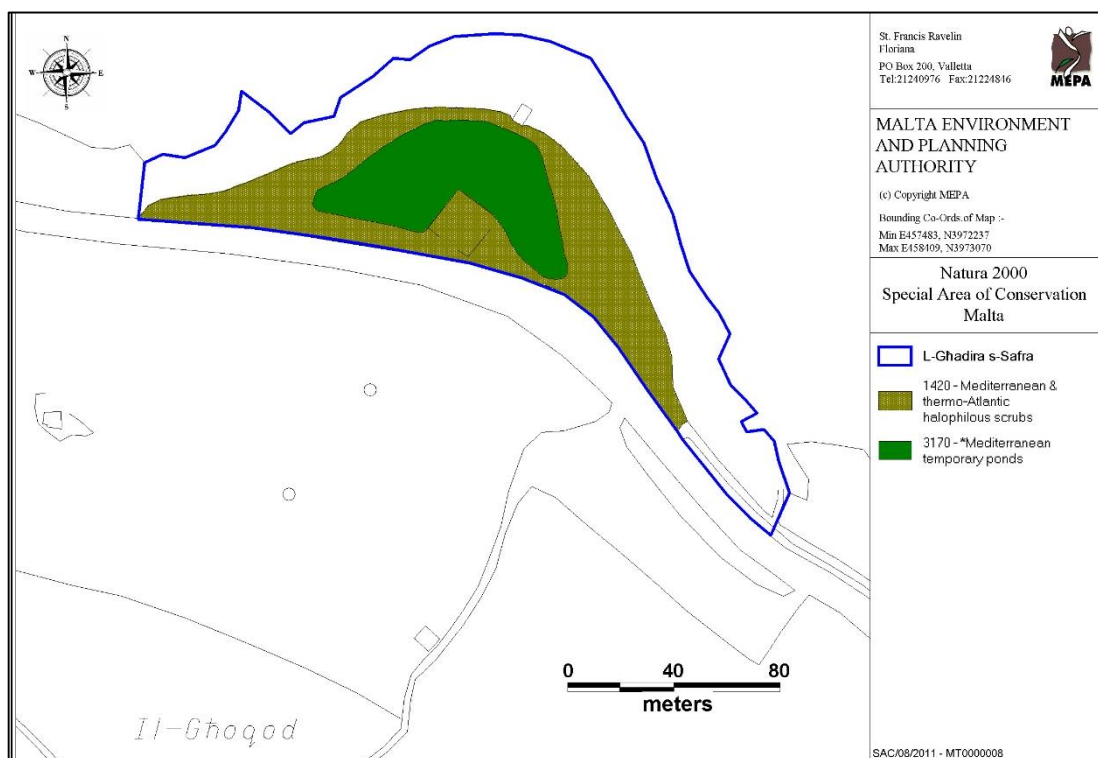


Figure 1.37: SAC map of 'L-Ghadira s-Safra' (MEPA, n.d.)

Table 1.9: Endemic, sub-endemic and possibly endemic plant species present in 'L-Ghadira s-Safra' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No

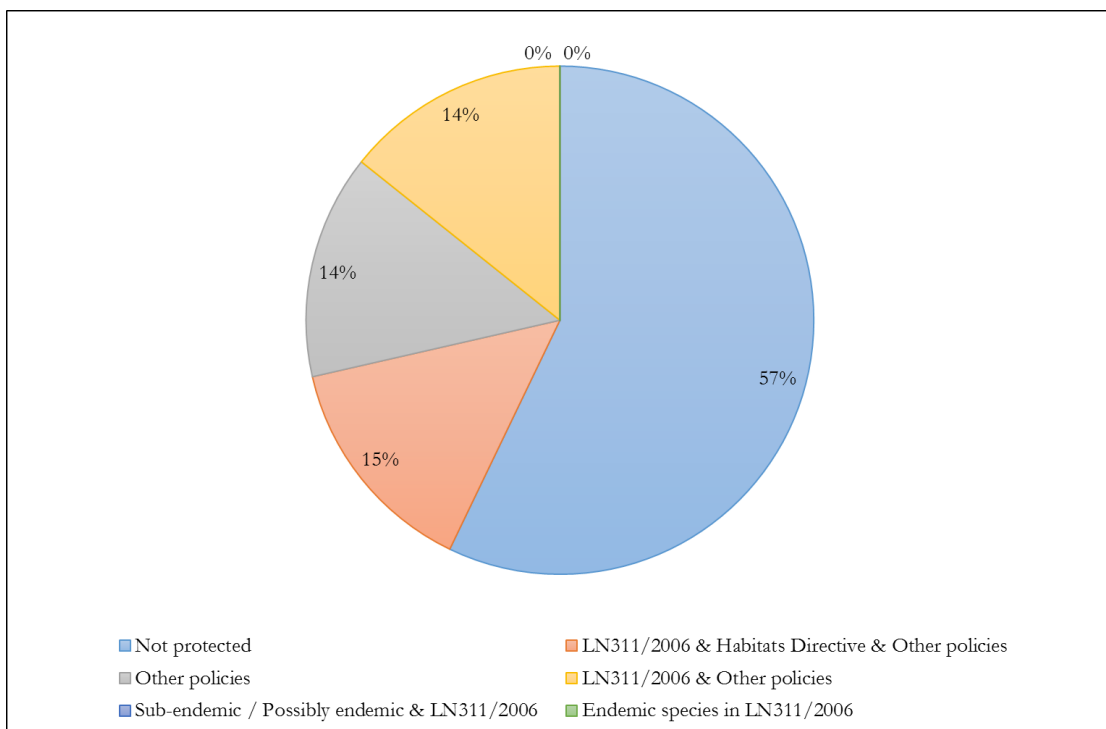


Figure 1.38: Percentage of species protected by policy in 'L-Ghadira s-Safra'

Although this is a very important area ecologically, there are no endemic plant species present. Therefore this site is a SAC in order to protect other priority species through LN311/2006, the Habitats Directive and various other policies.

4.3.9 L-inhawwi tar-Ramla tat-Torri u l-Irdum tal-Madonna (MT0000009)

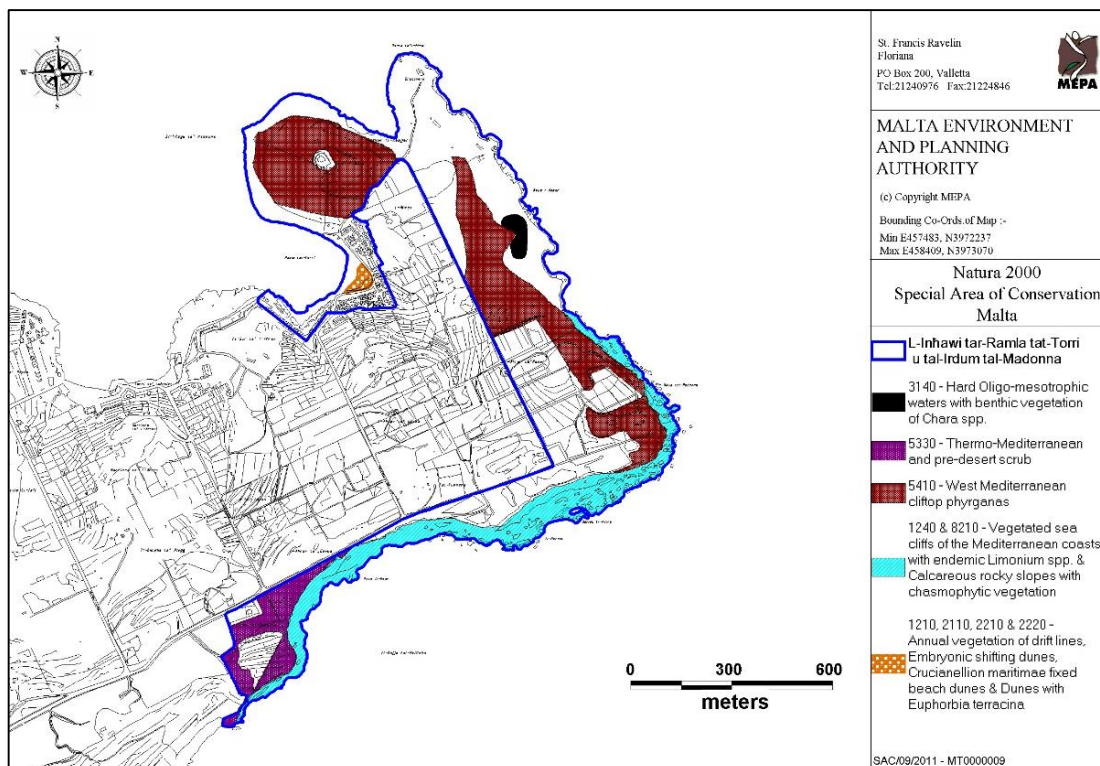


Figure 1.39: SAC map of 'L-inhawwi tar-Ramla tat-Torri u l-Irdum tal-Madonna' (MEPA, n.d.)

Table 1.10: Endemic, sub-endemic and possibly endemic plant species present in 'L-inhawwi tar-Ramla tat-Torri u l-Irdum tal-Madonna' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pyncnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafbae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

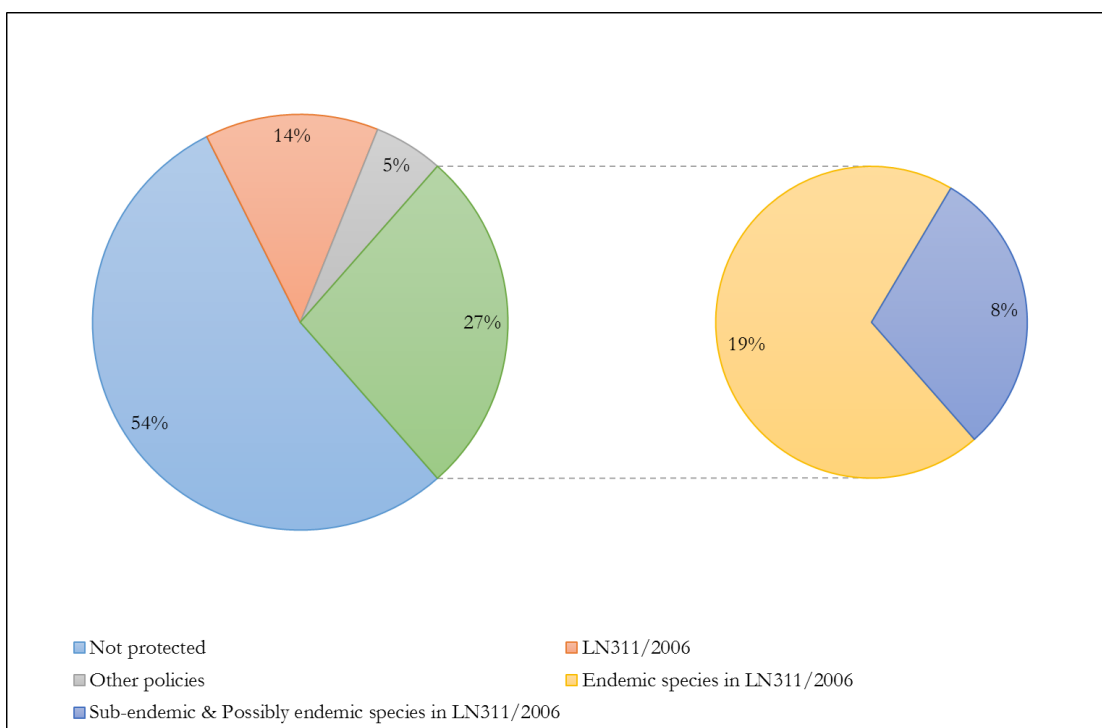


Figure 1.40: Percentage of species protected by policy in 'L-Inħawi tar-Ramla tat-Torri u l-Irdum tal-Madonna', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the 37 species found at 'L-inħawi tar-Ramla tat-Torri u l-Irdum tal-Madonna', 27% are endemic in terms of LN311/2006. 19% of the priority species are protected endemic species to the Maltese Islands, and 8% are sub-endemic and possibly endemic species.

Allium lojaconoi, *Anacamptis urvilleana*, *Anthyllis bermanniae* subsp. *melitensis*, *Euphorbia melitensis*,

Limonium melitense, *Limonium zerafhae* and *Salsola melitensis* are all protected endemic plant species present in this site. *Daucus carota* subsp. *drepanensis*, *Daucus carota* subsp. *rupestris* and *Orobanche sanguinea* are protected sub-endemic species present in this area.

A number of these species are currently under taxonomic debate. For example *A. urvilleana* may be difficult to distinguish unless one studies this species during its flowering period (Stevens - personal communication, 2014). Other endemic species, such as *L. zerafhae* and *L. melitense* are closely related species, and a recent study by Spiteri (2014) shows that these species are actually variants of a diploid species.

The presence of an endemic plant species that currently has an unclear status in a SAC creates a difficult situation where one has to carefully analyse the case. If the priority species may no longer be so, then one of the main criteria for the creation of the SAC at "L-inħawi tar-Ramla tat-Torri u l-Irdum tal-Madonna" will no longer be valid. This however is also subject to opinion. For example in the case of *Limonium*, there have been various arguments since botanists (such as Brullo, 1989) suggest that these are two different species. The difficult task would be to choose the 'best expert opinion' when it comes to the endemic status of the species, while considering that all opinions are subjective.

4.3.10 Ix-Xaghra tal-Kortin (MT0000010)

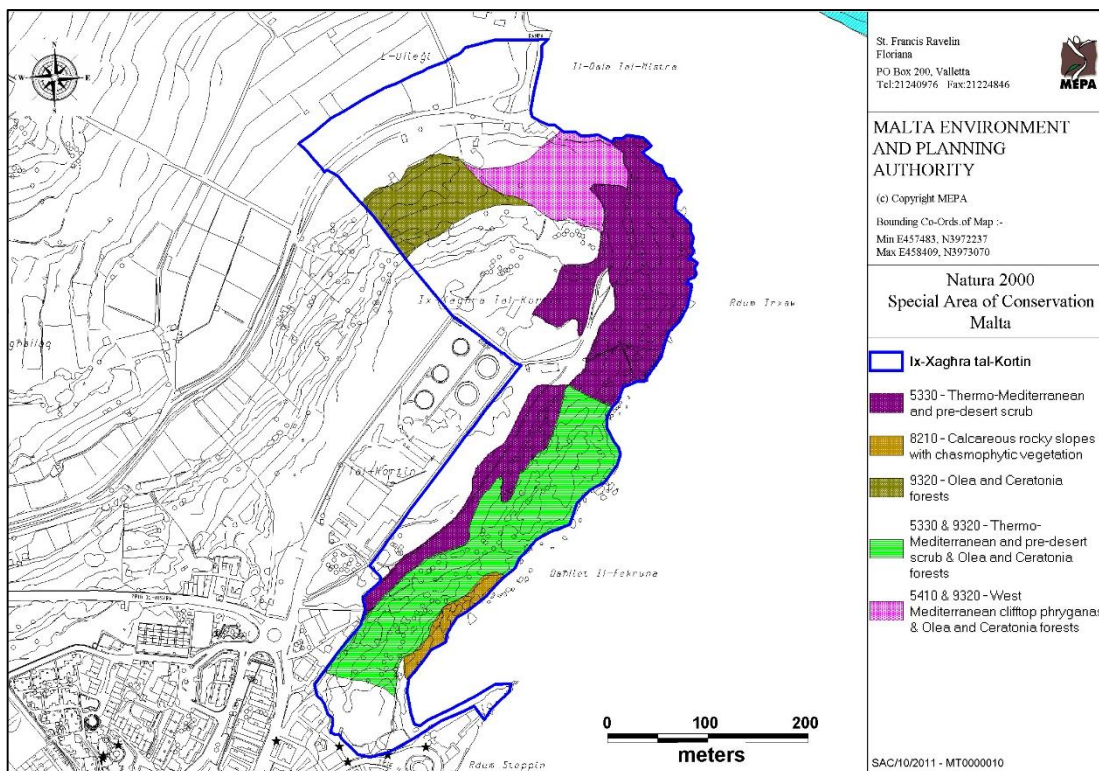


Figure 1.41: SAC map of 'Ix-Xaghra tal-Kortin' (MEPA, n.d.)

Table 1.11: Endemic, sub-endemic and possibly endemic plant species present in 'Ix-Xaghra tal-Kortin' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

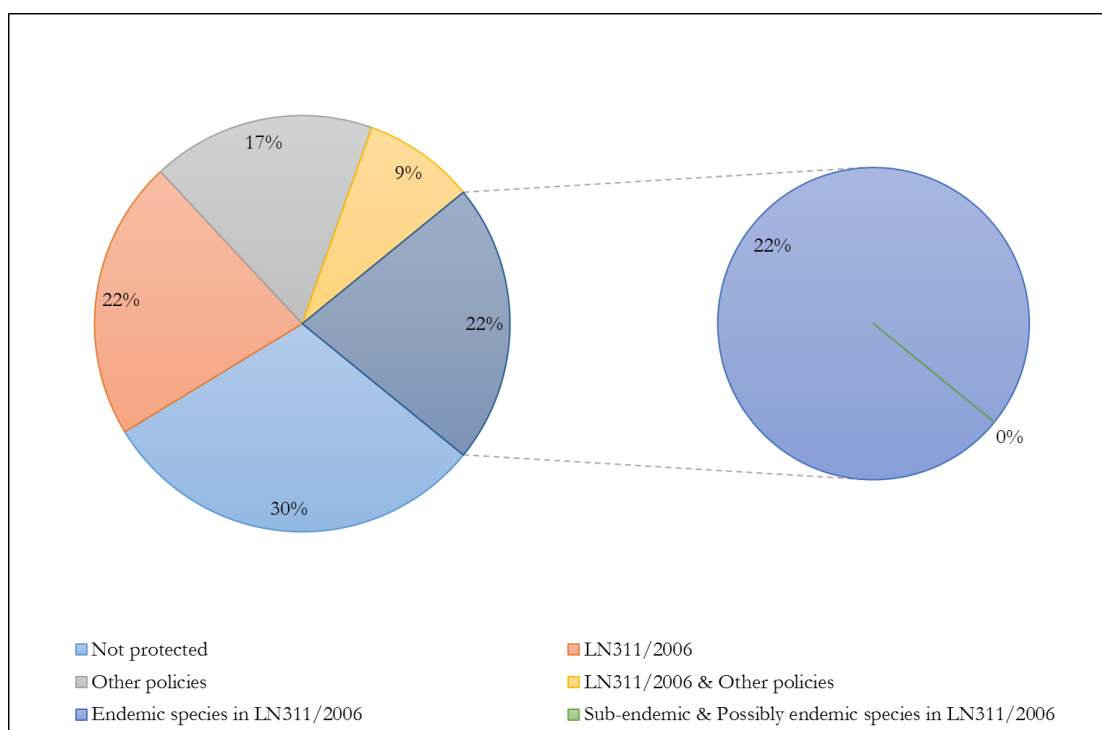


Figure 1.42: Percentage of species protected by policy in 'Ix-Xagħra Tal-Kortin', with an emphasis on the endemic plant species present

Out of the 23 species that are found in this area, 22% are protected endemic plant species. These are *Anacamptis urvilleana*, *Anthyllis bermanniae* subsp. *melitensis*, *Euphorbia melitensis*, *Salsola melitensis* and *Matthiola incana* subsp. *melitensis*. There are no protected sub-endemic species in this area. *Anacamptis urvilleana*, *Euphorbia melitensis* and *Matthiola incana* subsp. *melitensis* are all currently under taxonomic debate. Implications would arise if these were to have a change in their endemic status, as the criteria for the designation of the SAC at 'Ix-Xagħra tal-Kortin' would need to be revised.

However, one must keep in mind that even though these species may no longer be considered endemic, two other protected endemic species that are not under taxonomic debate, will still need protection and therefore 'Ix-Xagħra tal-Kortin' will most probably remain a SAC. It is likely that the boundary lines of the area may be subject to change if one or more of the protected endemic species were to no longer be a priority species.

4.3.11 *Għar Dalam* (MT0000011)

Out of all the species that have been documented in this area, there are no endemic, sub-endemic or possibly endemic plant species found to be present in 'Għar Dalam' (MEPA, n.d.), indicating that this area is a SAC for the protection of other species and habitats (See ANNEX C).

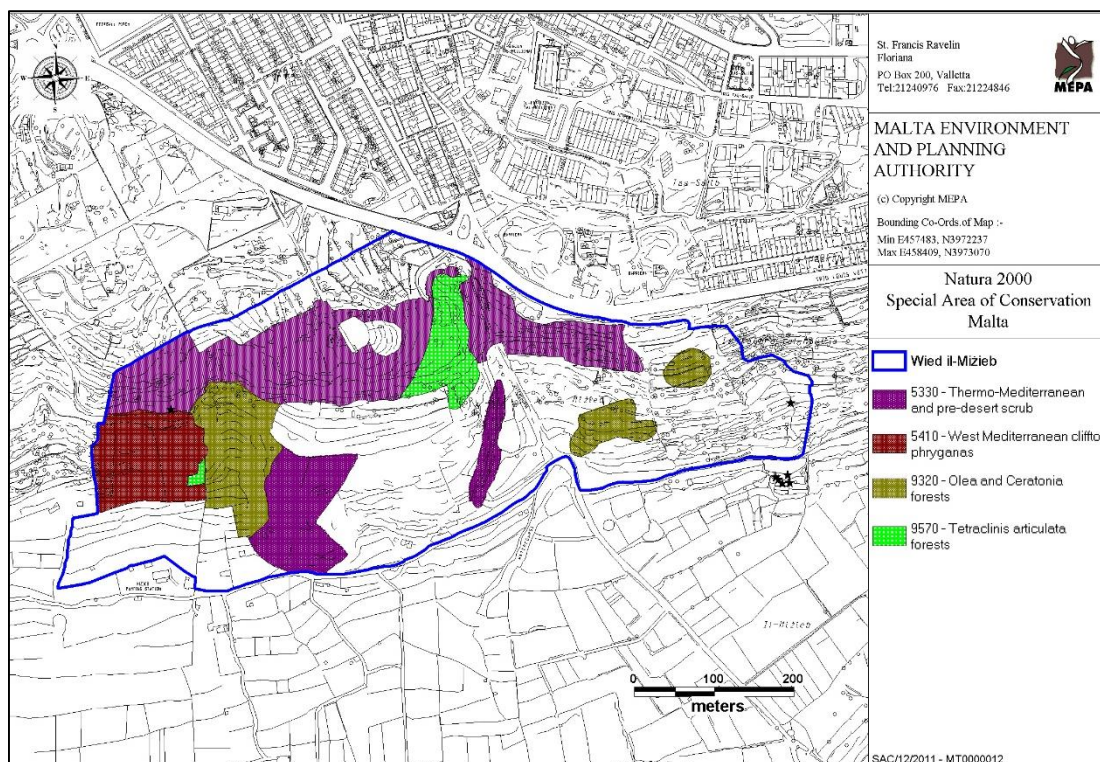
4.3.12 *Wied il-Mizieb* (MT0000012)

Figure 1.43: SAC map of 'Wied il-Mizieb' (MEPA, n.d.)

Table 1.12: Endemic, sub-endemic and possibly endemic plant species present in 'Wied il-Mizieb'
[species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

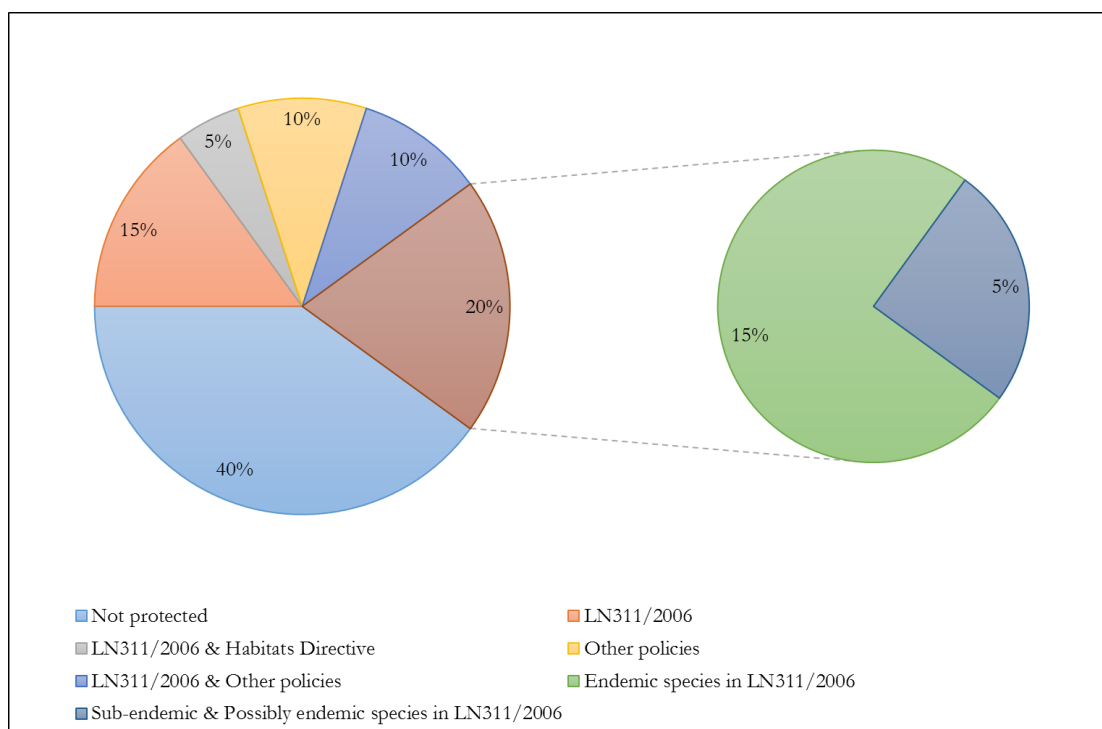


Figure 1.44: Percentage of species protected by policy in 'Wied il-Mizieb', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

At 'Wied il-Mizieb', 20 species that have been documented as 'important species', 20% of which are endemic in terms of LN311/2006. Three of these species (15%) are protected

endemic species of the Maltese Islands, constituting of *Anacamptis urvilleana*, *Anthyllis bermanniae* subsp. *melitensis* and *Euphorbia melitensis*. *Jacobaea maritima* is the only protected sub-endemic species in this area (5%).

Currently, all of these species apart from *Anthyllis bermanniae* subsp. *melitensis* are currently under taxonomic debate. If all three were to change their endemic status, the main criteria of the creation of the SAC at 'Wied il-Mizieb' will also be changed, and this will therefore require a revision in the protected area boundaries to exclude the species that are no longer a priority. This would also mean that the national law would need to be revised in order to exclude the protection of the species, especially if they are mentioned directly in the national law, as are *A. urvilleana* and *E. melitense*. Thus, if all three were to change their rank, they would lose their endemic status and it would change one of the objectives of the protected area.

4.3.13 *Cittadella* (MT0000013)

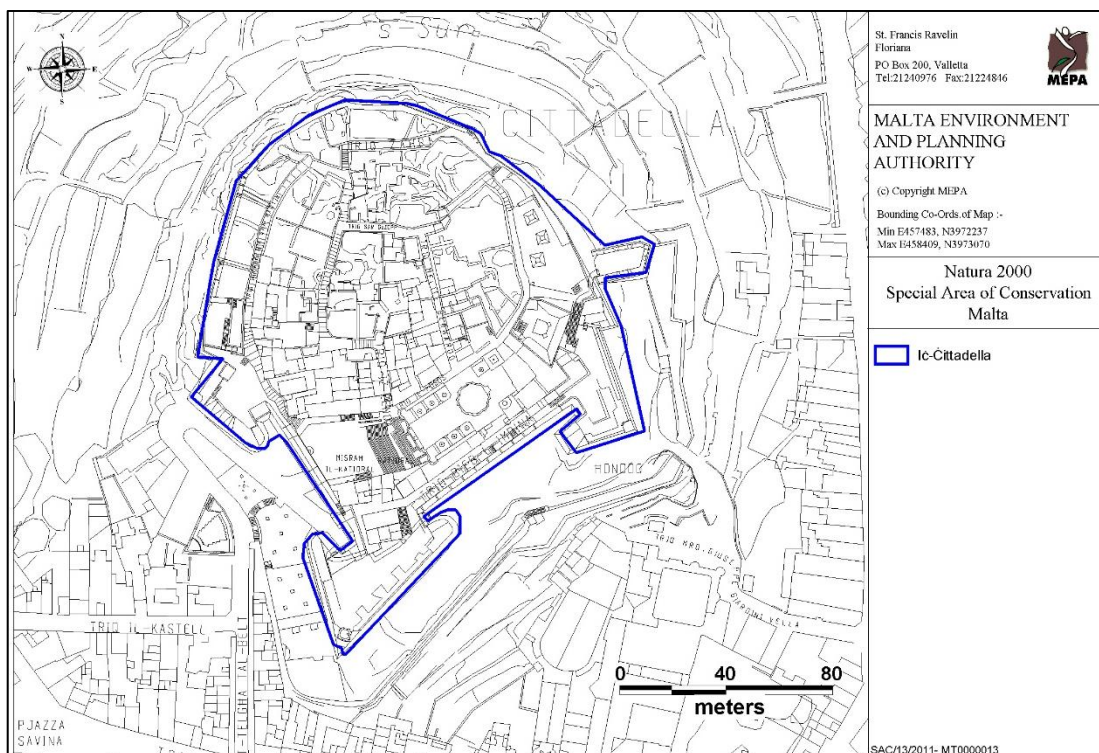


Figure 1.45: SAC map of 'Cittadella' (MEPA, n.d.)

Table 1.13: Endemic, sub-endemic and possibly endemic plant species present in 'Cittadella' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes

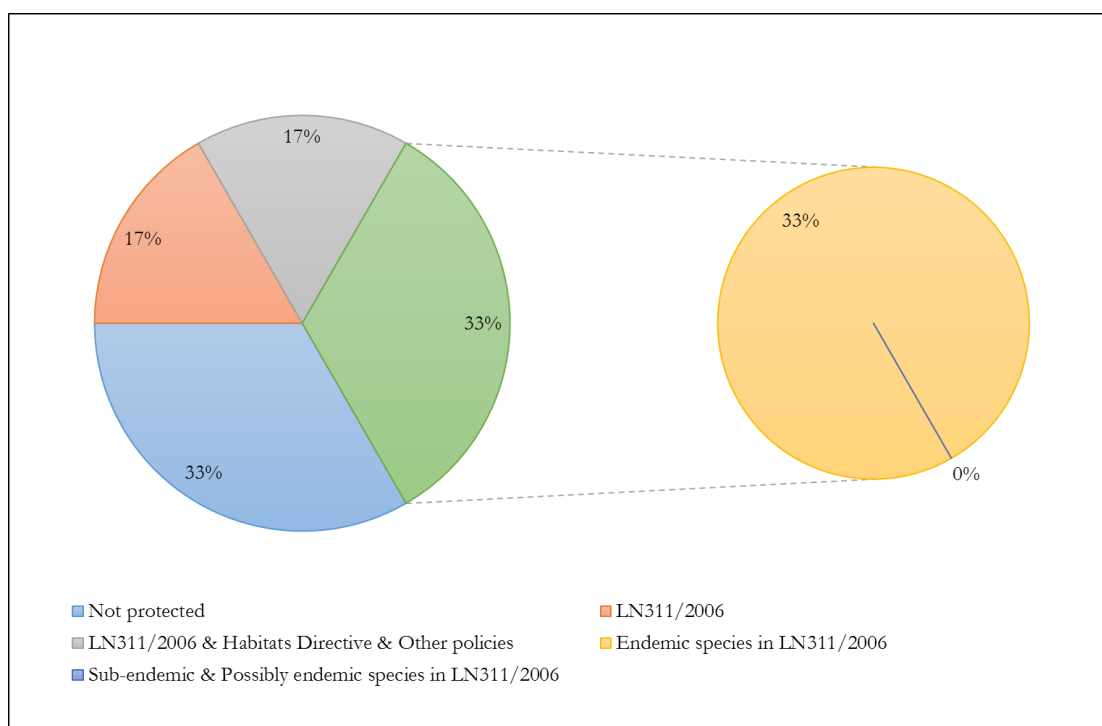


Figure 1.46: Percentage of species protected by policy in 'Cittadella', with an emphasis on the endemic plant species present

Out of the six species that have been documented in Ċittadella, two of them are protected endemic species of the Maltese Islands (*Salsola melitensis* and *Matthiola incana* subsp. *melitensis*). There are no protected sub-endemic species or possibly endemic in this area. *Matthiola incana* subsp. *melitensis* is currently under debate regarding its rank, because it is believed by some botanists that it may merit to be raised to a ‘species’ level. However there are no debates on the endemic status of the species, and it is believed to be morphologically distinct (Lanfranco – personal communication (2014), therefore this SAC is not at risk of possible future changes with regards to endemic species.

4.3.14 Il-Ballut ta' Marsaxlokk (MT0000014)

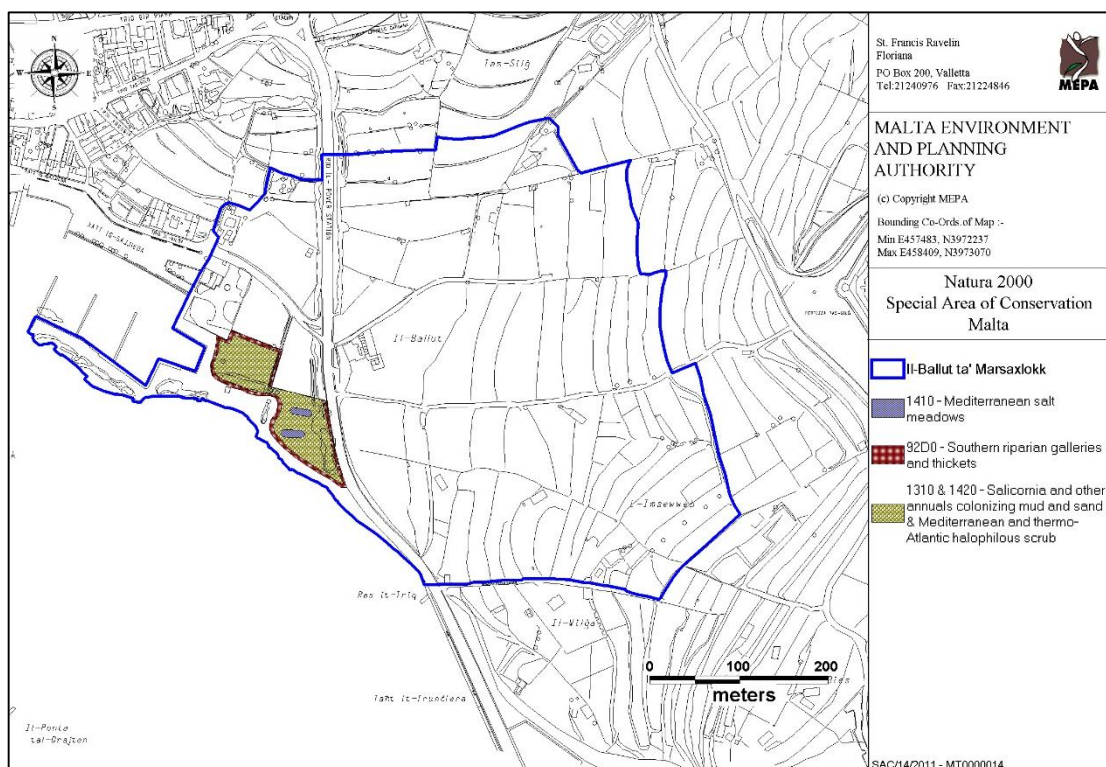


Figure 1.47: SAC map of 'Il-Ballut ta' Marsaxlokk' (MEPA, n.d.)

Table 1.14: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Ballut ta' Marsaxlokk' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No

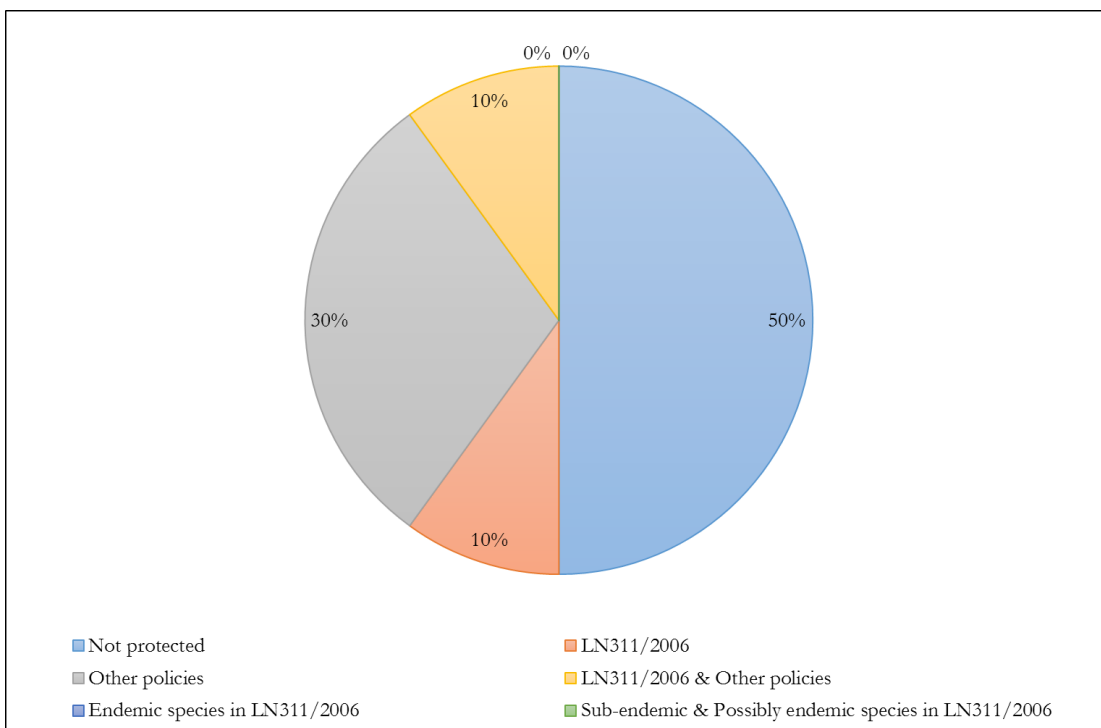


Figure 1.48: Percentage of species protected by policy in 'Il-Ballut ta' Marsaxlokk'

In 'Il-Ballut ta' Marsaxlokk', there were no protected endemic, sub-endemic or possibly endemic plant species that were recorded. This means that other priority species and important habitats were the criteria for the creation of this SAC.

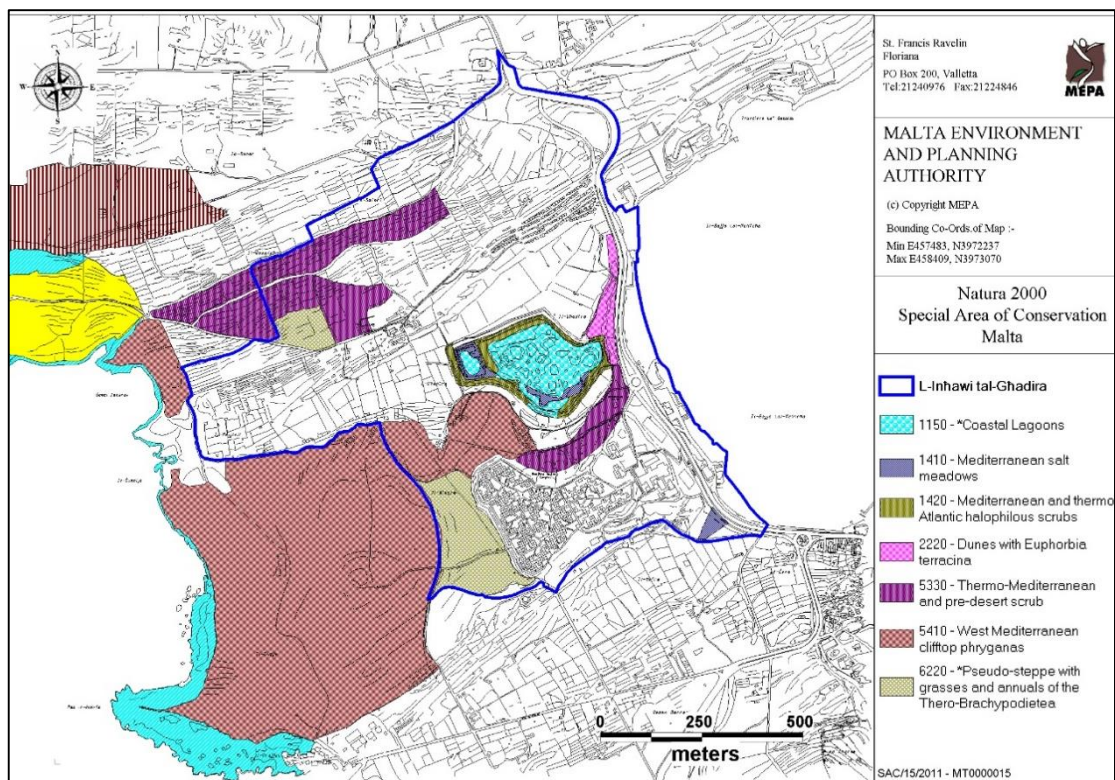
4.3.15 *L-inhawi tal-Ghadira* (MT0000015)

Figure 1.49: SAC map of 'L-inhawi tal-Ghadira' (MEPA, n.d.)

Table 1.15: Endemic, sub-endemic and possibly endemic plant species present in 'L-inhawi tal-Ghadira' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Calendula suffruticosa gussonei</i> var.	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Urginea pancrati</i> (= <i>Drimys maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

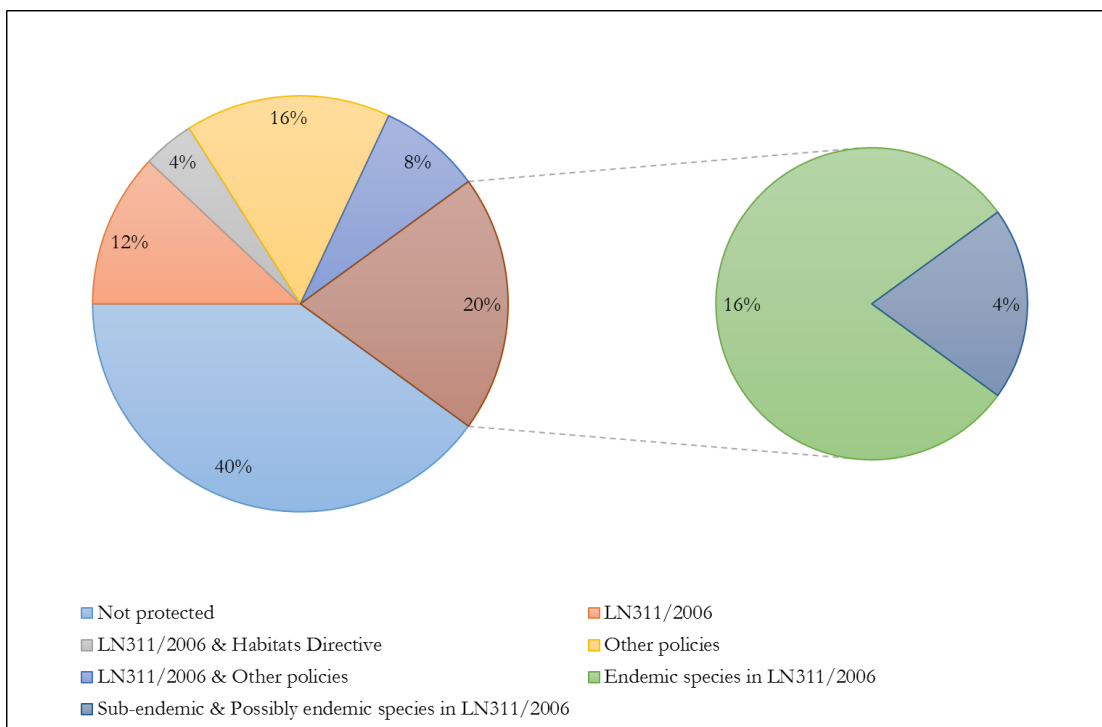


Figure 1.50: Percentage of species protected by policy in 'L-Inhawi tal-Ghadira', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the 25 species that have been documented in this area, 7 species (20%) are endemic in terms of LN311/2006. *Anacamptis urvilleana*, *Anthyllis hermanniae*, *Euphorbia melitensis* and *Salsola melitensis* are 16% of the documented priority species that are protected endemic species to the Maltese Islands. *Orbanche sanguinea* (4%) is the protected sub-endemic species in this region.

Two of these plant species (*A. urvilleana* and *E. melitensis*) are currently under taxonomic debate, both being difficult to distinguish from their closely related species. These debates are due to subjective opinion, and it is difficult to choose the best opinion. However if the debates are cleared and these species are no longer considered distinct, the national law would need revision, thus the SAC would also need revision since two of its criteria are no longer valid.

4.3.16 Filfla (MT0000016)

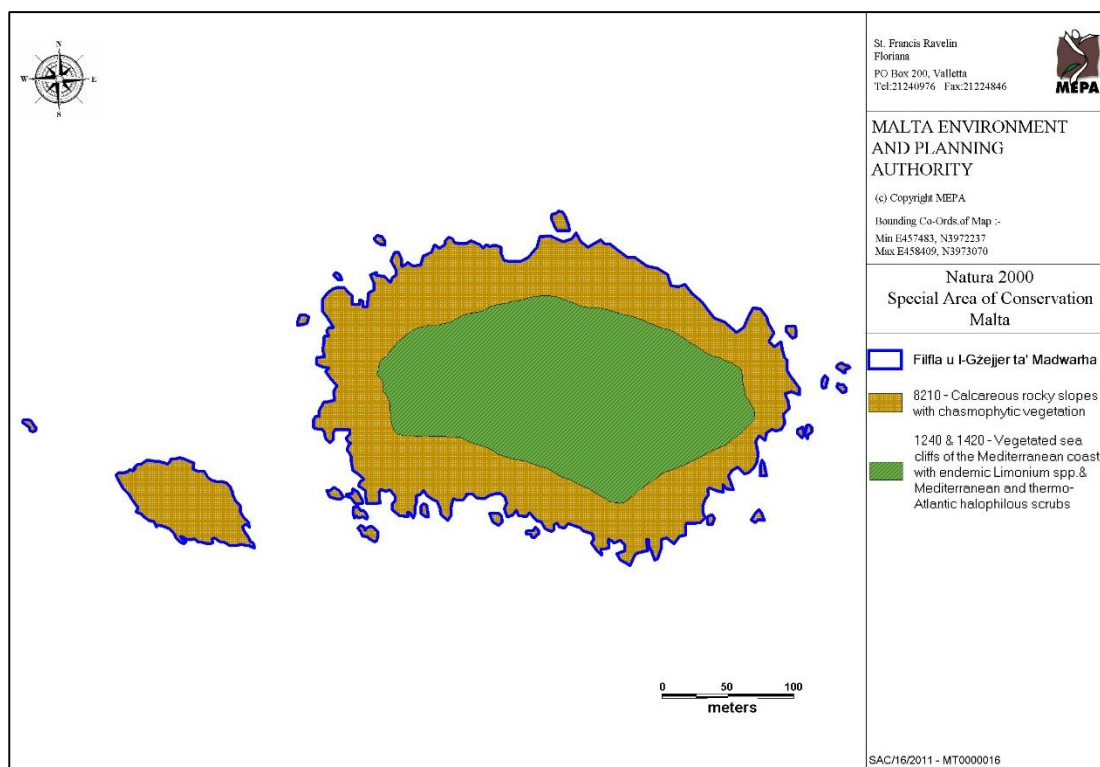


Figure 1.51: SAC map of (MEPA, n.d.)

Table 1.16: Endemic, sub-endemic and possibly endemic plant species present in 'Filfla' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

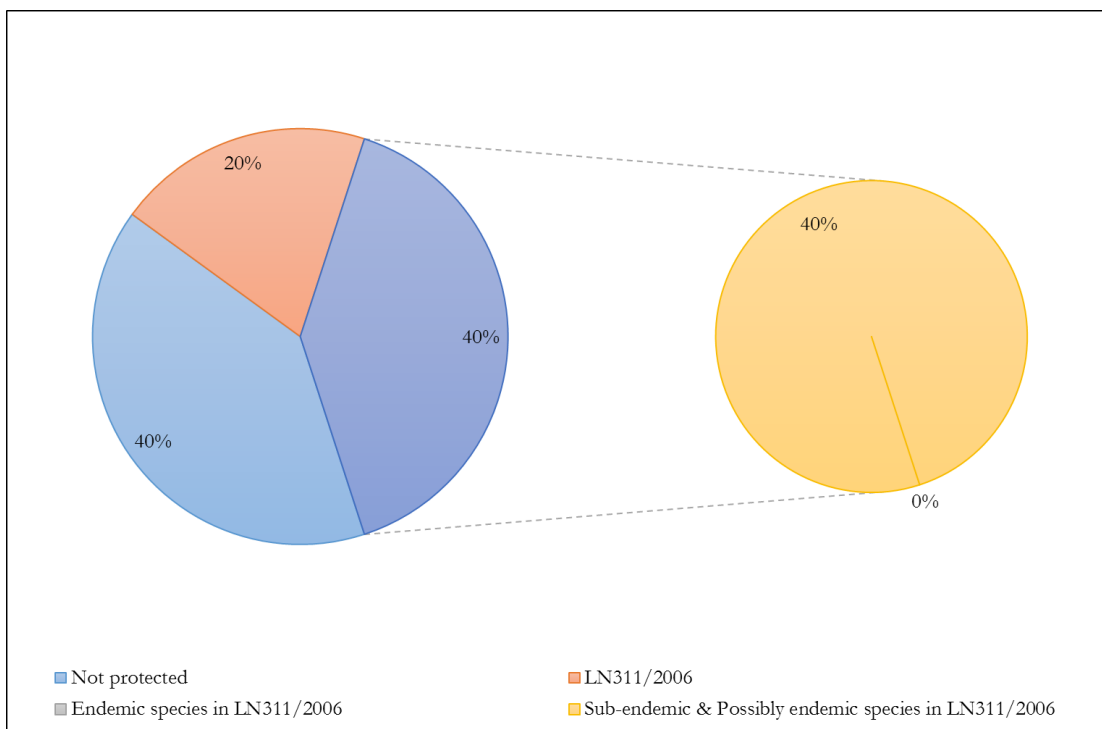


Figure 1.52: Percentage of species protected by policy in 'Filfla', with an emphasis on the endemic plant species present

Out of the five priority plant species recorded on Filfla, two species are protected sub-endemic and possibly endemic species, *Jacobaea maritima* and *Senecio leucanthemifolius* respectively. Both of these species are currently under taxonomic debate, since their endemic status is still yet unclear, mostly due to the various subjective opinions of botanists. A change in their status may result in change in the importance of the SAC. This may be so, however one must keep in mind that the SAC also protects the habitat of the other important species, thus, 'Filfla', being a small island, may still remain a SAC.

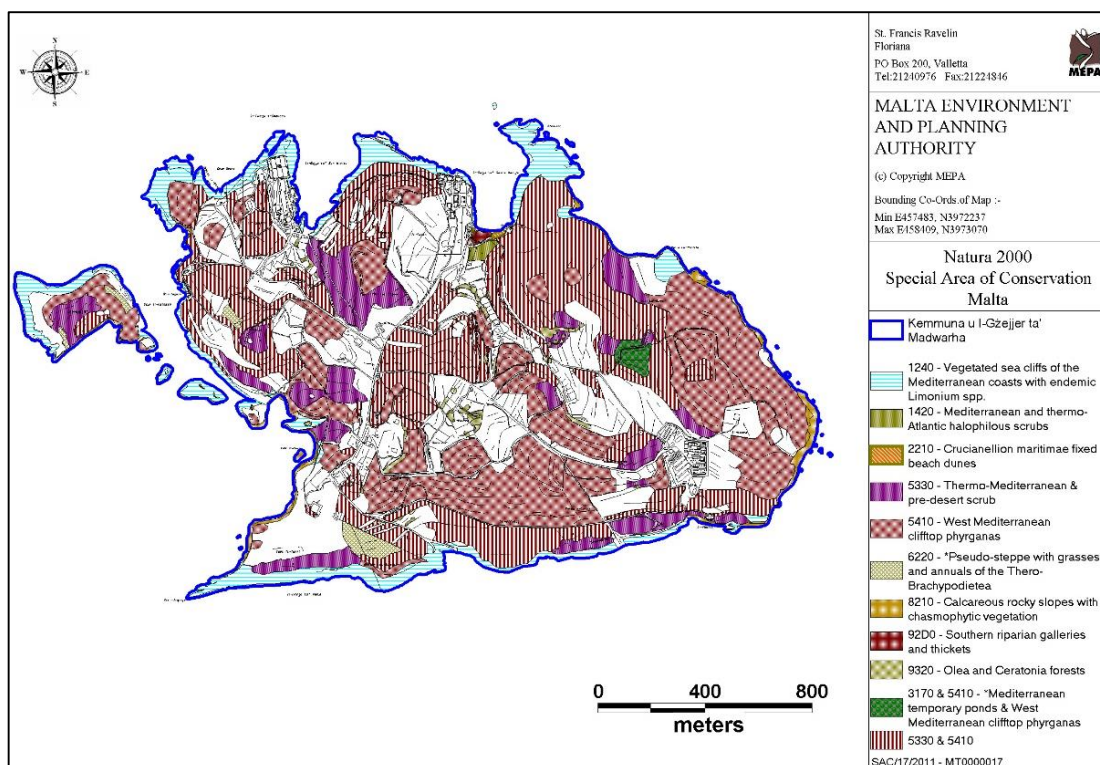
4.3.17 *Kemmuna u l-Gzejjer ta' Madwarha (MT0000017)*

Figure 1.53: SAC map of 'Kemmuna' (MEPA, n.d.)

Table 1.17: Endemic, sub-endemic and possibly endemic plant species present in 'Kemmuna' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazzeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafhae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

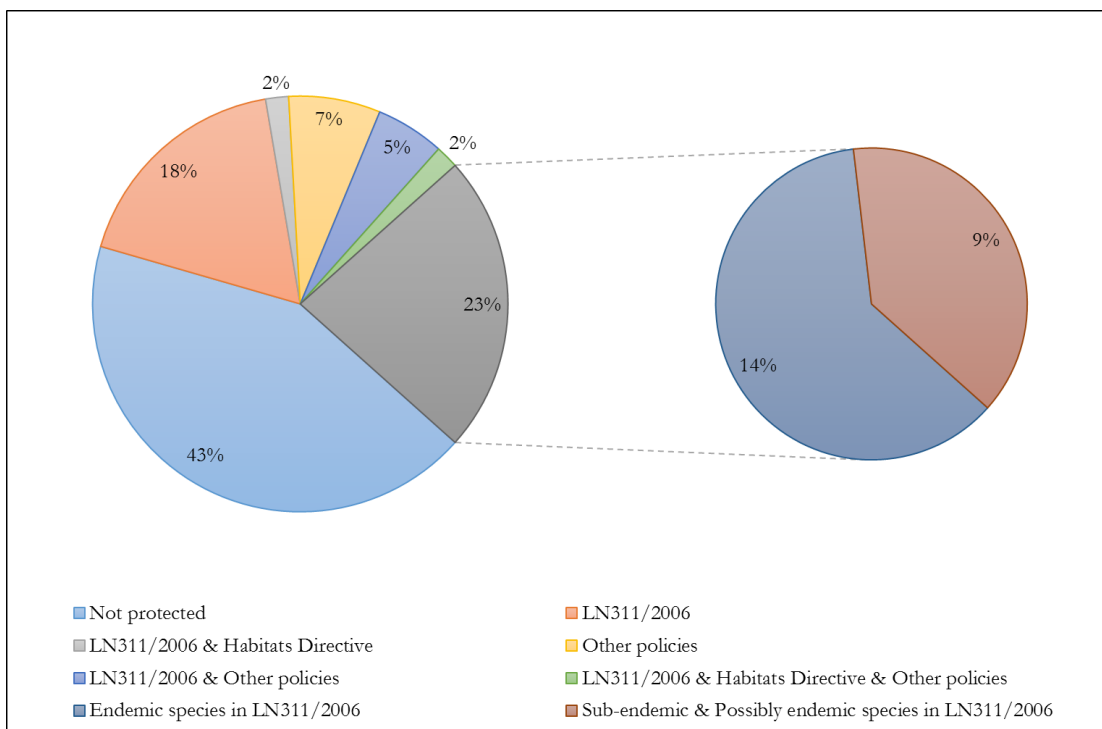


Figure 1.54: Percentage of species protected by policy in 'Kemmuna u l-Gzejjer ta' Madwarha', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

'Kemmuna u l-gzejjer ta' madwarha' have quite a high number of endemic species present in the area (23%). *Allium lojaconoi*, *Anacamptis urvilleana*, *Limonium melitense*, *Limonium zeraphae*, *Romulea melitensis*, *Salsola melitensis* and *Zannichellia melitensis* are 14% of the protected endemic species to the Maltese Islands present in this protected area. *Daucus carota* subsp. *drepanensis*, *Daucus carota* subsp. *rupestris*, *Desmazzeria pignattii*, *Filago cosyrensis*, *Jacobaea maritima*, *Scilla peruviana* and *Senecio leucanthemifolius* all make up to 9% of the species present in the area.

Most of these species are under debate, whether it is their synonyms adding confusion, their rank or their endemic status. However a change in the endemic status of a species will not affect this protected area since it is protecting a number of other endemic species, as well as other important species that are listed in ANNEX C.

4.3.18 Buskett – Girgenti Area (MT0000018)

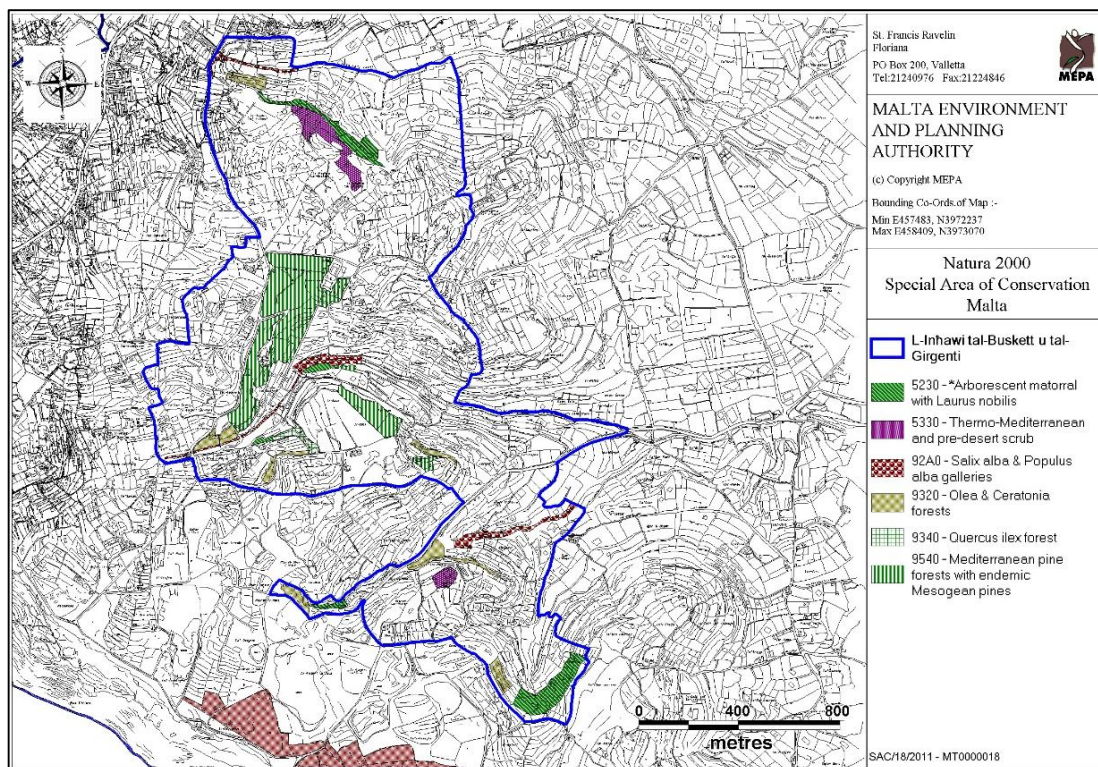


Figure 1.55: SAC map of 'Buskett - Girgenti Area' (MEPA, n.d.)

Table 1.18: Endemic, sub-endemic and possibly endemic plant species present in 'Buskett - Girgenti Area' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Crocus longiflorus</i>	RR, Rest (MED +MI)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussoneii</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Scilla clusii</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes

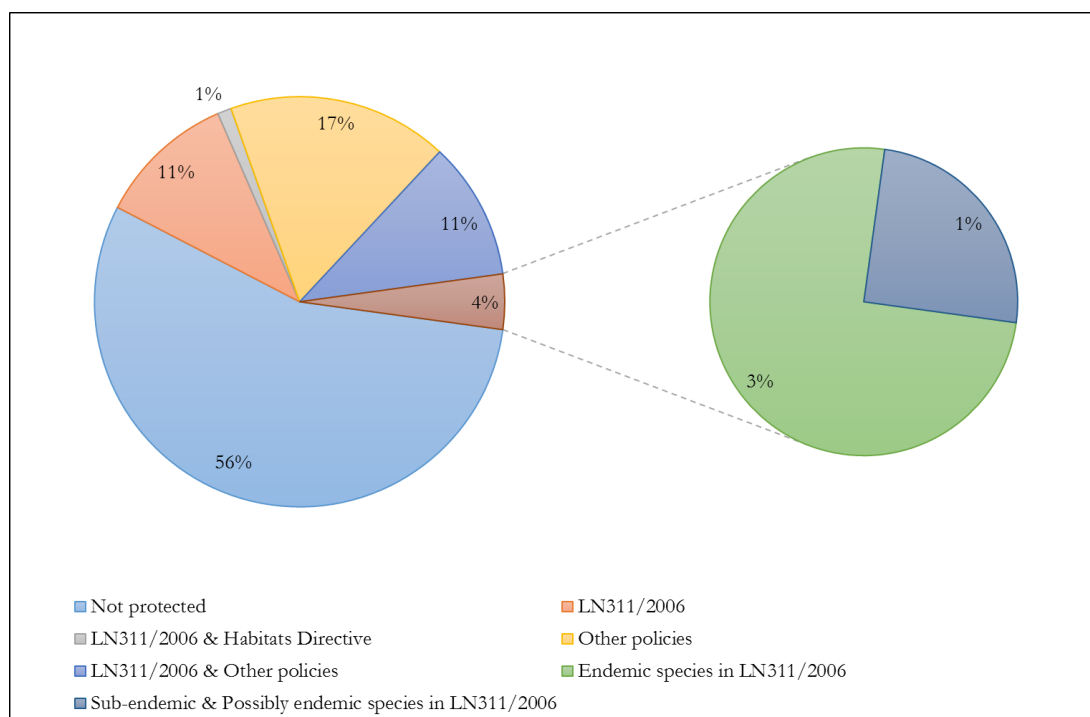


Figure 1.56: Percentage of species protected by policy in 'Buskett - Girgenti', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the 92 documented Endemic, sub-endemic and possibly endemic species present in this area, there is only a small portion (4%) of species that are endemic to Malta in terms

of LN311/2006. Only one species is a protected endemic to the Maltese Islands (*Euphorbia melitensis*), the other species (3% - four species) are protected sub-endemic species (*Crocus longiflorus*, *Elatine gussonei*, *Filago cosyrensis* and *Jacobaea maritima*).

All of these species are currently under taxonomic debate. Since these species only make up to 4%, it is clear that the designation of this SAC was not limited only to the presence of endemic species in the area, although they are one of the criteria.

4.3.19 Dwejra - Qawra Area, including Haġret il-Ġeneral (MT0000019)

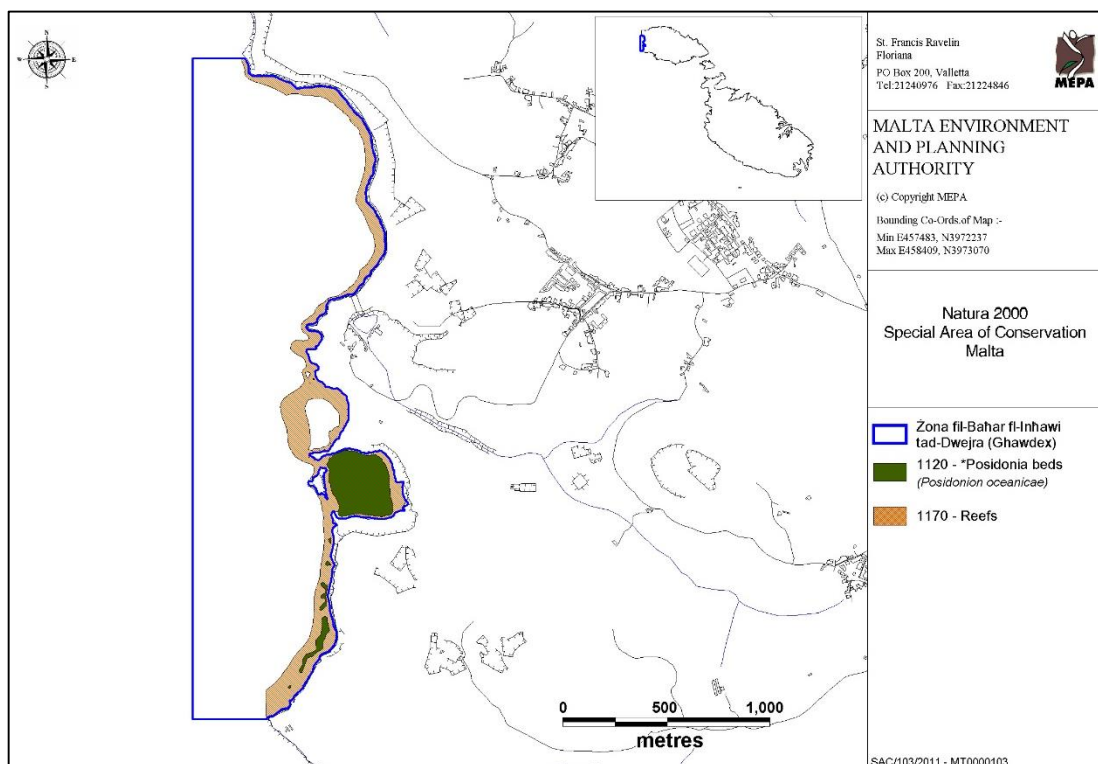


Figure 1.57: SAC map of 'Dwejra - Qawra Area' (MEPA, n.d.)

Table 1.19: Endemic, sub-endemic and possibly endemic plant species present in 'Dwejra - Qawra Area' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Calendula suffruticosa</i> var. <i>gussonei</i>	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cremonophyton lanfrancoii</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Daucus rupestris</i> =(<i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Helichrysum melitense</i>	Endemic, RR, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Palaeocyamus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

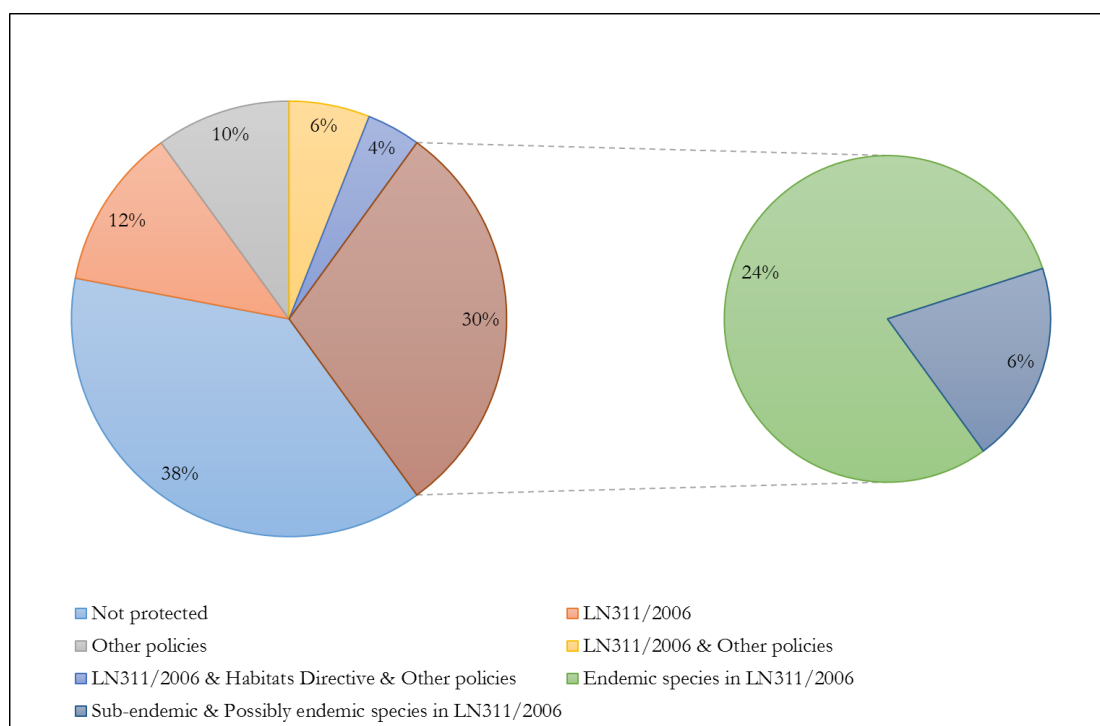


Figure 1.58: Percentage of species protected by policy in 'Dwejra - Qawra area', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

There are 50 important species documented in this area, 30% of which are endemic in terms of LN311/2006. This percentage is quite high in relation to other areas, however this is understandable since the area is located on cliffs, and most of the endemic species in the Maltese Islands are situated on coastal cliffs (Mifsud, 2013).

24% of the species in this area are protected endemic plant species of the Maltese Islands, consisting of *Allium lojaconoi*, *Anacamptis urvilleana*, *Anthyllis hermännia*, *Atriplex lanfrancoi*, *Cheirolophus crassifolius*, *Euphorbia melitensis*, *Helichrysum melitense*, *Hyoseris frutescens*, *Limonium melitense*, *Matthiola incana* subsp. *melitensis*, *Romulea melitensis*, *Salsola melitensis* and *Zannichellia melitensis*, a total of 13 species in all. 6% of the species in this area are protected sub-endemic and possibly endemic plants, including *Daucus carota* subsp. *rupestris*, *Desmazeria pignattii* and *Senecio leucanthemifolius*.

Most of these species are currently under taxonomic debate. If one species were to lose its endemic status (e.g. as *Helichrysum melitense* was found to be so by Xiberras (2013)), the protected area at Dwejra will still remain so, as there are a number of other protected endemic species present in the region.

4.3.20 L-Inhawi tax-Xlendi u tal-Wied tal-Kantra (MT0000020)

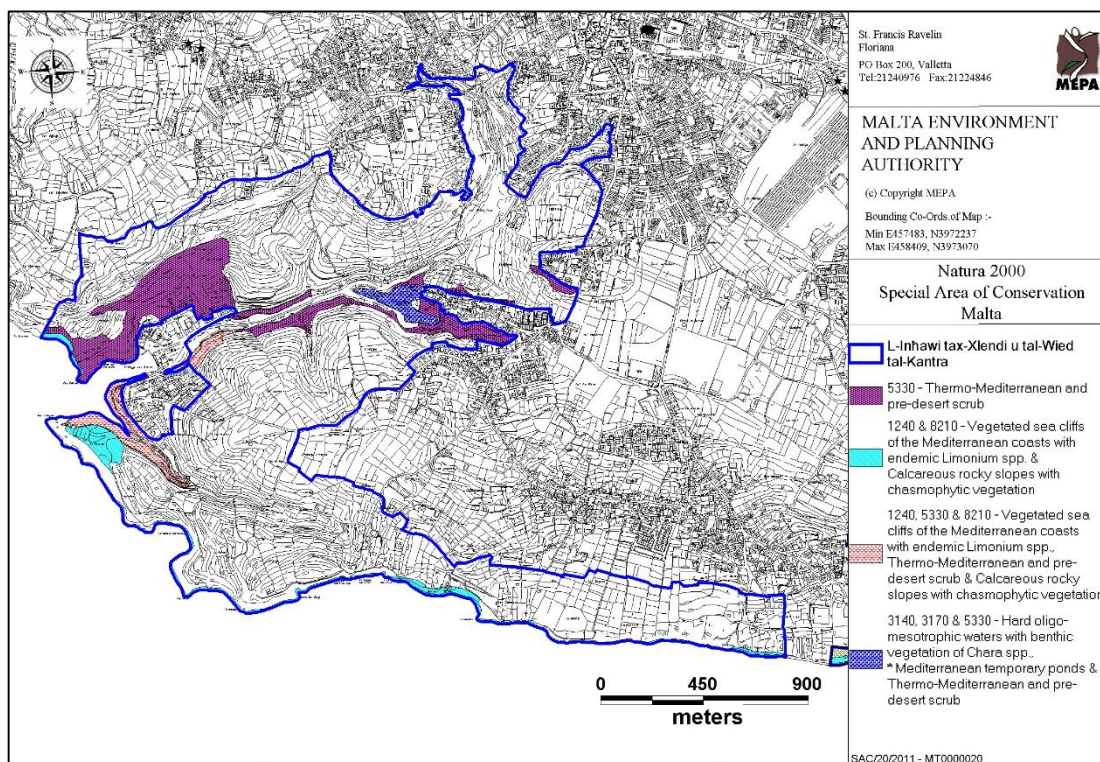


Figure 1.59: SAC map of 'L-Inhawi tax-Xlendi u tal-Wied tal-Kantra' (MEPA, n.d.)

Table 1.20: Endemic, sub-endemic and possibly endemic plant species present in 'L-Inħawi tax-Xlendi u tal-Wied tal-Kantra' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Calendula suffruticosa</i> var. <i>gussonei</i>	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cremonophyton lanfrancoi</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= (<i>Daucus carota</i> subsp. <i>rupestris</i>))	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyanus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)		Regulation 26	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

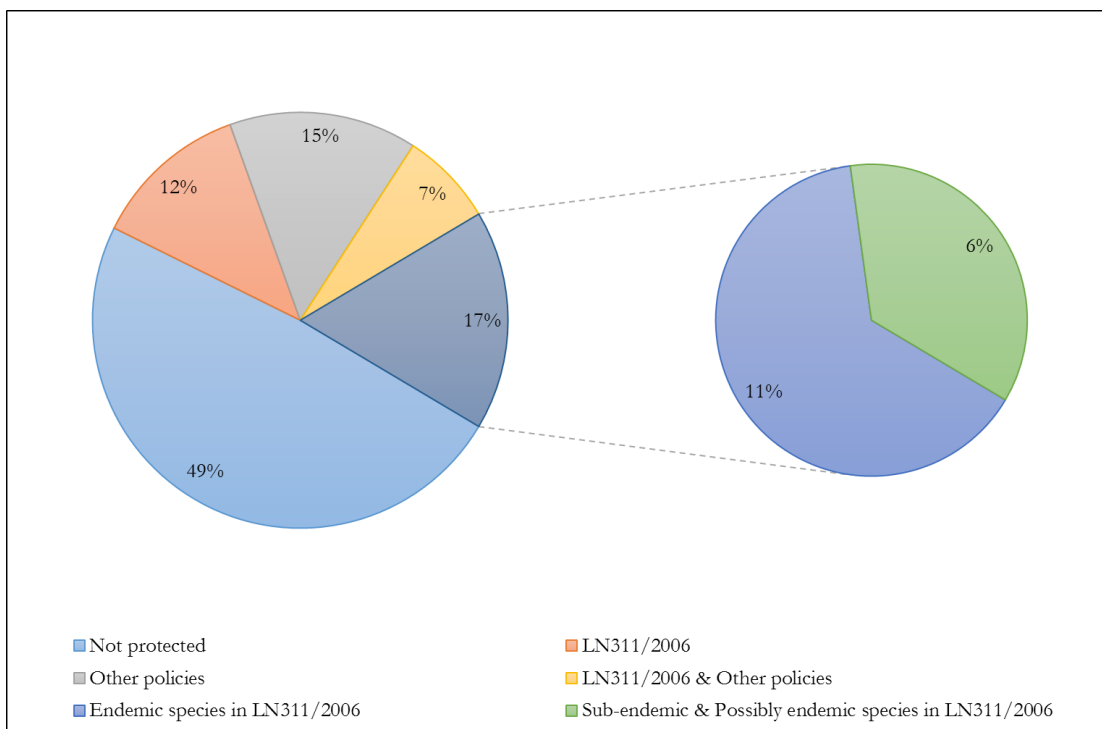


Figure 1.60: Percentage of species protected by policy in 'Xlendi u il-Wied tal-Kantra', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of 82 priority species documented in 'Xlendi u l-Wied tal-Kantra', 13 species (17%) are considered to be endemic (in terms of LN311/2006). 11% are protected endemic species of the Maltese Islands (*Anacamptis urvilleana*, *Cheirolophus crassifolius*, *Euphorbia melitensis*, *Hyoseris frutescens*, *Limonium melitense*, *Matthiola incana* subsp. *melitensis*, *Salsola melitensis* and *Zannichellia melitensis*), and 6% are protected sub-endemic species (*Daucus carota* subsp. *rupestris*, *Desmazeria pignattii*, *Elatine gussonei*, *Iris pallida* subsp. *pallida* and *Jacobaea maritima*).

The majority of these species are currently under debate. Considering that a large number of endemic species are present in this SAC, the change in the endemic status of one species will not alter the importance of 'Xlendi u l-Wied tal-Kantra' protected area. Even though the designated protected area will not be altered, the national policy will need to be revised to adopt the changes that occur in botany.

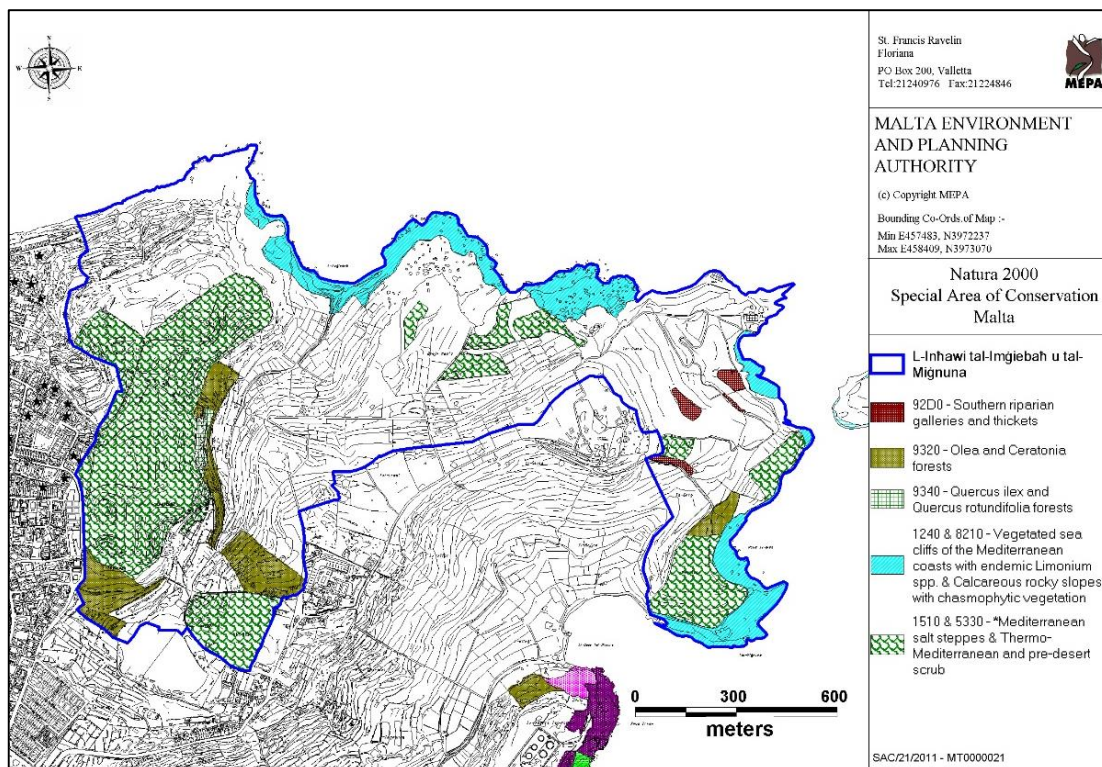
4.3.21 *L-Inhawi tal-Imġiebaħ u tal-Miġnuna (MT0000021)*

Figure 1.61: SAC map of 'L-Inhawi tal-Imġiebaħ u tal-Miġnuna' (MEPA, n.d.)

Table 1.21: Endemic, sub-endemic and possibly endemic plant species present in 'L-Inhawi tal-Imġiebaħ u tal-Miġnuna' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> =(<i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafbae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

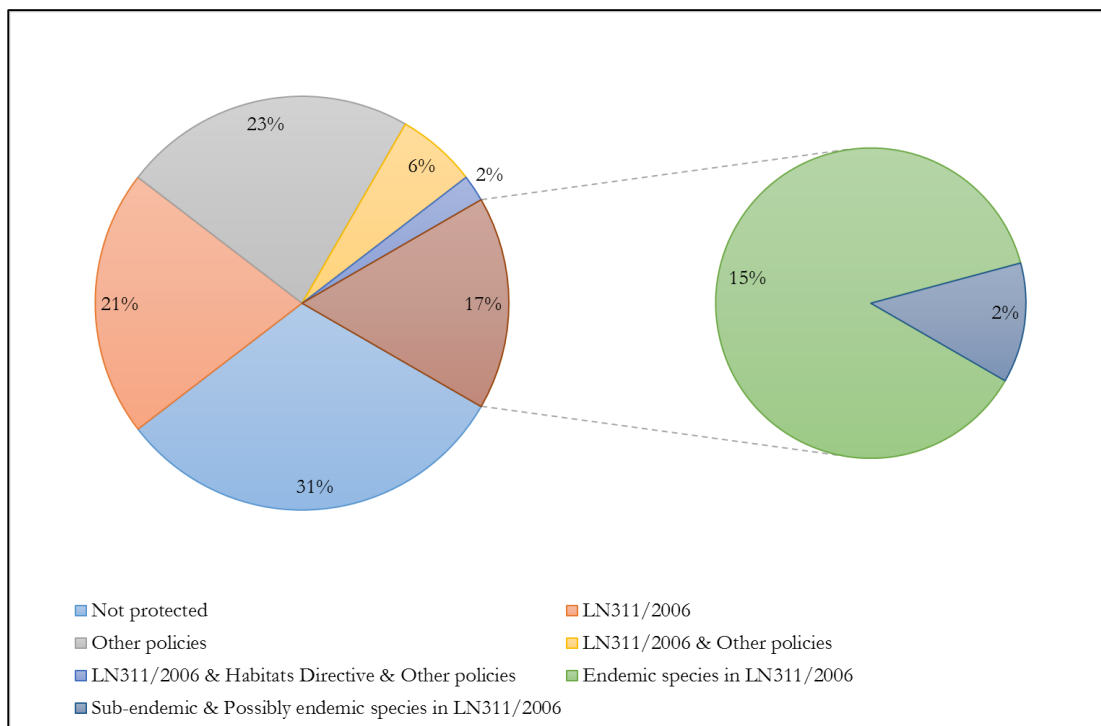


Figure 1.62: Percentage of species protected by policy in 'L-Imġiebaħ u tal-Miġnuna', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Of the 48 documented priority species in this area, 17% are protected because they are endemic in terms of LN311/2006. *Anacamptis urvilleana*, *Euphorbia melitensis*, *Limonium melitense*, *Limonium zerafhae*, *Matthiola incana* subsp. *melitensis*, *Romulea melitensis* and *Salsola melitensis* are all endemic species to the Maltese Islands, that make up 15% of the species in 'L-Imġiebaħ u tal-Miġnuna'. *Daucus carota* subsp. *rupestris* is a sub-endemic species that makes up 2% of the species in this area. All of these species are currently under dispute, however since there are quite a number of endemic species, it would not matter if one would no longer be considered endemic since the area would still need to remain a SAC to protect the rest of the endemic plant species.

4.3.22 Il-Gżejjer ta' San Pawl (Selmunett) (MT0000022)

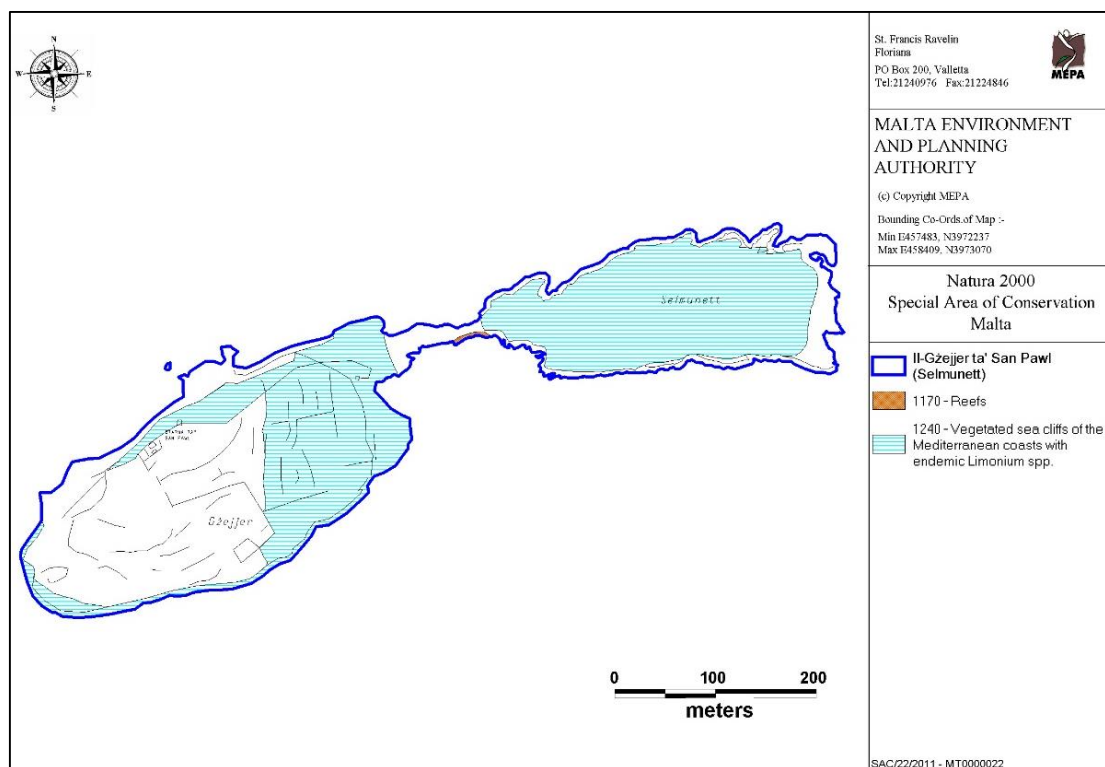


Figure 1.63: SAC map of 'Il-Gżejjer ta' San Pawl (Selmunett)' (MEPA, n.d.)

Table 1.22: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Gżejjer ta' San Pawl (Selmunett)' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pyncnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafhae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)		Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

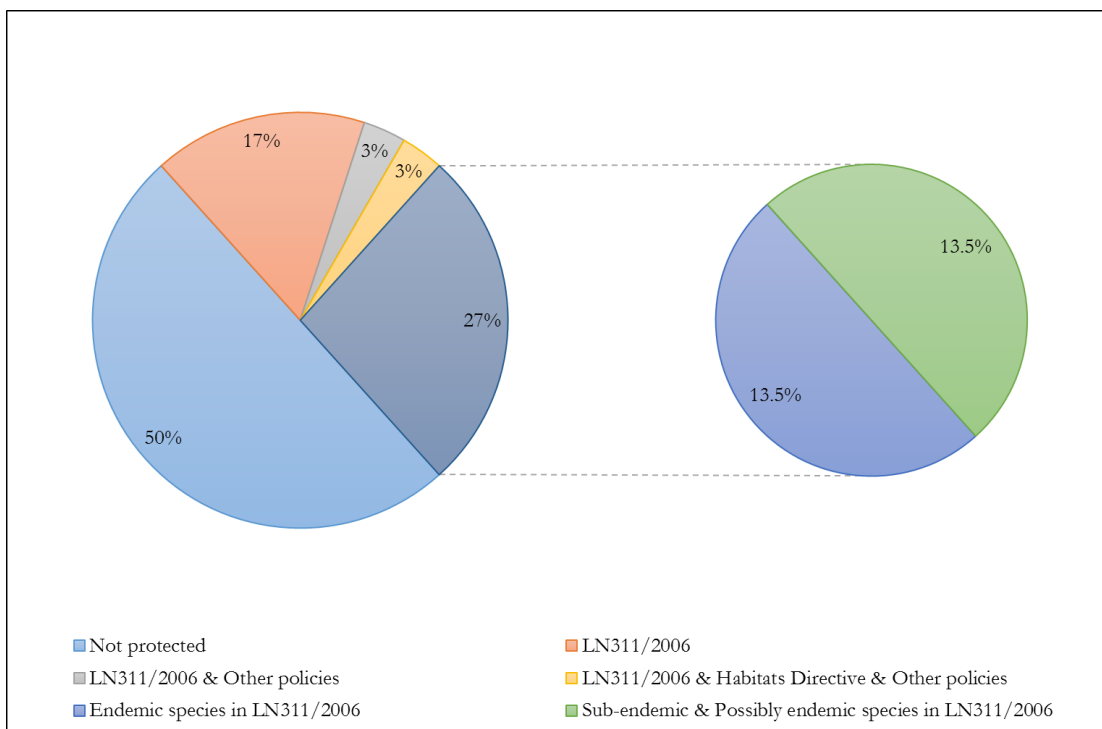


Figure 1.64: Percentage of species protected by policy in 'Il-Gzejjer ta' San Pawl', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

27% of the important species documented in this area are endemic plant species in terms of LN311/2006. These are made up of 13.5% protected endemic species to the Maltese Islands (*Allium lojaconoi*, *Anacamptis urvilleana*, *Limonium melitense*, *Limonium zerafhae* and *Salsola melitensis*) and 13.5 % protected sub-endemic and possibly endemic species (*Daucus carota* subsp. *rupestris*, *Desmazeria pignattii*, *Jacobaea maritima* and *Senecio leucanthemifolius*).

Since there are quite a large number of protected endemic species in this area, even though a number of these endemic species are currently under taxonomic debate, the protected area will still remain a SAC. Even if there is a change in the endemic status of one plant species, the designated area will remain so to protect the rest of the endemic species.

4.3.23 Il-Magħluq tal-Bahar (l/o Marsaskala) (MT0000023)

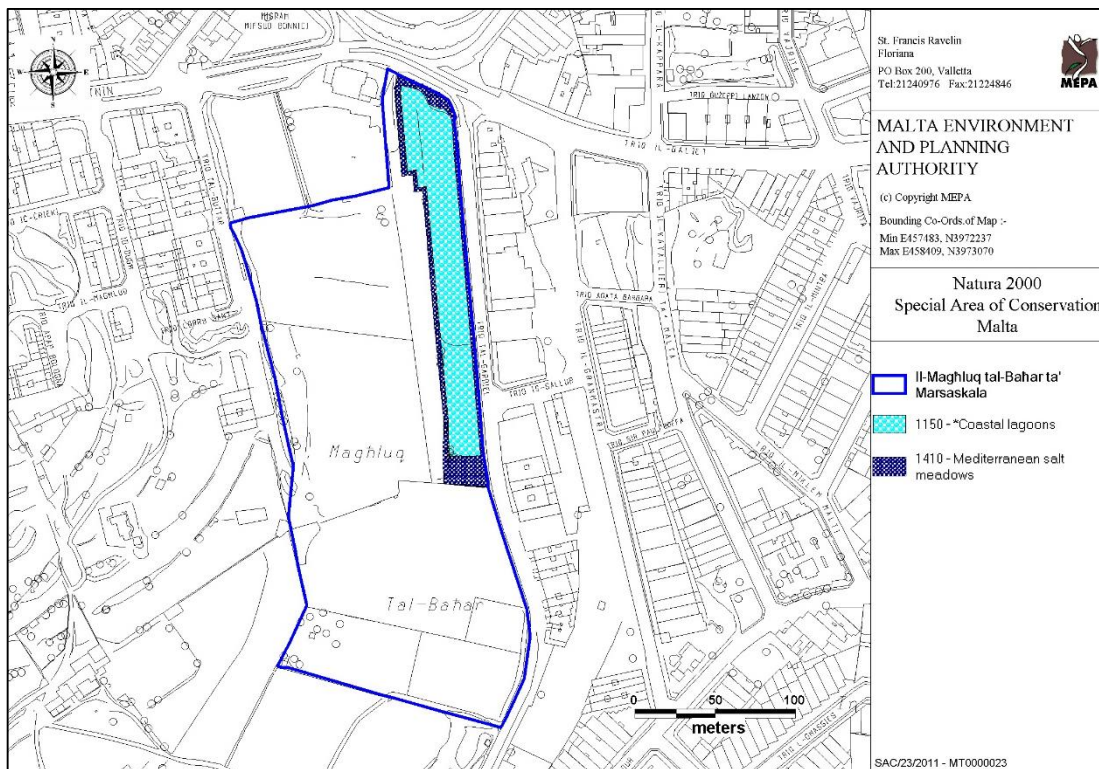


Figure 1.65: SAC map of 'Il-Magħluq tal-Bahar (l/o Marsaskala)' (MEPA, n.d.)

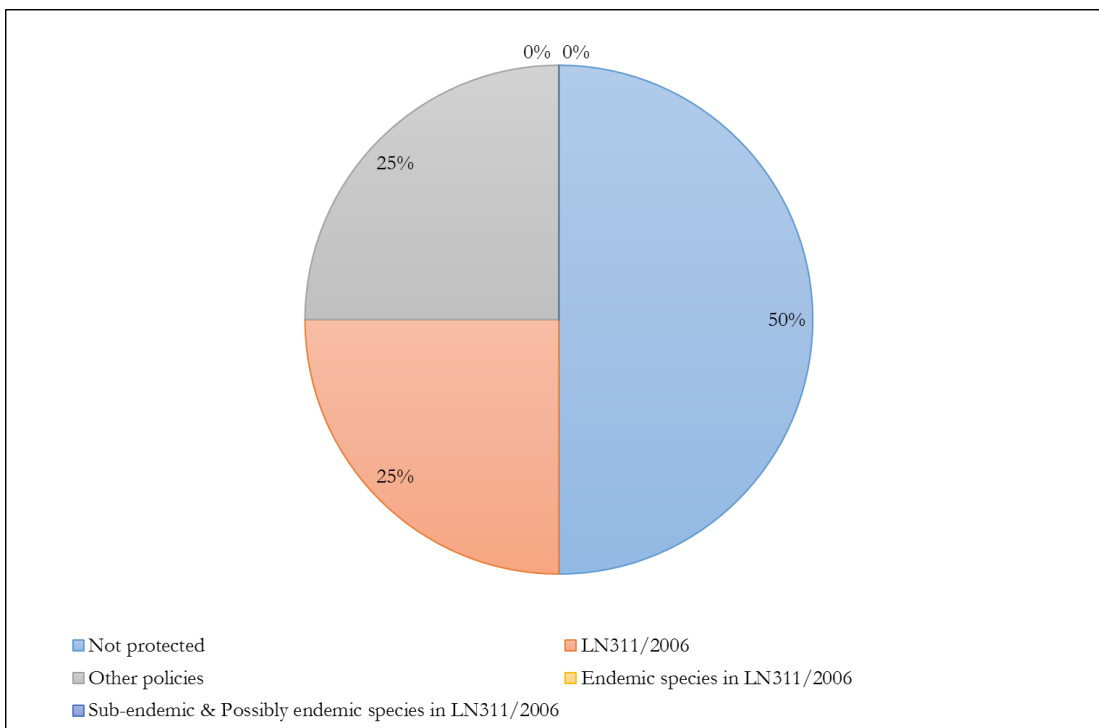


Figure 1.66: Percentage of species protected by policy in 'Il-Magħluq tal-Bahar'

In 'Il-Magħluq tal-Baħar', out of the four important plant species that have been documented, none were protected endemics (in terms of LN311/2006). This means that this particular area was set up as a 'SAC' in order to protect other species, which make up to 50% of the species in that area.

4.3.24 *Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa*
(MT0000024)

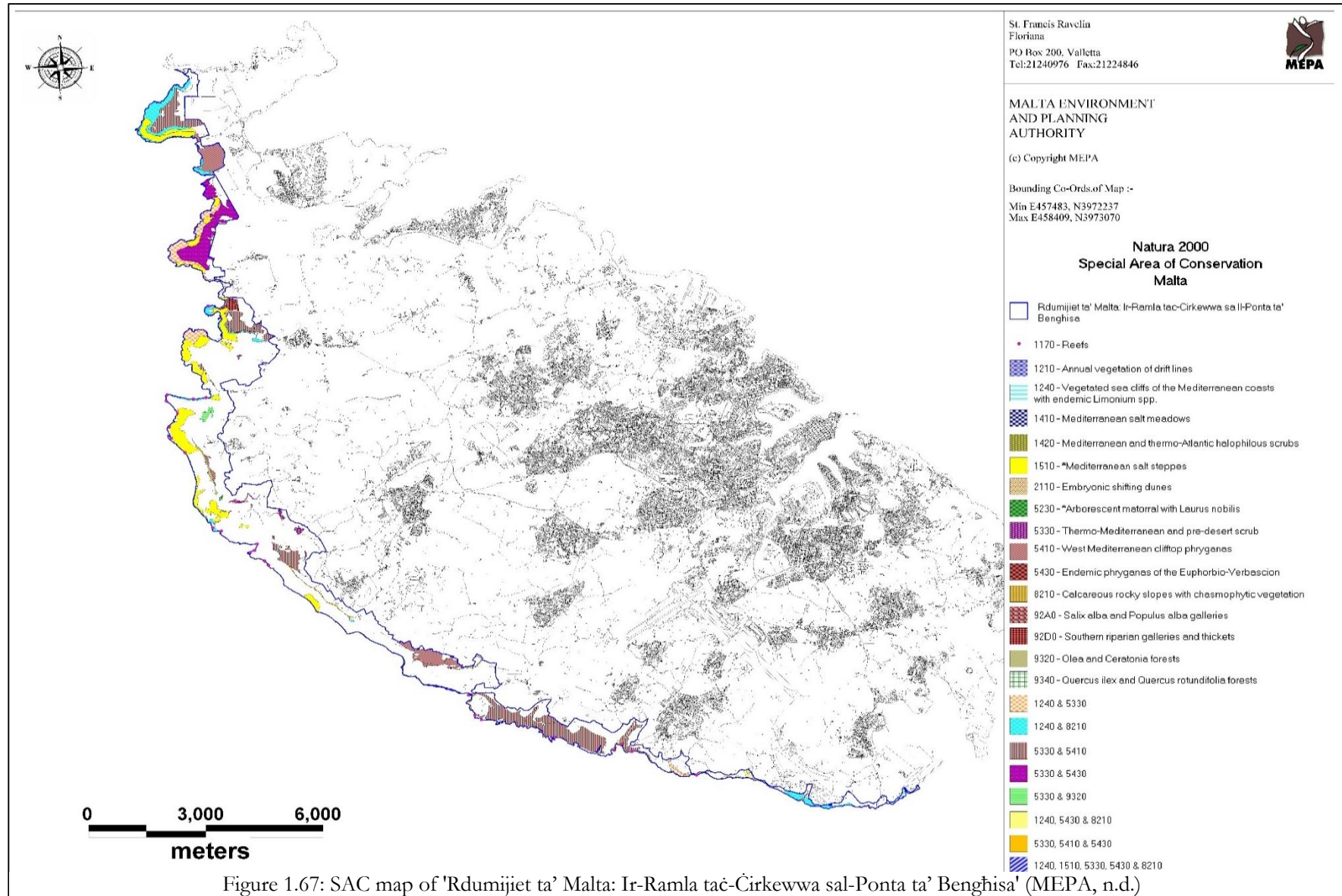
Table 1.23: Endemic, sub-endemic and possibly endemic plant species present in 'Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis bermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Aristolochia clusii</i>	E, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Calendula sicula</i> (= <i>Calendula stellata</i>)	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cremonophyton lanfrancoii</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Crocus longiflorus</i>	RR, Rest (MED +MI)	Regulation 26	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazzeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussonei</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zeraphae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Ophrys caesiella</i> (= <i>Ophrys fusca</i> subsp. <i>fusca</i>)	Not listed	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyamus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix I)	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancrati</i> (= <i>Drimys maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes



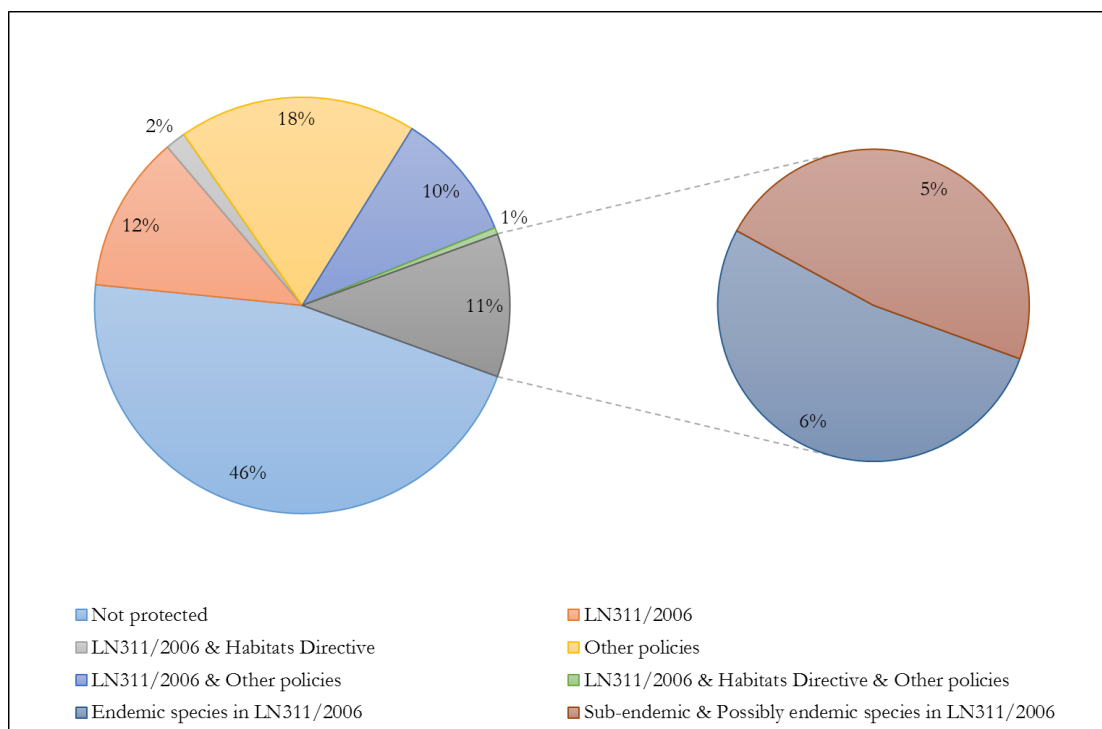


Figure 1.68: Percentage of species protected by policy in 'Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

A total of 189 plants were recorded in this species, 11% of which are endemic (in terms of LN311/2006). 6% of these are protected endemic to the Maltese Islands, and 5% are protected sub-endemic species or possibly endemic species.

The protected species that are endemic to the Maltese Islands are: *Allium lojaconoi*, *Anacamptis urvilleana*, *Atriplex lanfrancoi*, *Cheirolophus crassifolius*, *Euphorbia melitensis*, *Hyoseris frutescens*, *Limonium melitense*, *Limonium zeraphae*, *Salsola melitensis* and *Zannichellia melitensis*. The protected sub-endemic or possibly endemic species are *Aristolochia clusii*, *Daucus carota* subsp. *drepanensis*, *Daucus carota* subsp. *rupestris*, *Desmazeria pignattii*, *Elatine gussonei*, *Jacobaea maritima*, *Ophrys fusca* subsp. *fusca*, *Scilla peruviana* and *Senecio leucanthemifolius*.

15 of these species are currently under taxonomic debate, and need further taxonomic reviews by experts. Considering that the number of 'priority species' present in this site is considerably high, the change in the endemic status of a single species will not alter the

importance or status of this protected area. However, this would still call for the need of an update in the species' status in the national law, to exclude them from protection.

4.3.25 *Għar ta' l-Iburdan (MT0000025)*

Out of all the species that have been documented in this area, there are no endemic, sub-endemic or possibly endemic plant species found to be present in 'Għar ta' l-Iburdan' (MEPA, n.d.), indicating that this area is a SAC for the protection of other species and habitats (See ANNEX C).

4.3.26 *Il-Qortin tal-Magun u l-Qortin il-Kbir (MT0000026)*

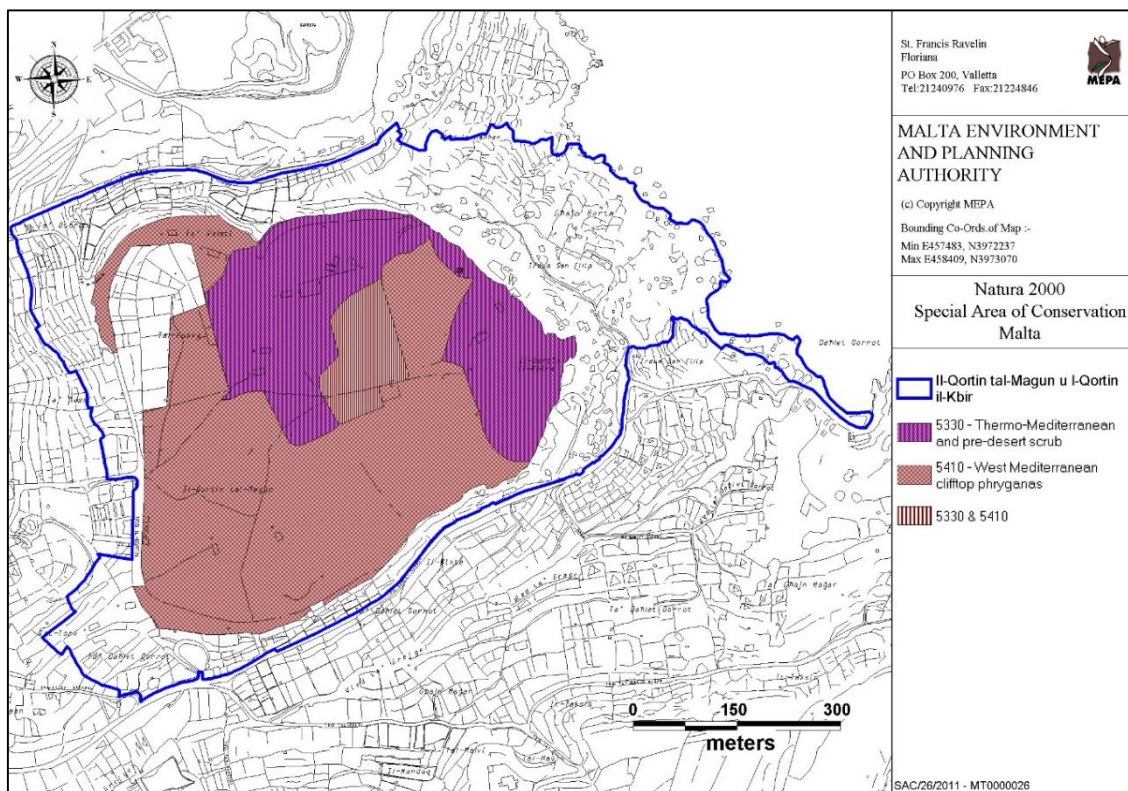


Figure 1.69: SAC map of 'Il-Qortin tal-Magun u l-Qortin il-Kbir' (MEPA, n.d.)

Table 1.24: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Qortin tal-Magun u l-Qortin il-Kbir' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes

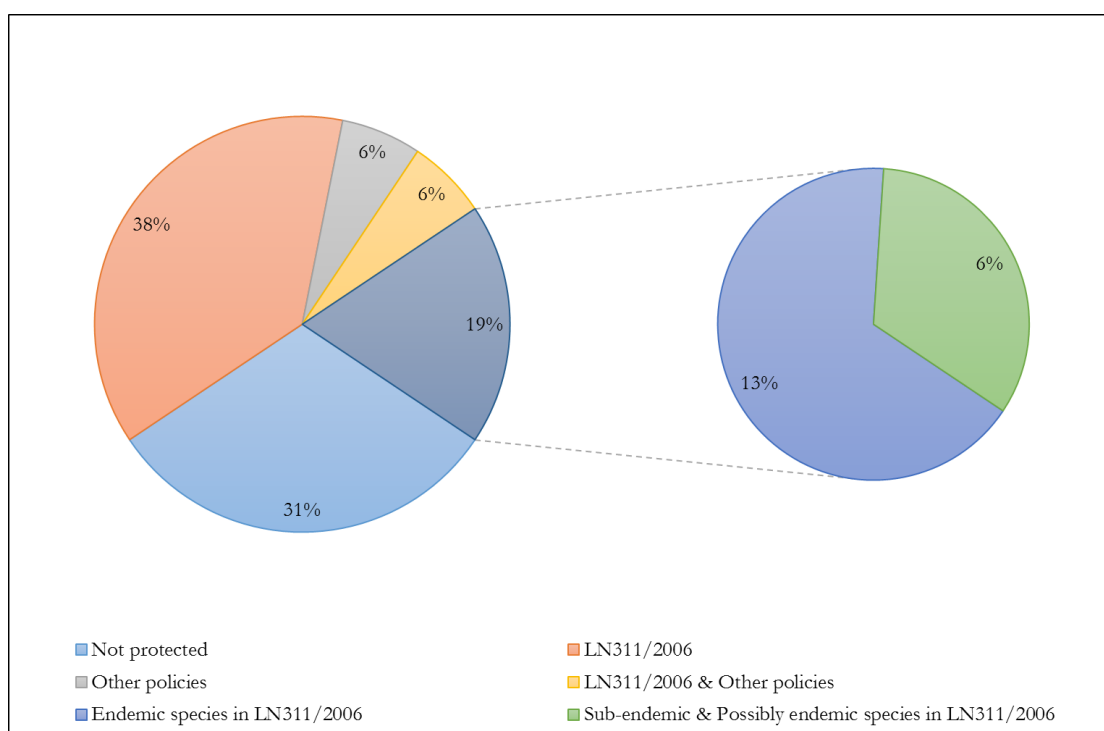


Figure 1.70: Percentage of species protected by policy in 'Qortin tal-Magun u il-Qortin il-Kbir', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

19% of the 16 important plant species documented in 'Il-Qortin ta-Magun u l-Qortin il-Kbir' are endemic in terms of LN311/2006. *Anthyllis bermanniae* subsp. *melitensis* and *Euphorbia melitensis* are endemic species to the Maltese Islands, constituting of 13% of species found in this site, while *Scilla peruviana* is a possibly endemic species, representing the other 6% of the species present in this area.

Currently, all of these species are under taxonomic debate, meaning that all of them have the possibility of no longer being endemic, after an intensive study on their genus is done, and once botanists reach a point of clarification. This means that there is a high risk for this SAC of losing its main criteria. This would lead to alterations, especially major considerations on whether the area should remain a SAC or not since one of the main intents of the designation of this protected area was to protect the endemic species.

4.3.27 L-Inhawi ta' Ta' Ċenc' (MT0000034)

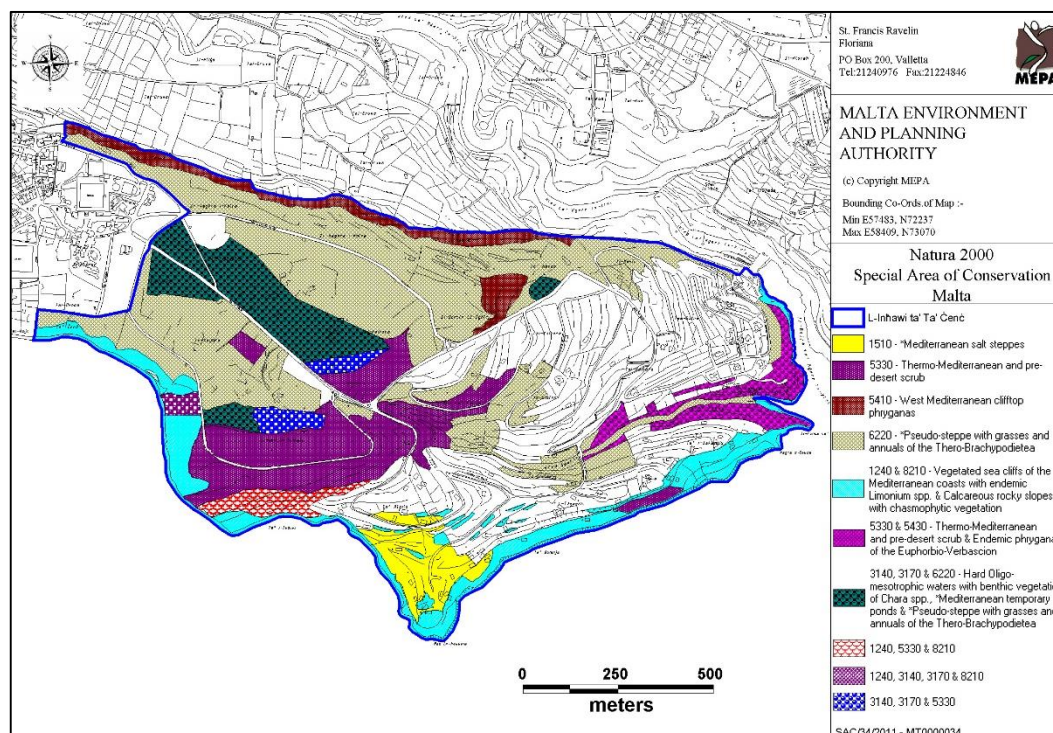


Figure 1.71: SAC map of 'L-Inhawi ta' Ta' Ċenc' (MEPA, n.d.)

Table 1.25: Endemic, sub-endemic and possibly endemic plant species present in 'L-Inħawi ta' Ta' Ċenc' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cremonophyton lanfrancoi</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche muteli</i> var. <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyamus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

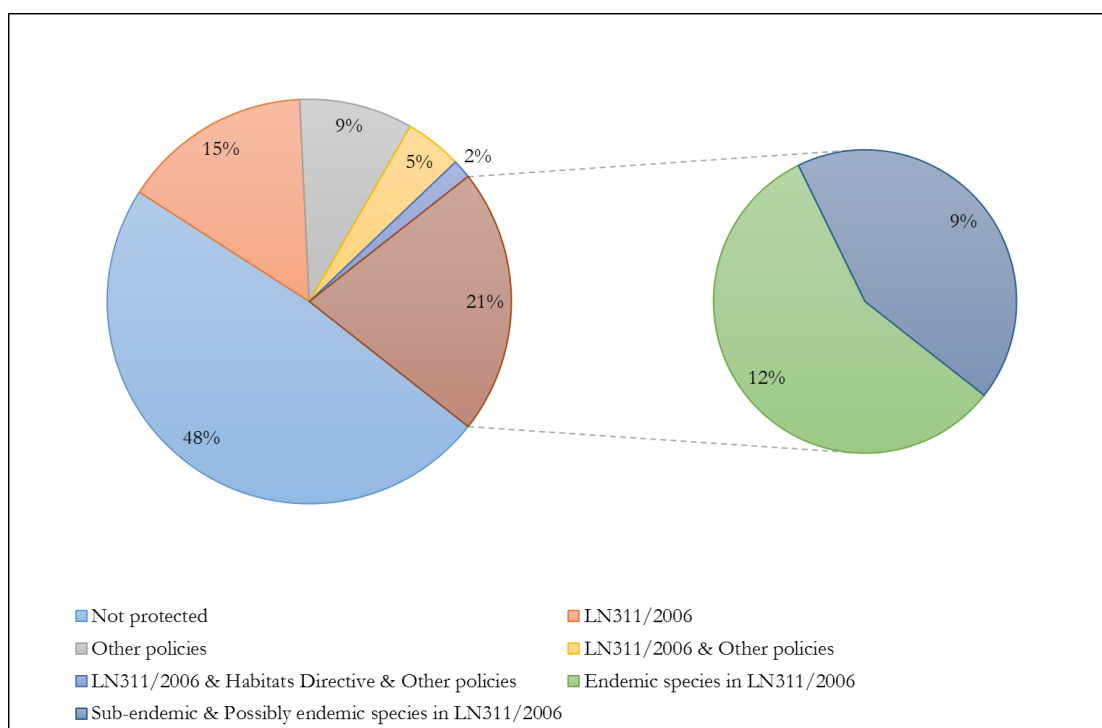


Figure 1.72: Percentage of species protected by policy in 'Ta' Ċenċ', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the 66 priority plant species that have been documented in 'Ta' Ċenċ', 21% are protected endemic, sub-endemic and possibly endemic plants. Endemic species in the Maltese Islands make up 12% of the documented species, and these are comprised of

Anthyllis hermanniae subsp. *melitensis*, *Atriplex lanfrancoi*, *Salsola melitensis*, *Hyoseris frutescens*, *Limonium melitense*, *Matthiola incana* subsp. *melitense*, *Cheirolophus crassifolius* and *Zannichellia melitensis*. Six out of these species are currently under taxonomic debate. The other 9% is made up of *Daucus carota* subsp. *rupestris*, *Desmazzeria pignattii*, *Elatine gussonei*, *Scilla peruviana*, *Jacobaea maritima* and *Senecio leucanthemifolius*. Four of these species (*D. pignattii*, *S. peruviana*, *J. maritima* and *S. leucanthemifolius*) are currently under taxonomic debate.

If there had to be a change in the endemic status of a species, the protected area would not be seriously impacted since there are a number of endemic plant species (in terms of LN 311/2006) present in this area that would also need protection. However this would still call for revision in the national law, to exclude the previously ‘priority species’ from protection.

4.3.28 Percentage of Natura 2000 sites where endemic plants are present

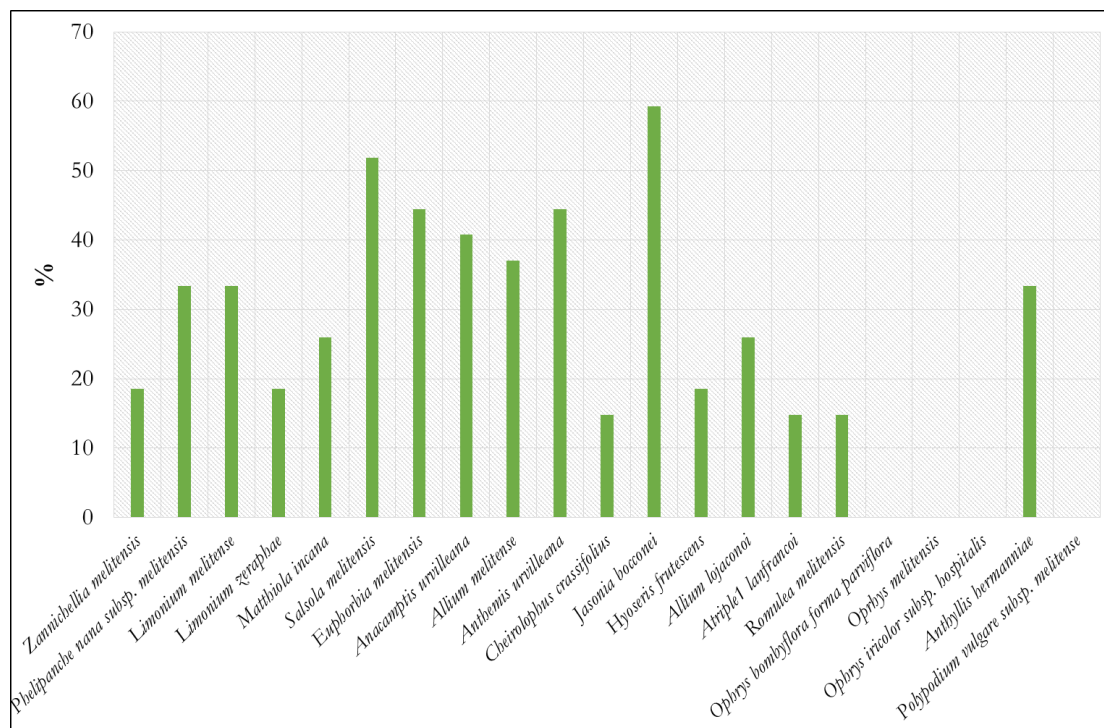


Figure 1.73: Percentage of Natura 2000 sites where endemic plant species are present

The graph above is showing the frequency of endemic species in the Natura 2000 sites. One can see that *Jasonia bocconeii* is the most dominant in the sites, with *Salsola melitensis* following closely behind, whereas the *Ophrys* genera as well as *Polypodium vulgare* subsp. *melitensis* are not present in any of those sites, up until the document from which this data was taken, was published.

4.3.29 Percentage of Natura 2000 sites where sub-endemic and possibly endemic species are present

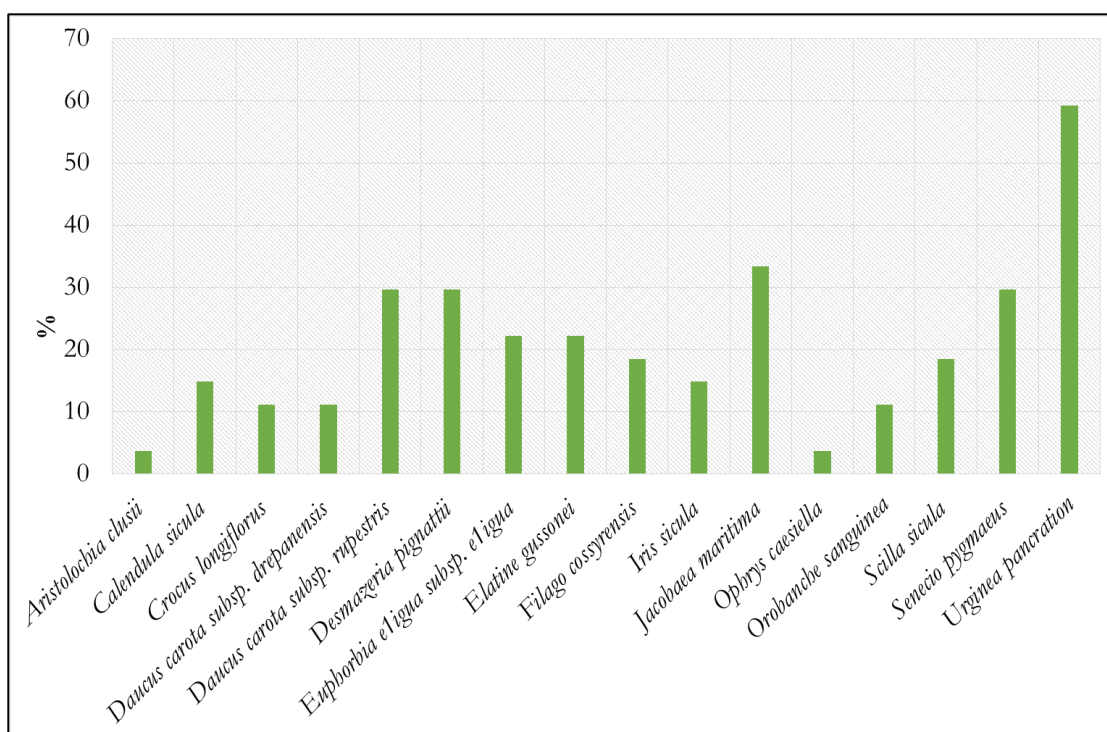


Figure 1.74: Percentage of Natura 2000 sites where sub-endemic and other important plant species are present

This graph is showing what percentage of the Natura 2000 sites in which sub-endemic and possibly endemic species are present. One can note that *Drimia maritima* has the highest frequency (59%; which confirms why it is listed in Schedule X of LN311/2006), whereas *Aristolochia clusii* and *Ophrys fusca* subsp. *fusca* have the lowest frequency (4%). From this graph one can also note that each Natura 2000 site contains a sub-endemic species, although not all of them are protected nationally.

4.4 Protected Areas: Important plant species and management practices

4.4.1 Western shore of Qalet Marku (AEI/SSI)

Table 1.26: Endemic, sub-endemic and possibly endemic plant species present in 'Western shore of Qalet Marku' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthemis urvilleana</i>	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes

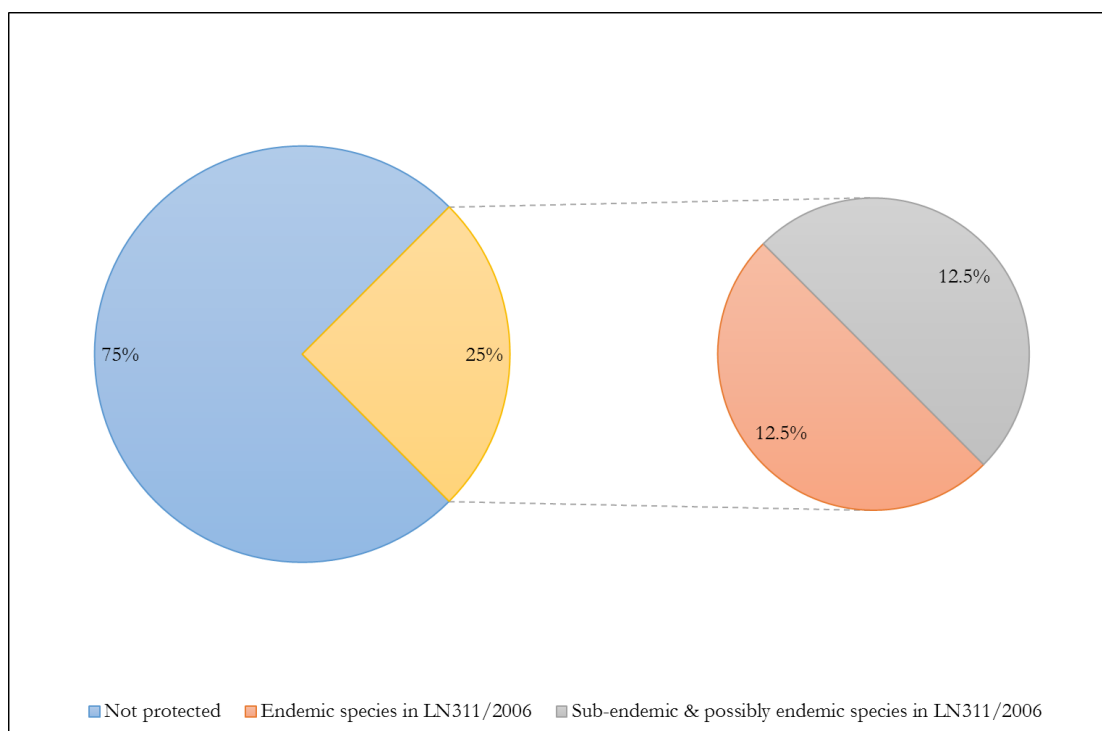


Figure 1.75: Percentage of species protected by policy in 'Qalet Marku', with an emphasis on the endemic, sub-endemic and possibly endemic plant species present

Out of the eight species that have been listed to be present on the 'Western shore of Qalet Marku', only two species were protected, making up to 25% of the species. Both these

species are endemic in terms of LN311/2006, however *Anthemis urvilleana* is endemic to the Maltese Islands whereas *Jacobaea maritima* is a sub-endemic species.

There are quite a number of debates on this *A. urvilleana* mostly regarding its endemism, since a few botanists believe that it is also found in Pantelleria. This means that if research concludes that this species is not endemic, but is actually a sub-endemic species, it will still be protected through LN311/2006 since Regulation 26 covers those species that are endemic in the Maltese Islands and the central-Mediterranean region. Therefore the regions in which *A. urvilleana* is present will not merit the need for alteration. However one argument may be that if the species will also be present in another region away from the Maltese Islands, then would it need protection if it is abundant elsewhere? This will cause the need for researchers to thoroughly investigate the population status of *A. urvilleana* in order to make sure that it should remain protected under Regulation 26 of LN311/2006, and if not, it should be listed under Schedule X of the same law.

Jacobaea maritima is a sub-endemic species present in this region and is currently under debate, mostly because it is referred to by various names, for example it was listed under *Senecio bicolor* in various documents, including the Natura 2000 datasheets, and has since had various changes in its nomenclature. This confusion on the name of the species even makes one unsure on whether it is actually a sub-species or a species, meaning that the difference in rank may actually be the answer to whether the species is endemic to the Maltese Islands or not. The need for clarification on such species is extremely important as this will impact the boundary line of the protected areas. Policy makers need to make sure to keep constant updates on the changes of endemic status of the species, and if a species is no longer considered endemic thus no longer protected, then its habitat may also lose protection.

4.4.2 *Qortin ta' Ghajn Damma (AEI/SSI)*

Table 1.27: Endemic, sub-endemic and possibly endemic plant species present in 'Qortin ta' Ghajn Damma' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	Yes

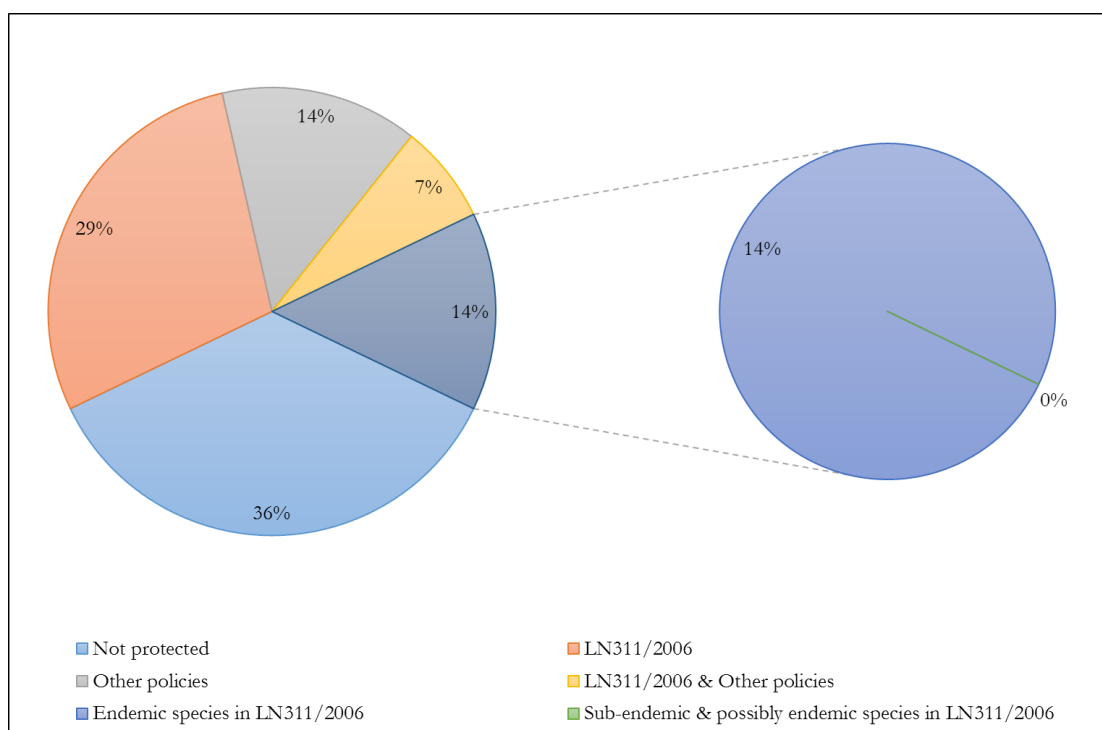


Figure 1.76: Percentage of species protected by policy in 'Qortin ta' Ghajn Damma', with an emphasis on the endemic plant species present

Out of the 14 species that were documented in ‘Qortin ta’ Ghajn Damma’, 14% are endemic to the Maltese Islands. These are *Anthyllis hermanniae* subsp. *melitensis* and *Salsola melitensis*. There are no sub-endemic plants or possibly endemic plants present in this region, up to the publication of the document from which this data was taken. Currently, there are no debates on the distinctiveness and endemism of the species, which means there is no risk of changes in the protected area of ‘Qortin ta’ Ghajn Damma’.

4.4.3 Wied il-Miżieb (AEI/SSI)

Table 1.28: Endemic, sub-endemic and possibly endemic plant species present in ‘Wied il-Miżieb’ [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b) Schedule X (b)	Not listed	Not listed	Yes

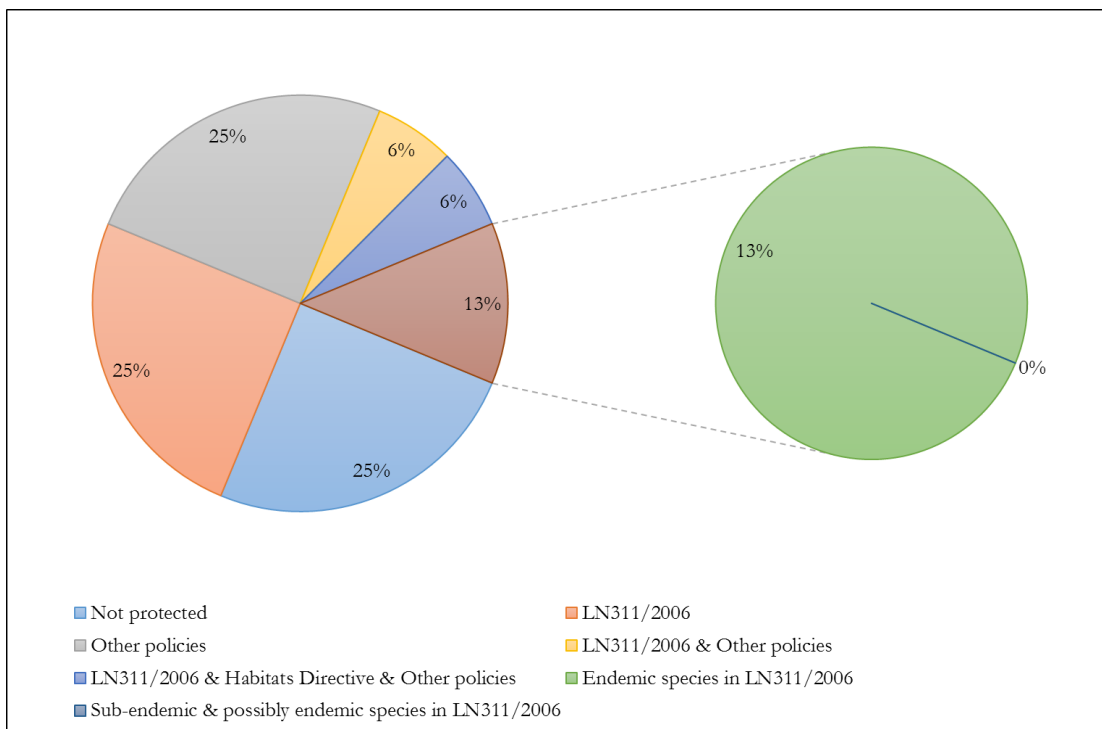


Figure 1.77: Percentage of species protected by policy in 'Wied il-Mizieb', with an emphasis on the endemic plant species present

Anthyllis hermanniae subsp. *melitensis* is the only protected endemic plant which is present in 'Wied il-Mizieb', and this makes up the 13% of the 16 species documented to be present in the area. There are currently no debates on the distinctiveness of this species, which means that so far the status of this species will not affect the status of the protected area.

4.4.4 Il-Qattara (AEI/SSI)

Table 1.29: Endemic, sub-endemic and possibly endemic plant species present in 'Il-Qattara' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

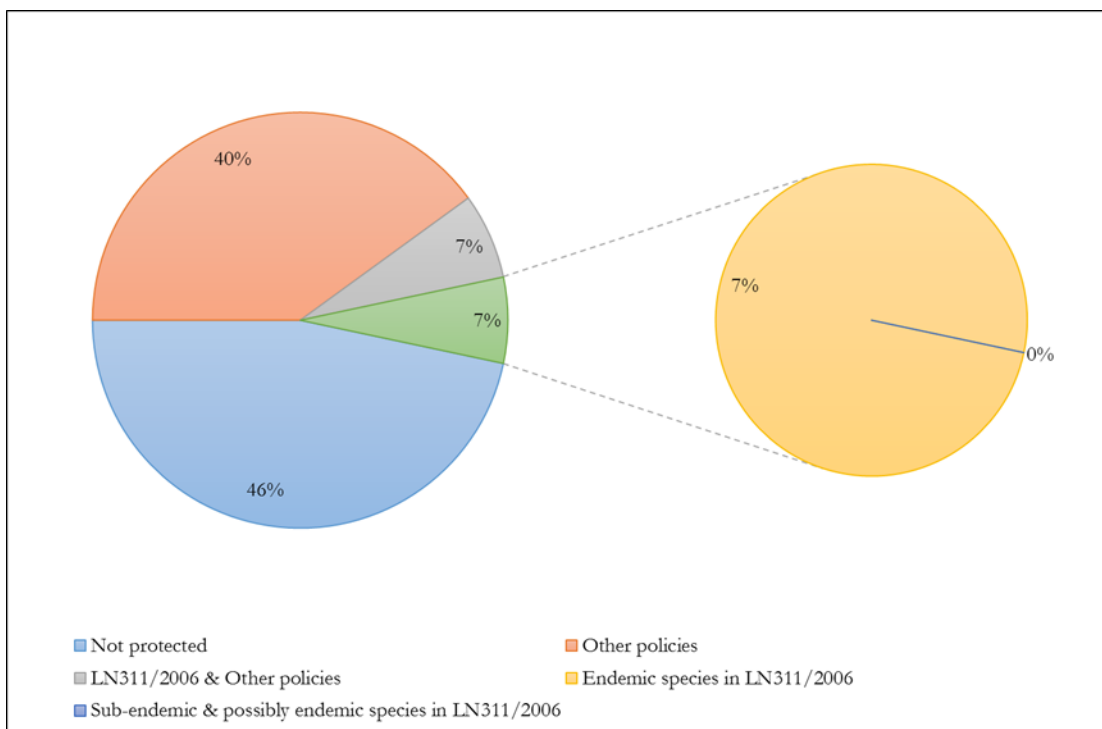


Figure 1.78: Percentage of species protected by policy in 'Il-Qattara', with an emphasis on the endemic plant species present

In the area of 'Il-Qattara', 7% of the species listed to be present in the area is made up of the endemic species *Zannichellia melitensis*. This species is currently under debate on its distinctiveness due to it being very similar to other species in the genus *Zannichellia*. There are also other scientists that insist that this does not merit the rank of a 'species', but rather a 'sub-species'. If this endemic plant species loses its endemic status, the area of 'Il-Qattara' will also be losing one of the main reasons for the creation of this SAC in the first place, even though there are other species that are worth being legally protected.

4.4.5 L-Ghadira Ta' Sarraflu (AEI/SSI)

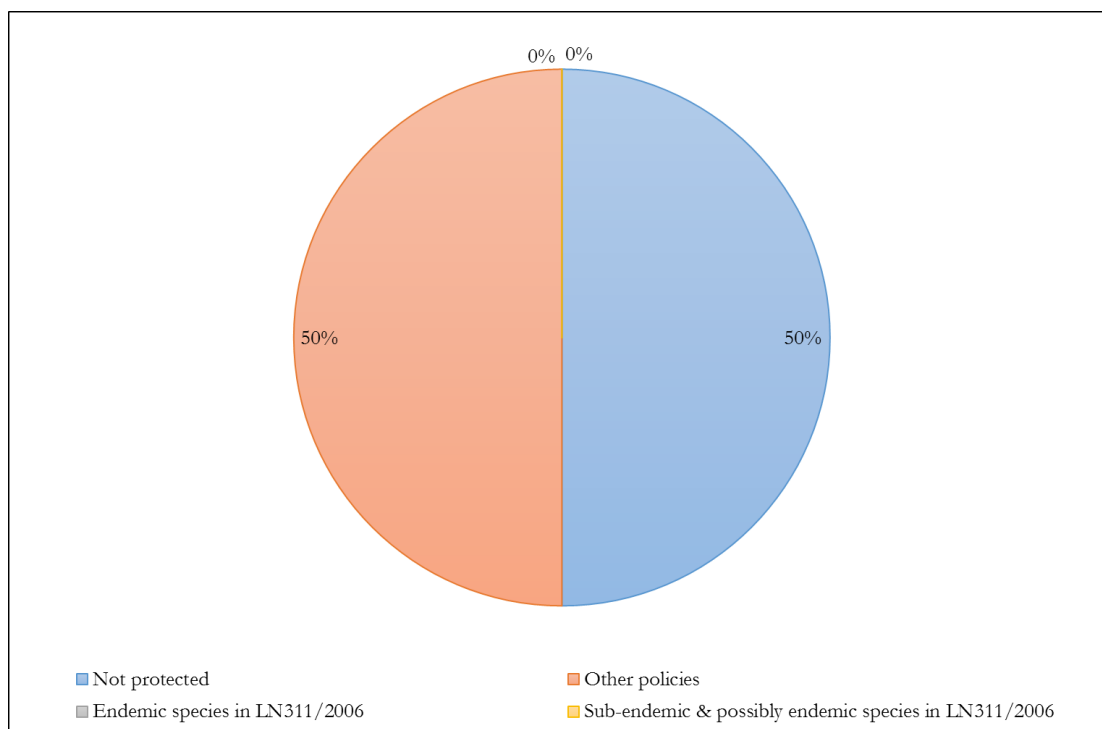


Figure 1.79: Percentage of species protected by policy in 'L-Ghadira ta' Sarraflu'

In 'L-Ghadira ta' Sarraflu', there were no protected endemic, sub-endemic or possibly endemic species that were documented. This indicates that this area is a SAC due to other reasons, possibly due to the presence of *Tamarix africana* being listed in LN200/2011 Schedule II. It may also be the presence of important fauna, rather than flora, that have triggered the need for this area to be protected.

Chapter 5: Conclusion

5.1 Conclusions

From the data collected on the endemic and sub-endemic plant species, one can easily see that there are multiple reasons for debate, whether it is on their distinctiveness, on their rank, and even on their name, because quite a number of species have synonyms. This is all due to the subjective opinions of experts, as it has been proven through the interviews (as can be seen in ANNEX B).

The simplification of the difficult task of species identification is something that most scientists hope for, however this hope is futile. To start with, there is not a single species concept, and thus scientists will be subjective on how they recognise a species. These scientific uncertainties are therefore unavoidable.

The fact that a species may be referred to by different names is confusing both for scientific reasons as well as for policy-wise reasons. For example when the list of species was collected from the Natura 2000 documents, there were quite a few species that had a nomenclature change (e.g. *Jacobaea maritima* was listed under *Senecio bicolor*). Therefore this not only confuses policy-makers, who are not biology experts, but also others that make use of such documents. This is because the persons that make use of these documents should either need to keep up with such changes and recognise changed statuses in species immediately, or the experts that produce these documents need to constantly stay on the alert and give the latest update, both of which are highly unlikely and difficult. Although this is very difficult, there needs to be a way where such changes in the scientific world are kept up to date with policy.

The advantage with LN311/2006, is that within its definition of 'endemic', a species is endemic if it is found only within the Maltese Islands and the Central Mediterranean region. This means that if a species under debate is found also in one of the other islands (e.g. *Romulea melitensis* is also believed to be found in Sicily (Stevens – personal

communication – 2014)), it will still be protected by LN311/2006, and therefore there would not be any need to alter protected areas.

The other advantage with the LN311/2006 definition of ‘endemic’ is that it also includes those species that are currently under debate regarding their endemism (but are still not definitely endemics, thus possibly endemic species) and require further studies for clarification. However this may be a disadvantage since possibly endemic species would only be known to science experts, and thus both the species and the habitat will only be officially protected, meaning those persons (including policy experts) that do not realise its importance will not take caution in protecting this species.

If there is a change in the nomenclature of the species, it would still remain protected since there was the legal intent when the policy was made. However the species will no longer be protected if its taxon is changed (Stevens D. , 2014). Therefore it is more critical when a change in taxonomy of the species occurs since there needs to be re-evaluation of policy regarding both the species itself, as well as the habitat that it occurs in especially if it occurs in protected areas.

The other advantage with the Maltese national policy is that the section where endemic species are given protection is listed in Schedules. This is an advantage because schedules can be changed without going through the process of parliament, thus can be reviewed more frequently. In fact, there have been schedule updates in 2003, 2006, 2007, 2009, 2010 and 2013 (Stevens D. , 2014). This is still however not as frequent as changes that occur in the scientific world, but it is still a good way of keeping up.

5.2 Recommendations

It is of utmost importance that a species is well studied, both the species itself *in situ*, as well as other species in its genera that are closely related. This would be the first step to eliminate a number of doubts on the status of the species.

First and foremost, one shouldn't only consider the effects of the change in endemic status that the species has on science, but one should also keep in mind that an endemic species is a criterion in the designation of a SAC. This area may probably be private (e.g. part of Ta' Ċenċ), and therefore the owner would not be able to develop it in any way (building or even farming). Therefore this emphasises on the fact that it is especially important that an endemic species is clear of debates, as any change in its endemic status will lead to the useless protection of the area, including waste of funds for area management.

The question arises on where to draw a line when considering the distinctiveness and rank of a species. From what has come out of this study, it is very clear that each botanist has his own subjective opinion on each species, therefore it is difficult to have multiple agreements, although there may be a general one. Thus it is ultimately up to the opinion of the botanist to protect a species. This is because there is a domino effect when a paper stating that a species is endemic to the Maltese Islands is published, which would mean that it is automatically protected by LN311/2006 and thus, its habitat may also require protection.

In policy, it is mentioned that if a species may be endemic, it is automatically protected, however there is no mention of the opposite. If the species is no longer endemic, what happens next? There should be a link in LN311/2006 and a list of endemic species which is updated constantly, where it states that such species and their habitats will no longer be protected if the species are removed from the list. The implications behind this would be who will be in charge of making sure that the species on or off the list are actually as they

should be, since each opinion is of value. One way of tackling this situation would be to consider various opinions of botanists and decide through the majority, although this may not necessarily be correct.

Identifying species is a complex and very difficult task to do, however this is done in order to make human lives easier. Nevertheless, one must accept that loop-holes will always be present in this system as there is no single 'best opinion'. As stated by Mifsud (personal communication, 2014), the study of species requires funding, which unfortunately is not available in Malta. Therefore the primary step would be first to make sure that botanists have the needed funds to carry out research, including molecular biology, to have a clearer perspective on the distinctiveness of species.

Chapter 6: References

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ANNEX A

Interview Questions

1. How do you determine if a species is endemic to the Maltese Islands?
2. How important to you is the opinion of other botanists? Are all opinions equally important to you? Do they all carry equal authority?
3. In your case, do you only use morphometric features to delineate species, or do you also use other methods (such as DNA analysis)?
4. Why do you consider that the “taxon” is a subspecies/variety? How do you determine species boundaries? Is the definition of ‘species’ dependent on the opinion or preference of the observer?
5. Looking at the list of endemics in the Maltese Islands, do you agree with all the species and sub-specific ranks that have been given? What changes would you recommend?
6. Scientific research is constantly being updated, unlike policy (which is updated far less frequently). This has implications for areas that are especially protected because of the presence of certain significant species, including endemic species. If these species are no longer considered endemic (after a change of status, or after a revision of the genus/species) in the botanical world, then the area may not need to be protected either. In your opinion, how can legislation keep up with these constant updates in research?

List of the Endemic Flora of the Maltese Islands

<i>Allium lojaconoi</i> (Maltese Dwarf Garlic)	<i>Allium melitense</i> (Maltese Leek)
<i>Limonium melitense</i> (Maltese Sea Lavender)	<i>Anthemis urvilleana</i> (Maltese Sea Chamomille)
<i>Limonium zeraphae</i> (Zerapha's Sea Lavender)	<i>Cheirolophus crassifolius</i> (Maltese Rock Centaury)
<i>Zannichellia melitensis</i> (Maltese Horned Pondweed)	<i>Chiliadenus bocconeii</i> (Maltese Fleabane)
<i>Hyoseris frutescens</i> (Maltese Hyoseris)	<i>Helichrysum melitense</i> (Maltese Helichrysum)
<i>Darniella melitensis</i> (Maltese Salt Tree)	<i>Phelipanche nana</i> subsp. <i>melitensis</i> (Maltese Dwarf Sorrel Broomrape)
<i>Euphorbia melitensis</i> (Maltese Spurge)	<i>Matthiola incana</i> subsp. <i>melitensis</i> (Maltese Stocks)
<i>Cremonophyton lanfrancoi</i> (Maltese Cliff Orache)	<i>Anthyllis hermanniae</i> subsp. <i>melitensis</i> (Maltese Yellow Kidney Vetch)
<i>Anacamptis urvilleana</i> (Maltese Pyramidal Orchid)	<i>Romulea melitensis</i> (Maltese Sand Crocus)
<i>Ophrys bombyliflora</i> f. <i>parviflora</i> (Small-flowered Bumblebee Orchid)	<i>Ophrys iricolor</i> subsp. <i>hospitalis</i> (Maltese Blue Orchid)
<i>Ophrys melitensis</i> (Maltese Spider Orchid)	<i>Polypodium vulgare</i> subsp. <i>melitense</i> (Maltese Polypody)

ANNEX B

Natura 2000 Special Areas of Conservation: Important plant species and policies

L-Inħawi ta' Pembroke (MT0000002)

Priority species present in 'L-Inħawi ta' Pembroke' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Aloe vera</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Catananche lutea</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Damasonium bourgaei</i>	V, Rest (MED + MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Gynandris sisyrrinchium</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hyparrhenia hirta</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Limonium serotinum</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Mesembryanthemum crystallinum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Plantago bellardi</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sarcopoterium spinosum</i>	E, Rest (MED + MI)	Schedule I (b), Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Spiranthes spiralis</i>	R, Rest (MI)	Schedule VI	Not listed	Not listed	Yes
<i>Thesium humile</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Il-Ballut tal-Wardija (MT0000003)

Priority species present in 'Il-Ballut tal-Wardija' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Asphodelus fistulosus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Clematis cirrhosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Convolvulus tricolor</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Geranium purpureum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Juniperus phoenicea</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Myrtus communis</i>	V, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Orobancha muteli</i> forma <i>melitensis</i>	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Quercus ilex</i>	R, Rest (MI)	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ranunculus bulbosus</i>	Endemic (?), X (?)	Not listed	Not listed	Not listed	No
<i>Rhamnus alaternus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes

Il-Maqluba (limiti tal-Qrendi) (MT0000004)

Priority species present in 'Il-Maqluba (limiti tal-Qrendi)' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Arum italicum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Hedera helix</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Parietaria lusitanica</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Tetraclinis articulata</i>	E, Rest (MED + MI)	Schedule III (b) Schedule VI (b)	Not listed	Trees & Woodlands (Schedule I)	Yes

L-inhawi tar-Ramla (MT0000005)

Priority species present in 'L-inhawi tar-Ramla' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ambrosia maritima</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Atriplex portulacoides</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Bolboschoenus maritimus</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Cardaria draba</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex distans</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Chondrilla juncea</i>	E, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Cutandia maritima</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Cyperus capitatus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Cyperus longus</i>	Not listed	Not listed	Not listed	IUCN Red Least (Least Concern)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Echinophora spinosa</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Erodium laciniatum</i>	V	Not listed	Not listed	Not listed	No
<i>Eryngium maritimum</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Euphorbia paralias</i>	E, Rest (MI)	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Euphorbia peplis</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia terracina</i>	V, Rest (MI)	Schedule I (22), Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Glebionis segetum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Medicago marina</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Mesembryanthemum crystallinum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Oenanthe globulosa</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Ononis natrix</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ononis variegata</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Pancratium maritimum</i>	V, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Podospermum resedifolium</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Polycarpon diphyllum</i>	I	Not listed	Not listed	Not listed	No
<i>Polygonum maritimum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Pseudorlaya pumila</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Scolymus hispanicus</i>	Not listed		Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tamarix gallica</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Typha domingensis</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes

Is-Simar (limiti ta' San Pawl il-Baħar) (MT0000006)

Priority species present in 'Is-Simar (limiti ta' San Pawl il-Baħar)' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anagyris foetida</i>	RR, Rest (MI)	Schedule III (b)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Asphodelus fistulosus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Cercis siliquastrum</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Convolvulus tricolor</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Cressa cretica</i>	R, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cupressus sempervirens</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cyperus badius</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Fraxinus angustifolia</i>	Not listed	Schedule I (91)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Juncus maritimus</i>	V, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Myrtus communis</i>	V, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Phillyrea latifolia</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Phlomis fruticosa</i>	No	Not listed	Not listed	Not listed	No
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Populus alba</i>	R, Rest (MI)	Schedule I (32, 92)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Quercus ilex</i>	R, Rest (MI)	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Rhamnus alaternus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Ruppia maritima</i>	E, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Sambucus nigra</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tetraclinis articulata</i>	E, Rest (MED + MI)	Schedule III (b) Schedule VI (b)	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Typha domingensis</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

Is-Salini (MT0000007)

Priority species present in 'Is-Salini' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cabystegia sepium</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cressa cretica</i>	R, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Elymus flaccidifolius</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Equisetum ramosissimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Juncus subulatus</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche lavandulacea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Puccinellia fasciculata</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Vulnerable)	Yes
<i>Ruppia maritima</i>	E, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Sedum litoreum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sphenopus divaricatus</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Spiranthes spiralis</i>	R, Rest (MI)	Schedule VI	Not listed	Not listed	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Triglochin bulbosum</i> subsp. <i>barrelieri</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No

L-Ghadira s-Safra (MT0000008)

Priority species present in 'L-Ghadira s-Safra' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cressa cretica</i>	R, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Crypsis aculeata</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Plantago crypsoides</i>	I, Rest (MED)	Not listed	Not listed	Not listed	No
<i>Polygonum maritimum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Riella helicophylla</i>	Not listed	Schedule II (b), Schedule VI (b)	Annex II & IV	Appendix 1 of the Berne Convention	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes

L-inhawi tar-Ramla tat-Torri u l-Irdum tal-Madonna (MT0000009)

Priority species present in 'L-inhawi tar-Ramla tat-Torri u l-Irdum tal-Madonna' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium amethystinum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	Yes
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Bupleurum semicompositum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Cutandia maritima</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Cyperus capitatus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Elitrygia juncea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Erodium laciniatum</i>	V	Not listed	Not listed	Not listed	No
<i>Eryngium maritimum</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia exigua</i> var. <i>pyncnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia peplis</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Euphorbia terracina</i>	V, Rest (MI)	Schedule I (22), Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafbae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Pancreatium maritimum</i>	V, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Plantago bellardi</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Plantago crypsoides</i>	I, Rest (MED)	Not listed	Not listed	Not listed	No
<i>Polygonum maritimum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Putoria calabrica</i>	V, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Schoenus nigricans</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Sedum litoreum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sporobolus pungens</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Ix-Xaghra tal-Kortin (MT0000010)

Priority species present in 'Ix-Xaghra tal-Kortin' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis bermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Atractylis cancellata</i>	RR, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Catabrosa aquatica</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasomia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Lotus preslii</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tamus communis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Għar Dalam (MT0000011)

Priority plant species present in the area: None

Wied il-Mizieb (MT0000012)

Priority species present in 'Wied il-Mizieb' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Periploca augustifolia</i>	Rest (MED)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Piptatherum caerulescens</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Tetraclinis articulata</i>	E, Rest (MED + MI)	Schedule III (b) Schedule VI (b)	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Cittadella (MT0000013)

Priority species present in 'Cittadella' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Antirrhinum siculum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Chamomilla aurea</i>	X (?), Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes

Il-Ballut ta' Marsaxlokk (MT0000014)

Priority species present in 'Il-Ballut ta' Marsaxlokk' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Atriplex portulacoides</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Carex extensa</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Juncus maritimus</i>	V, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Matthiola tricuspidata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Ruppia maritima</i>	E, Rest (MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Sporobolus pungens</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes

L-inhawi tal-Ghadira (MT0000015)

Priority species present in 'L-inhawi tal-Ghadira' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthyllis hermannaiae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Atriplex portulacoides</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Brachypodium retusum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Calendula suffruticosa</i> var. <i>gussonii</i>	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Carex extensa</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cutandia maritima</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Cyperus capitatus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Erodium laciniatum</i>	V	Not listed	Not listed	Not listed	No
<i>Euphorbia chamaesyce</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia terracina</i>	V, Rest (MI)	Schedule I (22), Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Hedysarum spinosissimum</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Juncus subulatus</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Melilotus messanensis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche densiflora</i> (= <i>Orobanche sanguinea</i>)	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Ruppia drepanensis</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Triglochin bulbosum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Filfla (MT0000016)

Priority species present in 'Filfla' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No

<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Urginea pancrati</i> (= <i>Drimys maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Kemmuna u l-Gżejjer ta' Madwarha (MT0000017)

Priority species present in 'Kemmuna u l-Gżejjer ta' Madwarha' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Althaea hirsuta</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Ceratonias siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadensis bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazzeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Gynandris sisirynchium</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hedysarum spinosissimum</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Hymenolobus revelieri</i> subsp. <i>sommieri</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Limonium zerafbae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Linum bienne</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Lotus halophilus</i>	Not listed	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Mesembryanthemum crystallinum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Pancratium maritimum</i>	V, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Plantago crypsoides</i>	I, Rest (MED)	Not listed	Not listed	Not listed	No
<i>Polycarpon diphyllum</i>	I	Not listed	Not listed	Not listed	No
<i>Polygonum maritimum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Putoria calabrica</i>	V, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Rosmarinus officinalis</i>	R, Rest (MI)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Sedum litoreum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tetraclinis articulata</i>	E, Rest (MED + MI)	Schedule III (b) Schedule VI (b)	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Trifolium repens</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Valantia hispida</i>	X (?), Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

L-Inhawi ta' Ghajn Barrani (MT0000001)

Priority species present in 'L-Inhawi ta' Ghajn Barrani' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium neapolitanum</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Althaea hirsuta</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Apium nodiflorum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Atriplex halimus</i> var. <i>gussoneana</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Clematis cirrhosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Coronilla valentina</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Crataegus azarolus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crocus longiflorus</i> var. <i>melitensis</i> (= <i>Crocus longiflorus</i>)	RR, Rest (MI)	Regulation 26	Not listed	Not listed	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Cydonia oblonga</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Equisetum ramosissimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Eruca sativa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia peplis</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Glebionis segetum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hedera helix</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Hibiscus trionum</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Hypocoum procumbens</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Lavatera trimestris</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Malope malacoides</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Mespilus germanica</i>	X (?)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Neslia apiculata</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ononis mitissima</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ononis oligophylla</i>	X (?), Rest (MED)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Ononis ornithopodioides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche lavandulacea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Podospermum resedifolium</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Prunus cerasifera</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Prunus dulcis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Prunus spinosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Rosa sempervirens</i>	V, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Sambucus nigra</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Stachys ocymastrum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Thlaspi perfoliatum</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Trifolium squamosum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Urginea pancrati</i> (= <i>Drimys maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Verbascum creticum</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes

Buskett – Girgenti Area (MT0000018)

Priority species present in 'Buskett – Girgenti Area' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Adonis microcarpa</i>	Not listed	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Agrostemma githago</i>	Extinct	Not listed	Not listed	Not listed	No
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium triquetrum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Aloe vera</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Althaea hirsuta</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Anagyris foetida</i>	RR, Rest (MI)	Schedule III (b)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Anemone hortensis</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Bellevalia romana</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Calystegia lucana</i> ×	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Carduncellus coeruleus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Carex distans</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex divulsa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex otrubae</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Centranthus ruber</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Clematis cirrhosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Convolvulus tricolor</i> subsp. <i>cupanianus</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Crassula tillaea</i>	R, Rest (MI)	Not listed	Not listed	Red Data List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Crataegus azarolus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crocus longiflorus</i>	RR, Rest (MED +MI)	Regulation 26	Not listed	Not listed	Yes
<i>Dracunculus vulgaris</i>	X (?)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Elatine gussonei</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Eleocharis palustris</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Epilobium parviflorum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Equisetum ramosissimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Euphorbia aleppica</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Euphorbia characias</i>	RR, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Fraxinus angustifolia</i>	Not listed	Schedule I (91)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Fumaria bicolor</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Glebionis segetum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Glyceria plicata</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Hedera helix</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Hibiscus trionum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Iris foetidissima</i>	V, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Kundmannia sicula</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lathyrus amphicarpos</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Lathyrus annuus</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Lathyrus gorgoni</i>	X (?), Rest (MED)	Not listed	Not listed	Not listed	No
<i>Lathyrus inconspicuus</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Lathyrus setifolius</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Lathyrus sphaericus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Lemna minor</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Medicago arabica</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Myrtus communis</i>	V, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ornithogalum divergens</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche hederæ</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche lavandulacea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Persicaria salicifolia</i>	V, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Persicaria senegalense</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Petalophyllum ralfsii</i>	Not listed	Schedule II (b), Schedule VI (b)	Annex II & IV	Not listed	Yes
<i>Phillyrea latifolia</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Phlomis fruticosa</i>	No	Not listed	Not listed	Not listed	No
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Pinus pinea</i>	Not listed	Schedule I (22)	Not listed	Trees and Woodlands (Schedule II), IUCN Red List (Least Concern)	Yes
<i>Pistacia terebinthus</i>	Not listed	Schedule III	Not listed	Trees and Woodlands Schedule I	Yes
<i>Polygonum mite</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Potamogeton pectinatrius</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Pulicaria dysenterica</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Quercus ilex</i>	R, Rest (MI)	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Rosa gallica</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ruscus hypophyllum</i>	RR, Rest (MI)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Salvia fruticosa</i>	E, Rest (MI)	Schedule VIII (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Sambucus ebulus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sambucus nigra</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Scilla clusii</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Serapias vomeracea</i>	E, Rest (MI)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Spartium junceum</i>	E, Rest (MI)	Not listed	Trees and Woodlands (Schedule II)	Not listed	Yes
<i>Sphenopus divaricatus</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Spiranthes spiralis</i>	R, Rest (MI)	Schedule VI	Not listed	Not listed	Yes
<i>Stachys ocymastrum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ulmus canescens</i>	E, Rest (MED + MI)	Schedule III	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Ulmus minor</i>	Not listed	Schedule I (91)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Valerianella truncata</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Verbascum creticum</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Vicia bithynica</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Vicia narbonensis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Vicia sativa</i> subsp. <i>amphicarpa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Vicia tetrasperma</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Viola odorata</i>	X (?)	Not listed	Not listed	Not listed	No

Dwejra - Qawra Area, including Haġret il-Ġeneral (MT0000019)

Priority species present in 'Dwejra - Qawra Area, including Haġret il-Ġeneral' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium arvense</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Apium graveolens</i>	Not listed	Schedule VIII (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Calendula suffruticosa</i> var. <i>gussonii</i>	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Callitriche truncata</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Centaurium tenuifolium</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cichorium pumilum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Cremonophyton lanfrancoii</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Crypsis schoenoides</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cynomorium coccineum</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus gingidium</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	
<i>Euphorbia characias/melapetalala</i>	RR, Rest (MED + MI) – <i>E. characias</i>	Schedule VI (b) – <i>E. characias</i>	Not listed	Not listed	No - <i>E. melapetala</i>
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Fumaria bicolor</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Glebionis segetum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Helichrysum melitense</i>	Endemic, RR, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Hypocoum procumbens</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Palaeocyanus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Salix alba</i>	E, Rest (MI)	Schedule III	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule I)	Yes
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Typha domingensis</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

L-Inhawi tax-Xlendi u tal-Wied tal-Kantra (MT0000020)

Priority species present in L-Inhawi tax-Xlendi u tal-Wied tal-Kantra? [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ajuga reptans</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Allium neapolitanum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Allium triquetrum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Aloe vera</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Althaea officinalis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthirrinum siculum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Apium graveolens</i>	Not listed	Schedule VIII (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Asplenium ceterach</i>	E, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Asplenium marinum</i>	X (?)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Asplenium sagittatum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ballota nigra</i>	Not listed	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Calendula suffruticosa gussonei</i> var.	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Callitriche truncata</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cardamine hirsuta</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex otrubae</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Crataegus azarolus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Cremonophyton lanfrancoi</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Damasonium bourgaei</i>	V, Rest (MED + MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Equisetum ramosissimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Euphorbia characias/melapetala</i>	RR, Rest (MED + MI) – <i>E. characias</i>	Schedule VI (b) – <i>E. characias</i>	Not listed	Not listed	No - <i>E. melapetala</i>
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Gladiolus byzantinus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Gladiolus dubius</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Glebionis segetum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Iris sicula</i> (= <i>Iris pallida</i> subsp. <i>pallida</i>)	V, Rest (MED + MI)	Regulation, 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Juncellus dystachyos</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Lythrum hyssopifolia</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Medicago arabica</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ononis ornithopodioides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Orobanche lavandulacea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche minor</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyanus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Paliurus spina-christi</i>	E, Rest (MI)	Schedule III	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Parietaria lusitanica</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Populus alba</i>	R, Rest (MI)	Schedule I (32, 92)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Ranunculus saniculaefolius</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Rubus caesius</i>	X (?)	Not listed	Not listed	Not listed	No
<i>Sambucus ebulus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Sedum caespitosum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Selaginella denticulata</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Silene fruticosa</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Spiranthes spiralis</i>	R, Rest (MI)	Schedule VI	Not listed	Not listed	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tamarix gallica</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Thesium humile</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Valerianella muricata</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Vicia tetrasperma</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

L-Inhawi tal-Imġiebaħ u tal-Miġnuna (MT0000021)

Priority species present in 'L-Inhawi tal-Imġiebaħ u tal-Miġnuna' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Atractylis cancellata</i>	RR, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Ballota nigra</i>	Not listed	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cistus creticus</i>	R, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes
<i>Crataegus azarolus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Gladiolus dubius</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Juncus subulatus</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafhae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Linum bienne</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Lycium intricatum</i>	Not listed	Schedule III (b)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Marrubium vulgare</i>	Not listed	Schedule VIII	Not listed	Not listed	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Medicago rigidula</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ononis natrix</i> subsp. <i>ramosissima</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Not listed	Schedule I (53)	Not listed	Not listed	
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Phalaris truncata</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Putoria calabrica</i>	V, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Quercus ilex</i>	R, Rest (MI)	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Rhagadiolus stellatus</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Romulea melitensis</i>	Endemic, I	Regulation 26	Not listed	Not listed	Yes
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Trifolium lappaceum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Typha domingensis</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Il-Gżejjer ta' San Pawl (Selmunett) (MT0000022)

Priority species present in 'Il-Gżejjer ta' San Pawl (Selmunett)' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Atractylis cancellata</i>	RR, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Carlina involuocrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cutandia maritima</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Limonium zerafhae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Lotus cytisoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Parietaria cretica</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Plantago crypsoides</i>	I, Rest (MED)	Not listed	Not listed	Not listed	No
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No

Il-Magħluq tal-Bahar (l/o Marsaskala) (MT0000023)

Priority species present in 'Il-Magħluq tal-Bahar (l/o Marsaskala)' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Juncus maritimus</i>	V, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium virgatum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sphenopus divaricatus</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes

Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa (MT0000024)

Priority species present in 'Rdumijiet ta' Malta: Ir-Ramla taċ-Ċirkewwa sal-Ponta ta' Bengħisa' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium amethystinum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Allium lojaconoi</i>	Endemic	Schedule III (b)	Not listed	IUCN Red List (Near Threatened)	Yes
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Allium neapolitanum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Allium nigrum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Allium triquetrum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Aloe vera</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Althaea hirsuta</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Anacamptis urvilleana</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Anagyris foetida</i>	RR, Rest (MI)	Schedule III (b)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanningiae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Antirrhinum siculum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Apium graveolens</i>	Not listed	Schedule VIII (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Aristolochia clusii</i>	E, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Asphodelus fistulosus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Asplenium ceterach</i>	E, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Atractylis cancellata</i>	RR, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Barlia robertiana</i>	E, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Bellevalia romana</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Bolboschoenus maritimus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Brachypodium retusum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Bromus alopecuroides</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Calendula sicula</i> (= <i>Calendula stellata</i>)	I, Rest (MED)	Schedule X (b)	Not listed	Not listed	Yes
<i>Callitriche truncata</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carduncellus coeruleus</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Carex distans</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex divulsa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Carex balleriana</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Carex hispida</i>	V, Rest (MED + MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carex otrubae</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Carlina lanata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Catabrosa aquatica</i>	E, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Centaurea melitensis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chamaerops humilis</i>	X (?), Rest (MED)	Schedule I (53)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconeii</i> (= <i>Jasonia bocconeii</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Cistus creticus</i> subsp. <i>creticus</i>	R, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Cistus creticus</i> subsp. <i>eriocephalus</i>	R, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Cistus monspeliensis</i>	RR, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Convolvulus cantabrica</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Convolvulus tricolor</i> subsp. <i>cupanianus</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Coronilla valentina</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Crassula tillaea</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red Data List (Least Concern)	Yes
<i>Crassula vaillantii</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Crataegus azarolus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Crataegus monogyna</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Cremonophyton lanfrancoi</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Crepis pusilla</i>	RR, Rest (MED + MI)	Schedule II	Annex II & IV	Not listed	Yes
<i>Crocus longiflorus</i>	RR, Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Cupressus sempervirens</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Cynomorium coccineum</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus iopadusanus</i> (= <i>Daucus carota</i> subsp. <i>drepanensis</i>)	I, Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Elatine gussonei</i>	R, Rest (MED +MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Eleocharis palustris</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Epilobium parviflorum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Equisetum ramosissimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Eryngium maritimum</i>	V, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Euphorbia characias/melapetala</i>	RR, Rest (MED + MI) – <i>E. characias</i>	Schedule VI (b) – <i>E. characias</i>	Not listed	Not listed	No - <i>E. melapetala</i>
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia peplis</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Eurhynchium circinatum</i> var. <i>myosuroideum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Fagonia cretica</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Fumaria bicolor</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Funaria mediterranea</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Gastridium scabrum</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Gladiolus byzantinus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Gladiolus dubius</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Hedera helix</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Hedysarum spinosissimum</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Hordeum geniculatum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Isolepis cernua</i>	X (?)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Juncus acutus</i>	Not listed	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Lactarius vinosus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lactuca saligna</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lathyrus sphaericus</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Laurus nobilis</i>	R, Rest (MI)	Schedule I (52)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Limonium zerafbae</i>	Endemic, R, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Lonicera implexa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lotus cytisoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lotus preslii</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Lycium intricatum</i>	Not listed	Schedule III (b)	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Lythrum junceum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Marrubium vulgare</i>	Not listed	Schedule VIII	Not listed	Not listed	Yes
<i>Matthiola tricuspidata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Medicago italica</i> subsp. <i>tornata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Medicago marina</i>	V, Rest (MI)	Not listed	Not listed	Not listed	Yes
<i>Medicago murex</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Medicago tuberculata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Melica magnolii</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Mentha suaveolens</i>	X (?)	Schedule VI (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Morus nigra</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Myrtus communis</i>	V, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Neatostema apulum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Oenanthe globulosa</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ononis biflora</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Onopordum argolicum</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Ophrys apifera</i>	X (?)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Ophrys bertolonii</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	CITES (Appendix II), IUCN Red List (Least Concern)	Yes
<i>Ophrys caesiella</i> (= <i>Ophrys fusca</i> subsp. <i>fusca</i>)	Not listed	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Ophrys fuciflora</i>	Not listed	Schedule III (b), Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Ophrys lutea</i> subsp. <i>lutea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ophrys lutea</i> subsp. <i>minor</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Ophrys melitensis</i>	Not listed	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Ophrys oxyrhynchos</i>	X (?), Rest (MED)	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Ophrys tenthredinifera</i>	E, Rest (MED + MI)	Schedule III (b), Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Orchis italica</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Orobanche cernua</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Orobanche lavandulacea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyamus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix I)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Pancreatium maritimum</i>	V, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Parietaria lusitanica</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Persicaria salicifolia</i>	V, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Petalophyllum ralfsii</i>	Not listed	Schedule II (b), Schedule VI (b)	Annex II & IV	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Phalaris truncata</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Phlomis fruticosa</i>	No	Not listed	Not listed	Not listed	No
<i>Phoenix dactylifera</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Pinus halepensis</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule II)	Yes
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Plantago bellardi</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Plantago crypsoides</i>	I, Rest (MED)	Not listed	Not listed	Not listed	No
<i>Polygonum maritimum</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Populus alba</i>	R, Rest (MI)	Schedule I (32, 92)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Punica granatum</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Pyrus pyraster</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Pyrus syriaca</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Quercus ilex</i>	R, Rest (MI)	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ranunculus bulbosus</i>	Endemic (?), X (?)	Not listed	Not listed	Not listed	No
<i>Ranunculus saniculaefolius</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Rhagadiolus stellatus</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Rhamnus alaternus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Rosa sempervirens</i>	V, Rest (MI)	Schedule III (b)	Not listed	Not listed	Yes
<i>Rosmarinus officinalis</i>	R, Rest (MI)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Rumex pulcher</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Salix alba</i>	E, Rest (MI)	Schedule III	Not listed	IUCN Red List (Least Concern), Trees and Woodlands (Schedule I)	Yes
<i>Salix pedicellata</i>	E, Rest (MED + MI)	Schedule III	Not listed	Trees and Woodlands (Schedule I), IUCN Red Data List (Least Concern)	Yes
<i>Sambucus nigra</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Schoenus nigricans</i>	RR, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Scolymus grandiflorus</i>	RR, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Scolymus maculatus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Scrophularia auriculata</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sedum album</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Sedum caespitosum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sedum litoreum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Sedum stellatum</i>	X	Not listed	Not listed	Not listed	No
<i>Selaginella denticulata</i>	R, Rest (MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Serapias vomeracea</i>	E, Rest (MI)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Spiranthes spiralis</i>	R, Rest (MI)	Schedule VI	Not listed	Not listed	Yes
<i>Stachys ocymastrum</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Tamus communis</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Teucrium scordium</i> subsp. <i>scordiodes</i>	E, Rest (MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Thesium humile</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Triadenia aegyptica</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Trifolium lappaceum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ulmus canescens</i>	E, Rest (MED + MI)	Schedule III	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Valerianella muricata</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Zizyphus zizyphus</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes

Għar ta' l-Iburdan (MT0000025)

Priority plant species present in the area: None

Il-Qortin tal-Magun u l-Qortin il-Kbir (MT0000026)

Priority species present in 'Il-Qortin tal-Magun u l-Qortin il-Kbir' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Althaea hirsuta</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Anthyllis vulneraria</i> subsp. <i>maura</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Cistus monspeliensis</i>	RR, Rest (MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Convolvulus oleifolius</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Serapias vomeracea</i>	E, Rest (MI)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes

L-Inhawi ta' Ta' Ċeni (MT0000034)

Priority species present in 'L-Inhawi ta' Ta' Ċeni' [species list acquired from Malta Environment and Planning Authority (www.mepa.org.mt)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Allium melitense</i>	Endemic (?)	Schedule X (b)	Not listed	Not listed	No
<i>Allium permixtum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Aloe vera</i>	V, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Anthemis urvilleana</i>	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Asparagus stipularis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Asplenium trichomanes</i>	X (?)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Carlina involucreta</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	No
<i>Clematis cirrhosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Convolvulus oleifolius</i>	Rest (MED)	Schedule III (b)	Not listed	Not listed	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Coronilla valentina</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Cremonophyton lanfrancoi</i>	Endemic, R, Rest (MI)	Schedule II (b)	Annex II & IV	IUCN Red List (Critically Endangered), BERN Convention (Appendix 1)	Yes
<i>Crucianella rupestris</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Damasonium bourgaei</i>	V, Rest (MED + MI)	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Daucus rupestris</i> (= <i>Daucus carota</i> subsp. <i>rupestris</i>)	Rest (MED + MI)	Regulation 26	Not listed	Not listed	Yes
<i>Desmazeria pignattii</i>	Rest (MED)	Regulation 26	Not listed	Not listed	Yes
<i>Echium sabulicola</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Elatine gussonei</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Least Concern)	Yes
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Euphorbia exigua</i> var. <i>pycnophylla</i>	Rest (MED)	Schedule X (b)	Not listed	Not listed	No
<i>Fedia graciliflora</i> var. <i>insularis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Filago cossyrensis</i> (= <i>Filago pyramidata</i>)	Not listed	Schedule X (b)	Not listed	Not listed	No
<i>Gladiolus dubius</i>	R, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Hyoseris frutescens</i>	Endemic	Schedule II (b)	Annex II & IV	Not listed	Yes
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Iris pseudopumila</i>	V, Rest (MED + MI)	Regulation 26, Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Limonium melitense</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Linaria pseudolaxiflora</i>	R, Rest (MED + MI)	Regulation 26, Schedule II (b)	Annex II & IV	IUCN Red List (Vulnerable)	Yes
<i>Matthiola incana</i> subsp. <i>melitensis</i>	Endemic, R	Schedule III (b), Schedule VI (b)	Not listed	Not listed	Yes
<i>Neotinea maculata</i>	X (?)	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Olea europaea</i>	Rest (MI) (?)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Ononis biflora</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ophrys lutea</i>	RR, MED + MI	Schedule VI (b)	Not listed	CITES (Appendix II)	Yes
<i>Ophrys speculum</i>	Not listed	Schedule VI (b)	Not listed	Not listed	Yes
<i>Orobanche muteli</i> forma <i>melitensis</i>	Endemic	Schedule X	Not listed	Not listed	No
<i>Palaeocyamus crassifolius</i>	Endemic, R, Rest (MI)	Schedule II	Annex II & IV	IUCN Red List (Critically Endangered) Bern Convention (Appendix 1)	Yes
<i>Parietaria lusitanica</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No
<i>Periploca angustifolia</i>	Rest (MED)	Schedule I (53)	Not listed	Not listed	Yes
<i>Phagnalon graecum</i> subsp. <i>ginzbergerii</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Piptatherum caeruleum</i>	E, Rest (MED + MI)	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Plantago bellardi</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Ranunculus saniculaefolius</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Rhamnus oleoides</i>	Not listed	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Rosa canina</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Satureja microphylla</i>	Rest (MED)	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Scilla hyacinthoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Scilla sicula</i> (= <i>Scilla peruviana</i>)	R, Rest (MED + MI)	Regulation 26, Schedule VI	Not listed	Not listed	Yes
<i>Sedum caeruleum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Sedum caespitosum</i>	RR, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Regulation 26	Not listed	Not listed	Yes
<i>Senecio leucanthemifolius</i>	R, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Senecio pygmaeus</i> (= <i>Senecio leucanthemifolius</i>)	RR, Rest (MED + MI)	Regulation 26, Schedule VI (b)	Not listed	Not listed	Yes
<i>Silene fruticosa</i>	E, Rest (MED + MI)	Schedule VI (b)	Not listed	Not listed	Yes
<i>Spartium junceum</i>	E, Rest (MI)	Not listed	Trees and Woodlands (Schedule II)	Not listed	Yes
<i>Teesdalea coronopifolia</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Thesium humile</i>	R, Rest (MI)	Not listed	Not listed	Not listed	No
<i>Thymus capitatus</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Trifolium lucanicum</i>	Not listed	Not listed	Not listed	Not listed	No

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Urginea pancracion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	No
<i>Vicia tetrasperma</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Vitex agnus-castus</i>	R, Rest (MI)	Not listed	Not listed	Trees and Woodlands (Schedule I)	Yes
<i>Zannichellia melitensis</i>	R, Rest (MI)	Schedule III (b)	Not listed	IUCN Red List (Least Concern)	Yes

ANNEX C

Protected Areas: Present plant species and their policies

Western shore of Qalet Marku (AEI/SSI)

Species present in 'Western shore of Qalet Marku' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthemis urvilleana</i>	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Arthrocnemum macrostachyum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Crithmum maritimum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Glaucium flavum</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Inula crithmoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lavatera arborea</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Lotus ornithopodioides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Senecio bicolor</i> (= <i>Jacobaea maritima</i>)	Not listed	Not listed	Not listed	Not listed	No

Qortin ta' Ghajn Damma (AEI/SSI)

Species present in 'Qortin ta' Ghajn Damma' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis bermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Asparagus aphyllus</i>	Not listed	Not listed	Not listed	IUCN Red List Category (EU 27)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Asphodelus aestivus</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Capparis orientalis</i>	Not listed	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Darniella melitensis</i> (= <i>Salsola melitensis</i>)	Endemic	Regulation 26	Not listed	Not listed	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia dendroides</i>	Not listed	Schedule I (53), Schedule III (b)	Not listed	Not listed	Yes
<i>Ferula communis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Inula crithmoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Psoralea bituminosa</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Teucrium fruticans</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Thymbra capitata</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancratiion</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b), Schedule X (b)	Not listed	Not listed	Yes

Wied il-Mizżieb (AEI/SSI)

Species present in 'Wied il-Mizżieb' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Acacia cyanophylla</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule V)	Yes

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Anthyllis hermanniae</i>	Not listed	Schedule III (b) Schedule VIII (b)	Not listed	Not listed	Yes
<i>Capparis orientalis</i>	Not listed	Schedule VIII (b)	Not listed	Not listed	Yes
<i>Carlina involucrata</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Ceratonia siliqua</i>	Not listed	Schedule I (93)	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Chiliadenus bocconei</i> (= <i>Jasonia bocconei</i>)	Endemic	Schedule X (b)	Not listed	Not listed	Yes
<i>Erica multiflora</i>	Not listed	Schedule II (b), Schedule III (b), Schedule VIII (b)	Not listed	Not listed	Yes
<i>Euphorbia melitensis</i>	Endemic	Schedule III (b)	Not listed	Not listed	Yes
<i>Hypericum aegypticum</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Phagnalon graecum</i> subsp. <i>ginzbergieri</i>	Rest (MED)	Not listed	Not listed	Not listed	No
<i>Pistacia lentiscus</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Rhamnus lycioides</i> subsp. <i>oleoides</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule I)	Yes
<i>Ricinus communis</i>	Not listed	Not listed	Not listed	Trees & Woodlands (Schedule V)	Yes
<i>Tetraclinis articulata</i>	E, Rest (MED + MI)	Schedule III (b) Schedule VI (b)	IUCN Red List Criteria (EU 27)	Trees & Woodlands (Schedule I)	Yes
<i>Thymbra capitata</i>	No	Schedule III (b)	Not listed	Not listed	Yes
<i>Urginea pancration</i> (= <i>Drimia maritima</i>)	Rest (MED)	Schedule VIII (b) Schedule X (b)	Not listed	Not listed	Yes

Il-Qattara (AEI/SSI)

Species present in 'Il-Qattara' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Adiantum capillus-veneris</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Apium graveolens</i>	Not listed	Schedule VIII (b)	Not listed	IUCN Red List (Least Concern)	Yes
<i>Aster squamatus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Chara globularis</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Cyperus longus</i>	Not listed	Not listed	IUCN Red List Category (EU 27)	IUCN Red List (Least Concern)	Yes
<i>Galium aparine</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Inula crithmoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Mentha pulegium</i>	Not listed	Not listed	IUCN Red List Category (EU 27)	IUCN Red List (Least Concern)	Yes
<i>Rumex bucephalophorus</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Salix alba</i>	E, Rest (MI)	Not listed	Not listed	Not listed	Yes
<i>Samolus valerandi</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Sanguisorba minor</i> subsp. <i>muricata</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Scirpoides holoschoenus</i>	Not listed	Not listed	Not listed	IUCN Red List (Least Concern)	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes
<i>Trachynia distachya</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Zannichellia melitensis</i>	R, Rest (MI), Endemic	Not listed	Not listed	Not listed	Yes

L-Ghadira Ta' Sarraflu (AEI/SSI)

Species present in 'L-Ghadira Ta' Sarraflu' [species list acquired from Cassar & Lanfranco (2003)]

Species	Red Data Book for the Maltese Islands	LN311/2006	Habitats Directive	Other policies	Protection
<i>Asparagus aphyllus</i>	Not listed	Not listed	Not listed	IUCN Red List Category (EU 27)	Yes
<i>Diploaxis tenuifolia</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Foeniculum vulgare</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Inula crithmoides</i>	Not listed	Not listed	Not listed	Not listed	No
<i>Nerium oleander</i>	Not listed	Not listed	Not listed	IUCN Red List Category (Least Concern)	Yes
<i>Tamarix africana</i>	R, Rest (MED + MI)	Not listed	Not listed	Trees and Woodlands (Schedule II)	Yes

ANNEX D

Policy Abbreviations

LN311/2006 (Environment Protection Act - Flora, Fauna and Natural Habitats Protection Regulations):

Regulation 26: “All endemic species are protected, except for those species listed in Schedule X to these regulations”

Schedule I: “Natural habitat types whose conservation requires the designation of Special Areas of Conservation”

Schedule II: “Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation”

Schedule III: “Animal and plant species of national interest whose conservation requires the designation of Special Areas of Conservation”

Schedule V: “Animal and plant species of community interest in need of strict protection”

Schedule VI: “Animal and plant species of national interest in need of strict protection”

Schedule VII: “Animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures”

Schedule VIII: “Animal and plant species of national interest whose taking in the wild and exploitation may be subject to management measures”

Schedule X: “Endemic species not covered by Regulation 26”

- (ENVIRONMENT PROTECTION ACT (CAP. 435), 2006)

LN200/2011 (Environment and Development Planning Act – Trees and Woodlands Regulations):

Schedule I: “Strictly Protected Tree Species”

Schedule II: “Trees Protected in Selected Areas)

- (ENVIRONMENT PROTECTION ACT (CAP. 504), 2011)

BERN Convention (The Convention on the Conservation of European Wildlife and Natural Habitats):

APPENDIX 1: “Strictly Protected Flora Species” (BERN Convention, 2002)

CITES CONVENTION (Convention on International Trade in Endangered Species of Wild Fauna and Flora):

APPENDIX II: “Includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival” (CITES CONVENTION, 1975)