STATE OF THE ENVIRONMENT REPORT 2018

Chapter 8: Biodiversity

Reporting status from 2009 to 2015

KEY MESSAGES

- Through EU reporting obligations to carry out assessments of the conservation status of habitats and species of Community Importance, at 6 year intervals[1], it is positively noted that:
  - 40 % of these species found in the Maltese Islands have a favourable conservation status in 2013, up from 20 % in 2007; and
  - 43 % of these habitats found in the Maltese Islands have a favourable conservation status in 2013, up from 6 % in 2007.

  However, one must note that most of these changes emanated from the attainment of new knowledge and improved interpretation.
- The majority of the local breeding birds analysed as part of EU reporting obligations to the Birds Directive have shown an increase in their population and range, both in the short-term trend (71 % of all breeding species) as well as in the long-term trend (67 % of all breeding species).[2]
- Malta's biodiversity continues to experience various pressures and threats, with natural biotic/abiotic processes, invasive/other problematic species and genes, natural system modifications, human interference and disturbances, and natural system modifications being the most significant pressures. Geological events and natural catastrophes feature amongst the most prominent of such threats.
- With respect to the marine environment, the findings of LIFE projects, which commenced in October 2013 and ended in June 2018, contributed to the designation of additional protected areas in the marine environment, increasing the area covered by such sites to about 3,500 km^2 within the review period, with recent designations now covering more than 35 % of the Maltese waters.
- On 12 December 2012, Malta adopted the first comprehensive biodiversity policy for Malta entitled *Working Hand-in-Hand with Nature*.[3] This defines 19 national targets achievable by 2020. Malta's NBSAP establishes a vision in which the Maltese citizens have a pivotal role in safeguarding nature in their daily lives with sustainable and resources-efficient choices and actions, and in appreciating the importance of Malta's biodiversity.

[1] MEPA 2008; MEPA 2013b.
[2] MEPA 2014b.
[3] MEPA 2012.

8.1 INTRODUCTION

This chapter gives an account of the status of Malta's biodiversity and what measures have been taken to safeguard it, since the last Environment Report of 2008.

8.2 UNDERSTANDING THE VALUE OF BIODIVERSITY

All living native organisms and the various and diverse habitats they occupy, comprise Malta's natural heritage or what is known as 'biodiversity' or 'biological diversity'. The latter term captures the essence of the true meaning of 'nature' in that it directs focus to diversity at different levels of biological organisation in both terrestrial and aquatic systems, that is, from genetic diversity, species diversity, habitat diversity to ecosystem diversity. Understanding the full meaning of the term 'biodiversity' is very important as it determines how one sees and values nature and indeed reflects the intrinsic value of nature as being a well-balanced and complex system, where each species or group of species plays a particular ecological or functional role and interacts with other species and the surrounding habitat. This biological diversity and complexity is what comprises healthy and diverse terrestrial, freshwater and marine ecosystems; in other words, diverse communities of living organisms interacting with non-living components of their surrounding environment to interact as an integrated and functional system.

Biodiversity drives the functioning of various ecosystems to create a number of goods and life supporting services. 'Ecosystem services' are indeed the benefits humankind derives from biodiversity and ecosystems; these include provisioning, regulating, supporting and cultural services.[4] A description of these different types of ecosystem services is provided in Figure 8.1.

[4]Millennium Ecosystem Assessment, 2005.

Figure 8.1: Types of Ecosystem Services (Adapted from TEEB – Ecosystem Services)[5]

[5] TEEB 2015.

Biodiversity is all around us; in the natural, rural (agro-biodiversity) and the urban environment (urban biodiversity), as can be seen from the various species of mammals (including bats, shrews and the hedgehog), birds, and reptiles (such as lizards and geckos), not to mention the countless insects and other invertebrate groups that we encounter in farmland, villages and towns and sometimes even in our own households. The link between biodiversity and agriculture is immediately apparent, noting for instance the importance of soil organisms for the maintenance of soil structure and fertility, as well as the importance of pollination of crop plants and overall agricultural productivity. In turn, certain components of biological diversity are reliant on agro-ecosystems, such as farmland birds for food, and certain other species that rely on rural structures, such as dry stone walls, as their habitat.

In contrast, urban biodiversity has only recently emerged as an important issue within the environmental agenda at a global and regional level. This is due to increasing urban expansion and the growing number of people living in urban areas, which still rely on services from the surrounding natural environment. The latter, however, is adversely affected by urban activities, such as emissions and waste production, not to mention urban sprawl. This poses challenges to safeguard the natural environment and biodiversity in view of changing landscapes, habitat fragmentation and degradation as well as, increasing pressure placed on natural resources. Drawing opportunities to promote and safeguard biodiversity is warranted also in built areas, such as via the provision of green open spaces and the deployment of other elements of 'green infrastructure' (GI). The latter term essentially refers to using green and environmental features to help reap multiple social (e.g. more attractive and greener villages and towns, health benefits) and environmental benefits (e.g. natural climate and flood regulation, removal of pollutants) from the same area of land by promoting a multifunctional landscape.[6] Elements of green infrastructure are various and include green roofs, green walls, town parks, degraded habitats that are restored, ecological corridors, and green road verges to mention a few. These also complement achieving ecological coherence with protected areas in the overall wider landscape. In May 2013, the European Commission published the *Communication on Green Infrastructure (GI) – Enhancing Europe's Natural Capital – COM (2013) 249*. In this communication, a number of actions are foreseen to create an enabling framework to promote and facilitate the deployment of green infrastructure by Member States.[7]

Man can adversely affect, whether directly or indirectly, the status of biodiversity through various pressures and threats. A worsening trend in elements of biodiversity results in the eventual degradation of ecosystems and the disruption of their functioning and related ecosystem services. This can have major consequences for overall human wellbeing, not to mention for those sectors that may depend on ecosystem services for their overall productivity. Biodiversity loss also hinders reaching goals of sustainable development. It is hence essential to keep track of the status of biodiversity in the Maltese Islands, what are the main pressures/threats driving its loss and, in turn, what is needed to mitigate these for the benefit of present and future generations.

[6] EC 2017a.
[7] EC 2013.

8.2.1 Status of Malta's biodiversity

Figure 8.2: Maltese Everlasting in Dwejra (Gozo)

The Maltese Islands harbour a diverse array of species, some of which are only found in our country and nowhere else as a result of isolation and long-term evolution. Such species are termed 'endemic' and they contribute significantly to Malta's natural heritage. An example is the Maltese Everlasting (*Helichrysum melitense*, Figure 8.2 refers), which is solely restricted to the western cliffs of Gozo. Some of these endemic species are also inherently vulnerable to disturbances because they are usually 'habitat specialists' requiring specific habitats, which may in turn be rare or limited in distribution. Endemic species also comprise small populations that can be easily displaced or wiped out. As a small island state in the Central Mediterranean, it is not surprising that certain native species also exhibit elements of Western Mediterranean, Eastern Mediterranean, North African and Sicilian affinity (including circum-Sicilian islands).

For decades, elements of Malta's biodiversity have been the subject of interest and study by Maltese (and foreign) naturalists, biologists and ecologists. Taxonomic groups, such as flowering plants, birds, mammals, reptiles, fish, insects, molluscs and other invertebrates are well studied, and new species are to this day being discovered. For instance, research undertaken on bats during October 2010, recorded the presence of a new pipistrelle species for Malta, which, through DNA analysis of faecal pellets, it was confirmed to be Savi's Pipistrelle (*Hypsugo savii*).[8] This discovery has brought the total number of confirmed species of bats recorded from the Maltese islands to 12. Taxonomic groups that have not received as much attention as other popular groups are the fungi and lichens. The state of knowledge of these is reviewed in Box 8.1.

Box 8.1: Fungi and Lichens of the Maltese Islands

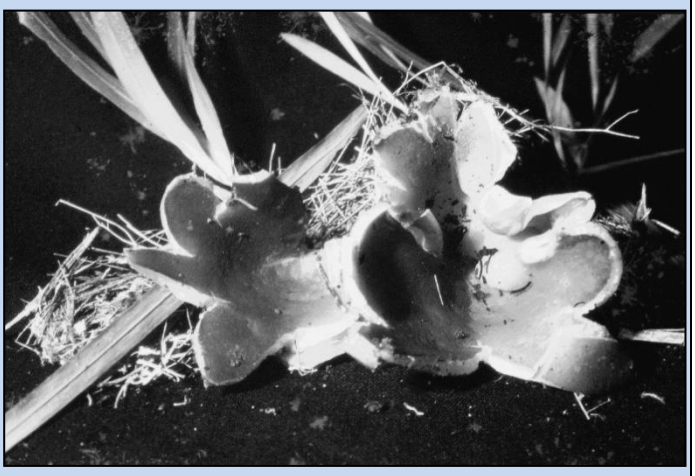
Fungi (mushrooms) and lichens (symbiotic associations between an algae and a fungus) are two groups of species, which on the one hand might be inadvertently omitted in species appraisals, and on the other might stir some curiosity when one comes across them in the wild. Various species of both groups may be encountered while roaming Malta's countryside. They also have important ecological roles. Fungi as decomposers of organic substrates, particularly plant debris, are essential for the recycling of nutrients. Lichens on the other hand, thrive in undisturbed sites as they are sensitive to air pollution (therefore, they typically occur where the air is clean). Hence, they are good indicators of air quality. Lichens are also important for soil enrichment.

Research related to mycoflora of the Maltese Islands has been carried out to some extent, and it is said that the macrofungi may number some 400 taxa; however, a number of these species are

[8] Dodds 2010.

still unidentified. As noted by Lanfranco (2013), major recent contributions on the subject are found in Briffa & Lanfranco (1986), Lanfranco (1989), Briffa (2000, 2002) and Sammut & Melzer (2012).[9,10,11,12,13,14] The interest in fungi found in Malta has been, amongst others, depicted through the issuance of a series of stamps on fungi in 2009, which depicted *Laetiporus sulphureus, Montagnea arenaria, Pleurotus eryngii, Inonotus indicus,* and *Suillus collinitus.*[15]

Figure 8.3: *Sarcospaera coronaria*
(Photo: Edwin Lanfranco)



Most fungi are considered to be rare, though in various cases this might be due to poor record keeping. Some are said to have a restricted distribution across Europe. As such, there are only two fungi species – the Grey Falsebolete (*Boletopsis grisea*) and the Violet Crown-cup (*Sarcosphaera coronaria*; Figure 8.3 refers) - that are explicitly legally protected through the Flora, Fauna and Natural Habitats Protection Regulations, 2006 (S.L. 549.44). Legislation also provides protection to all endemic and possibly endemic species, which is of relevance particularly with respect to the many possibly endemic microfungi; these however require further taxonomic assessment. Meanwhile, 18 species of macrofungi and 131 microfungal taxa are listed in the Red Data Book of the Maltese Islands.[16,17]

Fungi are mostly known from Holm Oak forest remnants, such as those at *il-Ballut* (l/o *il-Wardija*), *il-Ballut* (l/o *l-Imġiebaħ*), *Ta' Baldu/Wied Ħażrun* and *il-Bosk*, and from pine woodland, maquis and riparian woodland assemblages of the area of *il-Buskett* and *il-Girgenti*, especially at *il-Buskett*, *Għajn il-Kbira*, *Ta' Rapa*, *il-Verdala* and *Wied il-Luq*. Another important area is the Carob-Lentisk maquis at *Wied Għollieqa* (l/o *San Ġwann*), as well as the various valley, pre-desert scrub and phrygana communities known from *Wied Babu* (l/o *Iż-Żurrieq*). Fungi are also known from garrigue communities, such as those at *ix-Xagħra tal-Borgħom* (*l-Imtaħleb*, l/o *ir-Rabat*). A number of important mycological sites are protected, some of which are also Natura 2000 sites. The Filfla Nature Reserve Act (Act XV of 1988) then specifically protects the islet of Filfla and species inhabiting it, these including various fungi.

Wild fungi in Malta are not subject to extensive exploitation, as the national consumption of mushrooms is essentially covered through mushroom farming and imports; although some wild mushroom collection is known to take place. Having said this, and noting that there is very limited

[9] Lanfranco 2013.
[10] Briffa & Lanfranco 1986.
[11] Lanfranco 1989b.
[12] Briffa, 2000.
[13] Briffa 2002.
[14] Sammut & Melzer 2012.
[15] MaltaPost 2009.
[16] Lanfranco, 1989a.
[17] The 18 species are: *Daldinia concentrica, Helvella crispa, Sarcosphaeria eximia, Agrocybe aegerita, Amanita ovoidea, Amanita verna, Boletus luridus, Boletus pulverulentum, Hygrocybe ovina, Lactarius vinosus, Montagnites arenaria, Phellinus robustus f. punicae, Phellinus robustus f. amygdali, Pleurotus nebrodensis f. minor, Polyporus brumalis, Russula lepida, Tricholomopsis platyphylla, Colus hirudinosus f. minor* and *Tulostoma volvulatum*.

trade in wild fungi, these species are not in themselves significantly threatened locally. Trade is essentially limited to the now rare and occasional use of the edible French Horn Mushroom (*Pleurotus eryngii* var. *ferulae*).

As far as lichens are concerned, 12 taxa are listed, these being essentially taxa which have been described from the Maltese Islands and which are presumably endemic.[18] [19] Research by a local biologist[20,21,22,23,24] is focussing on lichens and it is expected to lead to a wealth of new knowledge on the lichens growing on different substrates across the islands. Lichens are locally equally unexploited, with only two species having been exploited. These are namely the *Ramalina* lichen (*Ramalina durieui*) and the *Roccella* lichen (*Roccella phycopsis*), which were traditionally used in decorating cribs, with *Rocella*, in Maltese *l-awċella* (in Malta) or *leħjet ix-xiħ* (in Gozo), having reportedly been used for smoking; their utilisation for such activities has nowadays mostly fallen in disuse. It is then worth noting that the habitats for these species are protected through relevant legislation, designating protected areas and protecting rubble walls, respectively. Additionally, the above-mentioned two species of lichen are also afforded some degree of legal protection in that the species which may be subject to management measures; if however surveillance reveals that their exploitation is deemed as not being compatible to their being maintained in a favourable conservation status, measures are to be set accordingly.

Following from the above, the main concern with fungi and lichens in Malta lies with the loss of habitat and/or its modification, rather than their exploitation. In this respect, further to the protection of specific species, an indirect but possibly more effective way toward their conservation and protection is through habitat conservation. Limited data availability is also one of the main constraints towards the protection of fungi and lichens.

Elements of exceptional value in terms of habitats in Malta are undoubtedly the sea cliffs, which harbour specialised rupestral communities that are not only rich in endemic species but also serve as crucial nesting sites for seabirds. A type of habitat, which is generally disregarded or taken for granted is garrigue. This is mainly characterised by low-lying aromatic evergreen shrubs, and is actually a mosaic of different habitats that are usually distinguished by main dominant species comprising a particular community. For instance, the most common garrigues in Malta are the Maltese phrygana (or garrigue) communities based on either the endemic Maltese Yellow Kidney Vetch (*Anthyllis hermanniae* ssp. *melitensis*), the endemic Maltese Spurge (*Euphorbia melitensis*), or both, while labiate shrubs like the Mediterranean Wild Thyme (*Thymus capitatus*) and Shrubby Germander (*Teucrium fruticans*) are also common in such habitats. Similarly relevant are the thermo-Mediterranean scrubs, mainly dominated by the Tree Spurge (*Euphorbia dendroides*), and in some areas by the African Wolfbane (*Periploca angustifolia*). Nonetheless, unlike popular belief, not all garrigues are frequent, and some garrigue habitats are geographically confined and/or very rare in the

[18] Sommier & Caruana Gatto 1915.

[19] These species are: *Biatora fusco-nigrescens*, *Caloplaca marmorata* var. *cephaloidea*, *Caloplaca melitensis*, *Caloplaca pyracea* var. *lactea* forma *macrocarpa*, *Collema meliteum* var. *conglomeratum*, *Graphina sophistica* var. *melitense*, *Lecaniella alocyza* var. *flavidula*, *Lecanora sublentigera*, *Lecidea pertusariicola*, *Scolicosporium doriae* var. *decussatum*, *Thalloedema mammillare* var. *pulchella* and *Thalloedema paradoxum*.

[20] Fiorentino 2002.

[21] Fiorentino 2007.

[22] Fiorentino 2008b.

[23] Fiorentino 2008a.

[24] Fiorentino 2015.

Maltese Islands, such as those based on Rockroses (*Cistus* spp.), Thorny Burnet (*Sarcopoterium spinosum*) and Rosemary (*Rosmarinus officinalis*).

Figure 8.4: Individuals of the marine *Gibbula nivosa*

Karstland supports temporary rainwater rockpools, which harbour very specialised and rare elements of biodiversity, which also includes the Maltese Horned Pondweed (*Zannichellia melitensis*) and Maltese Waterwort (*Elatine gussonei*), as well as animal species like the Tadpole Shrimp (*Triops cancriformis*). Annual xeric grasslands, which generally occur within karst, are also relevant hotspots for many animals, particularly invertebrates, and harbour a wealth of grass species as well as orchids, such as the endemic Maltese Pyramidal Orchid (*Anacamptis urvilleana*) and the Maltese Spider Orchid (*Ophrys melitensis*). Relevant fauna known from karstic sub-types of this habitat include the endemic door snails of the family Clausiliidae, namely *Muticaria macrostoma*, *Lampedusa imitatrix* and *Lampedusa melitensis*; and the top snail (*Trochoidea spratti*). When considering the marine environment, *Posidonia* meadows and mäerl beds are of exceptional importance for supporting other elements of biodiversity. The waters around the Maltese Islands also harbour marine species with a restricted distribution in the Mediterranean, such as the endemic Maltese Top Shell (*Gibbula nivosa*; Figure 8.4 refers) and the Maltese Ray (*Leucoraja melitensis*).

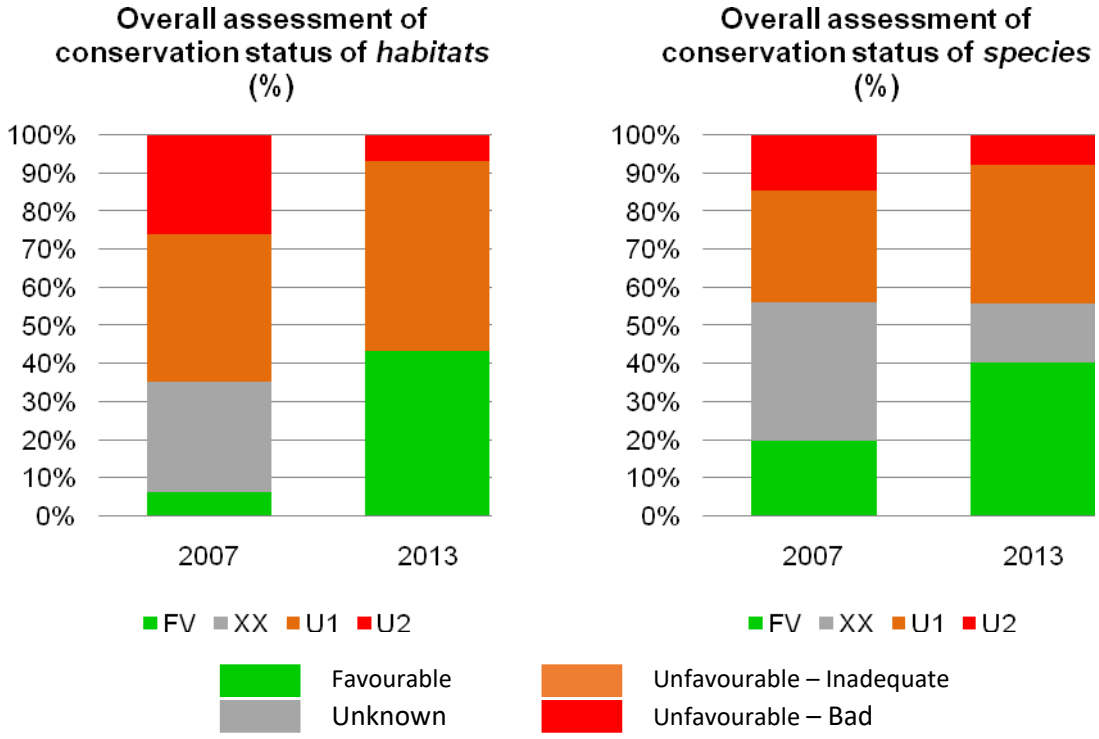
Changes in the status and trends of biodiversity in Malta are currently mainly assessed in accordance with the requirements of the EC Habitats Directive (Article 17 of Directive 92/43/EEC) and the EC Birds Directive (Article 12 of Directive 2009/147/EC). These Directives require Member States to take measures necessary to conserve and maintain habitats and species of EU Community Importance, which are present in their country. This ensures that their entire natural distribution range within the EU can be safeguarded and managed appropriately.

Since its membership to the European Union, Malta carried out two assessments in line with the Habitats Directive. The assessment published in 2007 covers the reporting period 2001-2006, while that published in 2013, covers the reporting period 2007-2012. The first assessment (2007) considered 31 habitats of Community Importance and 55 species of Community Importance. The second assessment (2013) considered 30 habitats of Community Importance and 52 species of Community Importance.[25] A comparison of the results of the overall assessments is provided in Figure 8.5.

[25] In the case of habitats, one type of habitat was excluded from the 2013 assessment following clearer issues of interpretation. The list of terrestrial species of Community Importance found in Malta has been extended since the first assessment carried out in 2007 to two more terrestrial species, these being pipistrelles - *Pipistrellus pipistrellus* and *Hypsugo savii* – two bat species which have recently been confirmed from Malta. Additionally, through new data, another

Wherever the status is indicated as 'unknown' this is in view of lack of data on the occurrence of the species or habitats in question. Such data gaps are acknowledged and will be addressed later in the section on 'research and outreach'.

Figure 8.5: Comparison of the results of the 2007 and 2013 assessments on overall conservation status of habitats and species of Community Importance that are found in the Maltese Islands, where: 'FV' means 'favourable'; 'XX' means 'unknown'; 'U1' means 'unfavourable – inadequate'; and 'U2' means 'unfavourable – bad'



Source: *ERA*[26]

The conservation status of 53 % of the habitats changed, with 3 % considered as genuine changes. When considering terrestrial habitats, there is an improvement in conservation status with 9 habitats having a favourable conservation status as opposed to 1 habitat in the previous assessment, and 17 habitats having a bad or inadequate status as opposed to the 20 habitats in the previous assessment.

There is a notable improvement in the overall conservation status detected for marine habitats. All marine habitats are now assigned a favourable conservation status as opposed to only one having such a status and the rest having an unknown status in 2007. However, it should be kept in mind that such changes are generally not an actual genuine change, but are mostly due to more accurate data and improved data interpretation, or due to the use of different thresholds.

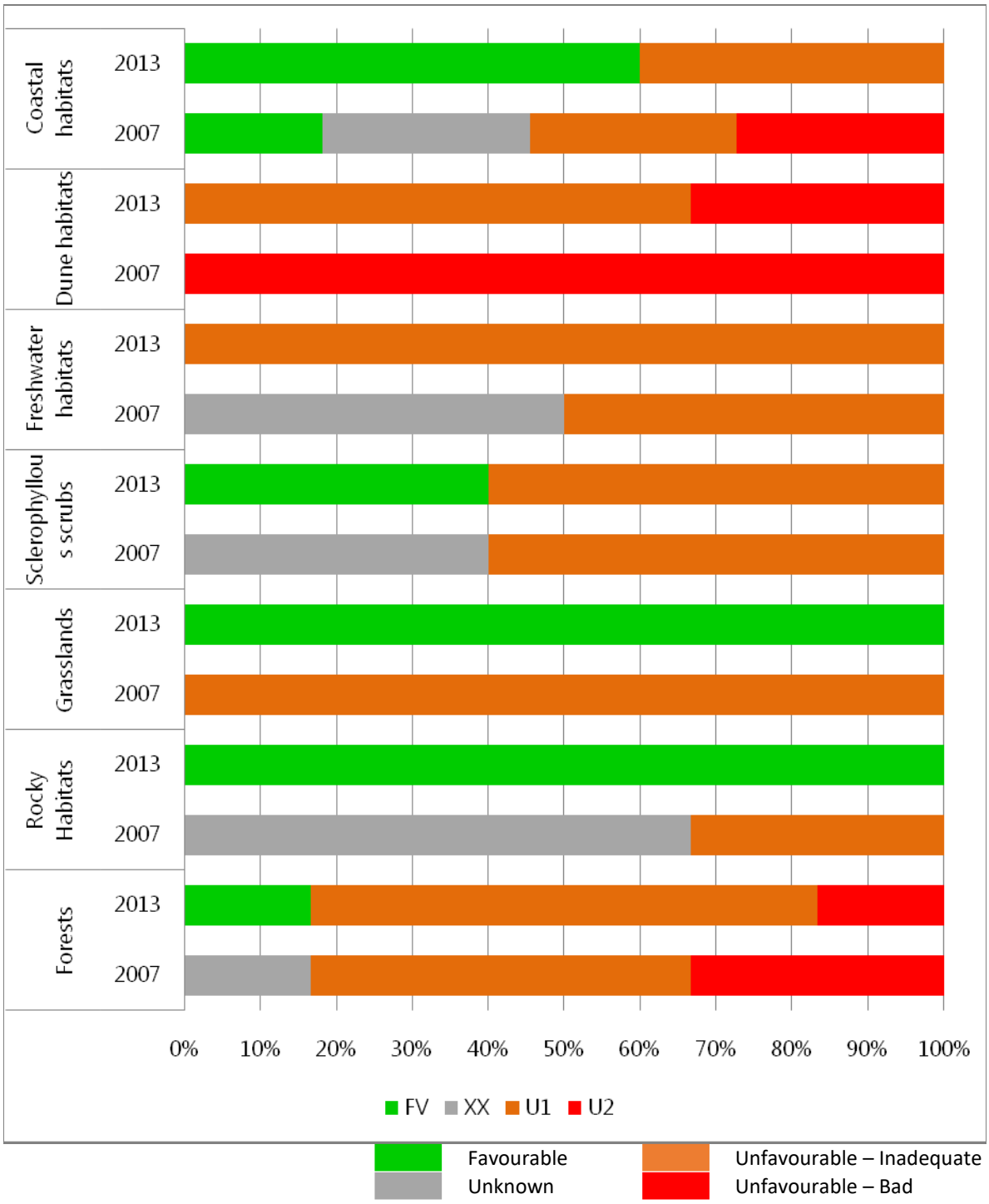
bat species, *Nyctalus noctula*, which was previously considered occasional, is most probably found as a resident in small numbers, while also being a migrant species. Further information would be required to confirm this or otherwise. When considering *Podarcis filfolensis*, the assessment carried out in 2007 considered the four subspecies separately; however these have been assessed in 2013 under the main taxon. The other excluded species are those with an occasional status.

[26] ERA 2008; ERA 2013.

The conservation status of 35 % of the species changed, again mostly due to more accurate data or due to the use of different thresholds. There is an increase of 20 % of all species having a favourable conservation status, up from 20 % in 2007 to 40 % in 2013. Only 4 % are however considered as genuine (as in the case of the subterranean cricket *Brachytrupes megacephalus* and the endemic tenebrionid beetle *Pseudoseriscius cameroni*, which now have an improved status). Meanwhile, 15 % of species (mostly marine) listed in the Directive and found in Malta remain with an unknown status; this value however decreased considerably from the 36 % in 2007. 44 % of species assessed in 2013 have hence been indicated as having an unfavourable status, with the figure being similar to the 44 % in 2007. Despite the similarity in the overall percentage of species with an unfavourable conservation status, it is worth noting that the percentage of species with unfavourable bad status has almost halved from 2007 (15 %) to 2013 (8 %); the rest are considered to be at an unfavourable inadequate status.

Figure 8.6 shows the percentage of assessment in each of the conservation status categories by habitat group. Table 8.1 shows which Annex I habitat type pertains to the respective habitat group. Overall, there is an improvement across all habitat groups. Favourable conservation status is mainly achieved for coastal habitats, grasslands and rocky habitats, whereas conservation status needs to be improved in the case of forests/woodlands and sand dunes (both with unfavourable-bad status). Looking at Table 8.1, habitats that have remained in a favourable conservation status are *Posidonia* beds and Mediterranean salt steppes. In contrast, dunes with *Euphorbia terracina* and, *Salix alba* and *Populus alba* galleries, have remained in a bad conservation status.

Figure 8.6: Comparison of the results of the 2007 and 2013 assessments for each category of conservation status by habitat group, where: 'FV' means 'favourable'; 'XX' means 'unknown'; 'U1' means 'unfavourable – inadequate'; and 'U2' means 'unfavourable – bad'



Source: *ERA*[27]

[27] Ibid.

Table 8.1: Annex I habitat types which occur in Malta categorised by Habitat Group and their 2007 and 2013 assessments, where: 'FV' means 'favourable'; 'XX' means 'unknown'; 'U1' means 'unfavourable – inadequate'; and 'U2' means 'unfavourable – bad'

Habitat Group	Code	Habitat Name	Year	
			2007	2013
Coastal habitats	1210	Annual vegetation of drift lines	U2	U1
	1150	Coastal lagoons	U1	U1
	1420	Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)	U1	FV
	1410	Mediterranean salt meadows (*Juncetalia maritimi*)	U2	U1
	1510	Mediterranean salt steppes (*Limonietalia*)	FV	FV
	1120	*Posidonia* beds (*Posidonion oceanicae*)	FV	FV
	1170	Reefs	XX	FV
	1310	*Salicornia* and other annuals colonizing mud and sand	U2	U1
	1110	Sandbanks which are slightly covered by sea water all the time	XX	FV
	1240	Vegetated sea cliffs of the Mediterranean coasts with endemic *Limonium* spp.	U1	FV
Dunes habitats	2210	*Crucianellion maritimae* fixed beach dunes	U2	U1
	2220	Dunes with *Euphorbia terracina*	U2	U2
	2110	Embryonic shifting dunes	U2	U1
Freshwater habitats	3140	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.	XX	U1
	3170	Mediterranean temporary ponds	U1	U1
Schlerophyllus scrubs	5230	Arborescent matorral with *Laurus nobilis*	U1	U1
	5430	Endemic phryganas of the *Euphorbio-Verbascion*	XX	FV
	5420	*Sarcopoterium spinosum* phryganas	U1	U1
	5330	Thermo-Mediterranean and pre-desert scrub	XX	FV
	5410	West Mediterranean clifftop phryganas (*Astragalo-Plantaginetum*)	U1	U1
Grasslands	6220	Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*	U1	FV
Rocky habitats	8210	Calcareous rocky slopes with chasmophytic vegetation	U1	FV
	8310	Caves not open to the public	XX	FV
	8330	Submerged or partially submerged sea caves	XX	FV
Forests	9540	Mediterranean pine forests with endemic Mesogean pines	U1	U1
	9320	*Olea* and *Ceratonia* forests	XX	FV
	9340	*Quercus ilex* and *Quercus rotundifolia* forests	U2	U1
	92A0	*Salix alba* and *Populus alba* galleries	U2	U2
	92D0	Southern riparian galleries and thickets (*Nerio-Tamaricetea*)	U1	U1
	9570	*Tetraclinis articulata* forests	U1	U1

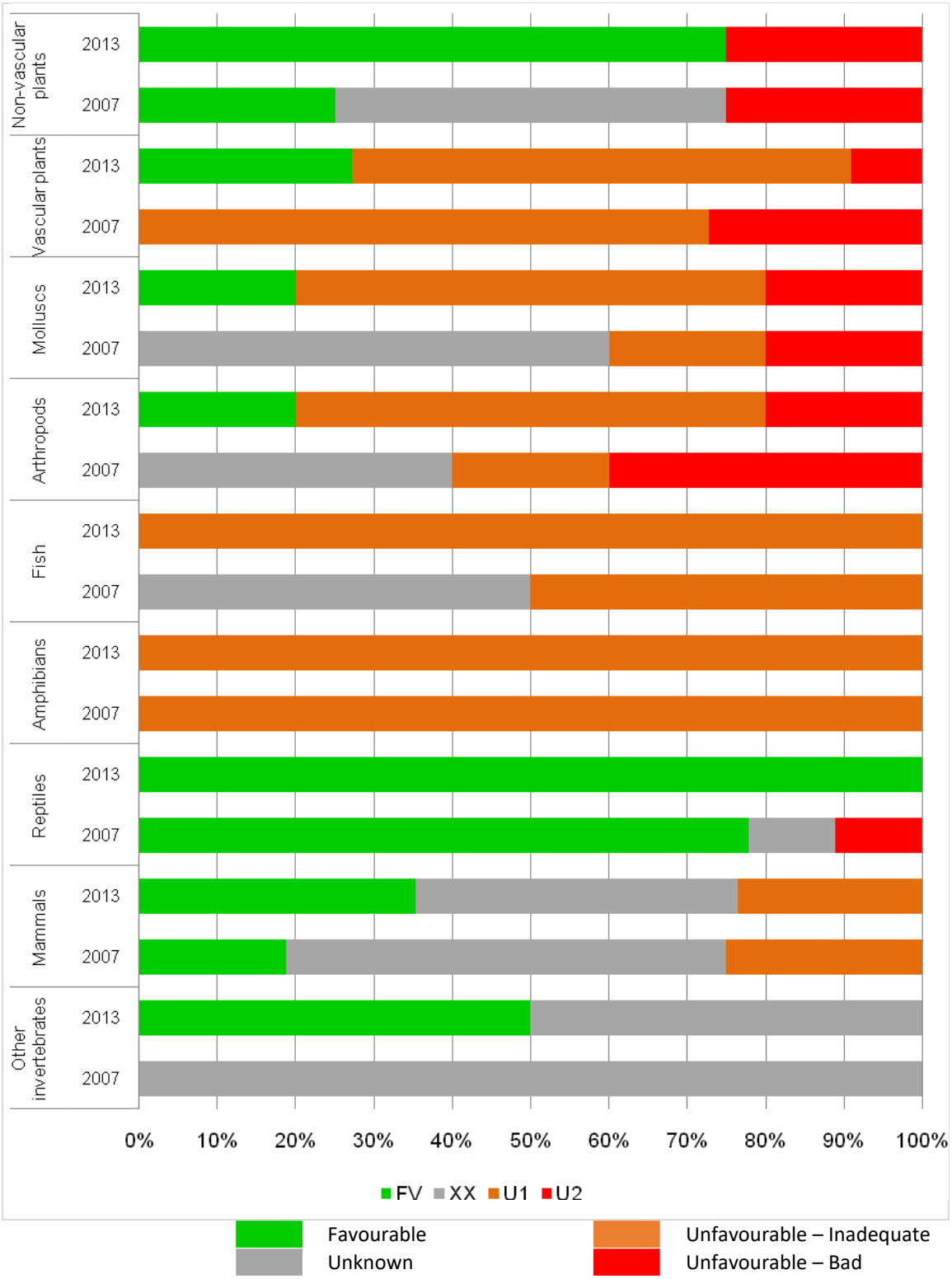
Favourable
Unfavourable – Inadequate
Unknown
Unfavourable – Bad

Source: *ERA*[28]

Figure 8.7 shows the percentage of assessment in each of the conservation status categories by taxonomic group. Table 8.2 shows which species pertains to the respective species classification group. Overall, there is an improvement in conservation status across all groups, with the exception of the following species which have remained in an unfavourable (inadequate or bad) status: the aquatic liverwort (*Riella helicophylla*); the Maltese Pyramidal Orchid (*Anacamptis urvilleana*); the Maltese Cliff Orache (*Cremnophyton lanfrancoi*); the Maltese Dwarf Hawksbeard (*Crepis pusilla*); the Maltese Everlasting (*Helichrysum melitense*); the Maltese Spider Orchid (*Ophrys melitensis*); the Maltese Rock-Centaury (*Palaeocyanus crassifolius*); the Maltese doorsnails (*Lampedusa imitatrix* and *Lampedusa melitensis*); the Mediterranean Killifish (*Aphanius fasciatus*); the Painted Frog (*Discoglossus pictus*); the Maghrebian Mouse-eared Bat (*Myotis punicus*); the Long-eared Bat (*Plecotus austriacus* s.l.); the Lesser Horseshoe Bat (*Rhinolophus hipposideros*); and the European Free-tailed Bat (*Tadarida teniotis*).

[28] Ibid.

Figure 8.7: Comparison of the results of the 2007 and 2013 assessments for each category of conservation status by taxonomic group, where: 'FV' means 'favourable'; 'XX' means 'unknown'; 'U1' means 'unfavourable – inadequate'; and 'U2' means 'unfavourable – bad'



Source: *ERA*[29]

[29] Ibid.

Table 8.2: Annex II, IV & V species which occur in Malta categorised by taxonomic group and their 2007 and 2013 assessments, where: 'FV' means 'favourable'; 'XX' means 'unknown'; 'U1' means 'unfavourable – inadequate'; 'U2' means 'unfavourable – bad'; and a blank space means that the species was not yet known from Malta

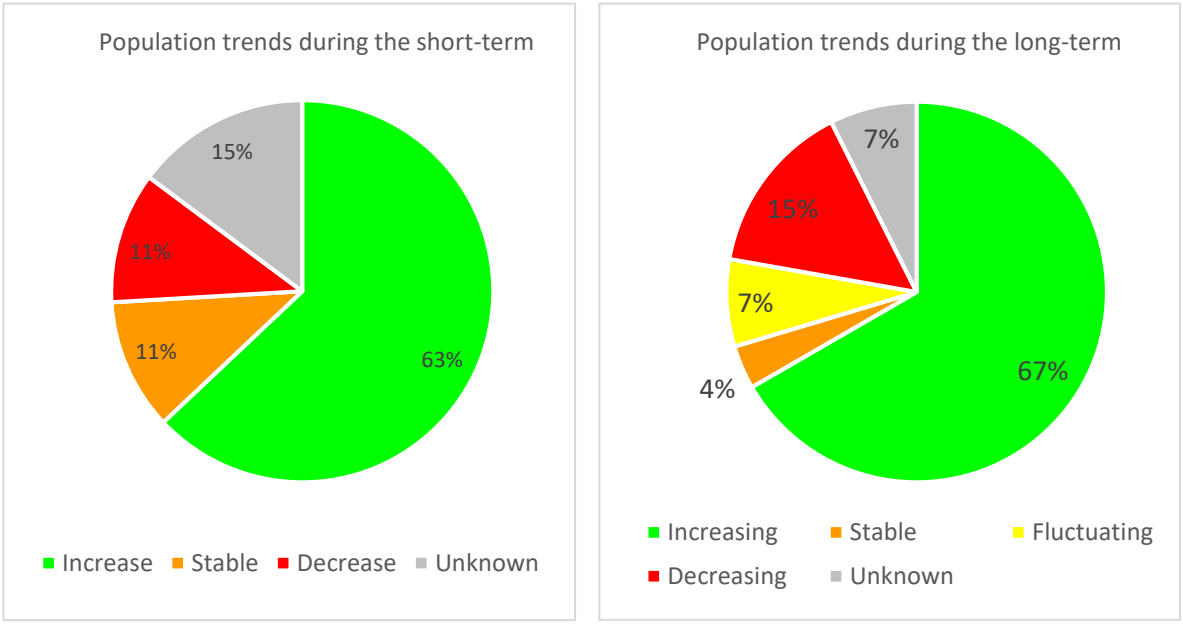
Species Group	Code	Species Name	Year	
			2007	2013
Non-vascular plants	1376	*Lithothamnium coralloides* (mäerl)	XX	FV
	1395	*Petalophyllum ralfsii* (petalwort)	FV	FV
	1377	*Phymatholithon calcareum* (mäerl)	XX	FV
	1391	*Riella helicophylla* (liverwort)	U2	U2
Vascular plants	4102	*Anacamptis urvilleana* – Maltese Pyramidal Orchid	U1	U1
	1424	*Asplenium hemionitis* (Mule's Fern)	U2	U1
	4079	*Cremnophyton lanfrancoi* – Maltese Cliff-orache	U1	U1
	4082	*Crepis pusilla* – Maltese Dwarf Hawksbeard	U2	U2
	4092	*Elatine gussonei* – Maltese Waterwort	U1	FV
	4083	*Helichrysum melitense* – Maltese Everlasting	U1	U1
	4084	*Hyoseris frutescens* – Maltese Hyoseris	U1	FV
	4114	*Linaria pseudolaxiflora* – Maltese Toadflax	U2	U1
	4105	*Ophrys melitensis* – Maltese Spider Orchid	U1	U1
	4106	*Orobanche densiflora* – Sand Broomrape	U1	FV
	4085	*Palaeocyanus crassifolius* – Maltese Rock-centaury	U1	U1
Molluscs	2578	*Gibbula nivosa* - Maltese Topshell	XX	U1
	4061	*Lampedusa imitatrix* – Maltese Door-snail	U1	U1
	4061	*Lampedusa melitensis* – Maltese Door-snail	U2	U2
	1027	*Lithophaga lithophaga* – Date Mussel	XX	FV
	1028	*Pinna nobilis* - Noble Pen Shell	XX	U1
Arthropods	4010	*Armadillidium ghardalamensis* – Għar Dalam Cave Woodlouse	U1	FV
	4047	*Brachytrupes megacephalus* - Sand Cricket	U2	U1
	4051	*Myrmecophilus baronii* - Baroni's Ants Nest Cricket	XX	U2
	4025	*Pseudoseriscius cameroni* (Tenebrionid Beetle)	U2	U1
	1090	*Scyllarides latus* - Mediterranean Slipper Lobster	XX	U1
Fish	1152	*Aphanius fasciatus* – Mediterranean Killifish	U1	U1
Amphibians	1189	*Discoglossus pictus* - Painted Frog	U1	U1
Reptiles	1224	*Caretta caretta* – Loggerhead Turtle	XX	FV
	1274	*Chalcides ocellatus* - Ocellated Skink	FV	FV
	1284	*Coluber viridiflavus* - Western Whip Snake	FV	FV
	1293	*Elaphe situla* - Leopard Snake	FV	FV
	1237	*Podarcis filfolensis* – Maltese Wall Lizard	FV	FV
	1289	*Telescopus fallax* - Cat Snake	FV	FV
Mammals	2621	*Balaenoptera physalus* - Fin Whale	XX	XX
	4001	*Crocidura sicula* - Sicilian Shrew	XX	FV
	1350	*Delphinus delphis* - Short-beaked Common Dolphin	XX	XX
	5978	*Erinaceus algirus* - Algerian Hedgehog	FV	FV
	5365	*Hypsugo savii* - Savi's Pipistrelle		XX
	5005	*Myotis punicus* - Maghrebian Mouse-eared Bat	U1	U1
	1312	*Nyctalus noctula* - Noctule	XX	FV
	5031	*Physeter catodon* - Sperm Whale	XX	XX
	2016	*Pipistrellus kuhlii* - Kuhl's Pipistrelle	FV	FV
	1309	*Pipistrellus pipistrellus* - Common Pipistrelle		FV
	5009	*Pipistrellus pygmaeus* - Soprano Pipistrelle	FV	FV
	1329	*Plecotus austriacus* - Grey Long-eared Bat	U1	U1
	1303	*Rhinolophus hipposideros* - Lesser Horseshoe Bat	U1	U1
	2034	*Stenella coeruleoalba* - Striped Dolphin	XX	XX
	1333	*Tadarida teniotis* - European Free-tailed Bat	U1	U1
	1349	*Tursiops truncatus* -Bottlenose Dolphin	XX	XX
	2035	*Ziphius cavirostris* - Cuvier's Beaked Whale	XX	XX
Other invertebrates	1008	*Centrostephanus longispinus* - Hatpin Urchin	XX	FV
	1001	*Corallium rubrum* - Red Coral	XX	XX

Favourable
Unfavourable – Inadequate
Unknown
Unfavourable – Bad

Source: *ERA*[30]

The assessment of the status and trends of breeding and wintering birds is on the other hand carried out following established reporting procedures pursuant to the EC Birds Directive vis-à-vis short-term (2001-2012) and long-term (1980s-2012) population trends and range trends. [31] When considering population trends (Figure 8.8 refers), during the short-term interim, 63 % (17 species/populations) of the concerned avifauna (breeding and wintering birds) experienced a population increase, 11.1 % (3 species) underwent a population decrease, 11.1 % (3 species) had remained stable, whilst the trend of the remaining 14.8 % (4 species/populations) was unknown. On the other hand, during the long-term interim, 66.7 % (18 species/populations) of the concerned avifauna (breeding and wintering birds) had experienced a population increase, 14.8 % (4 species/populations) underwent a population decrease, 3.7 % had remained stable (1 species/populations), the trend of 3.7 % was unknown (1 species/populations) and 7.4 % had experienced fluctuations in population (2 species/populations).

Figure 8.8: Breeding and Wintering Bird Population trends during the short- and long- term interims



Source: *ERA*[32]

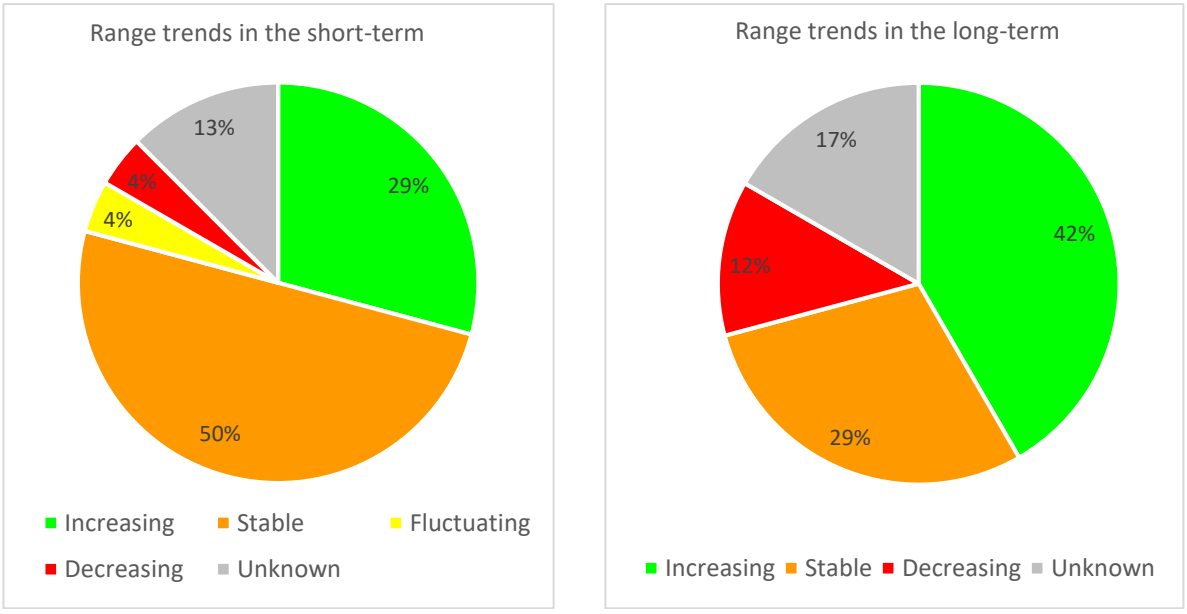
When considering range trends (Figure 8.9 refers) during the short-term interim, around 29.2 % (7 species) of the concerned species experienced a population increase, 4.2 % (1 species) underwent a population decrease, whilst 50 % (12 species) had remained stable, 4.2 % (1 species) was fluctuating and 12.5 % (3 species) was unknown. During the long interim, around 41.7 % (10 species) of the species experienced a population increase, 12.5 % (3 species) underwent a decline, 29 % (7 species) had remained stable whilst 16.7 % (4 species) was unknown.

[30] Ibid.

[31] Range can be defined as 'the outer limits of the overall area in which a species or habitat is found at present. It can be considered as an envelope within which areas actually occupied occur'. For the reporting under Article 17 of the Habitats Directive, the concept of 'natural range of species and habitats' was elaborated in some detail in an annex to a note of 15 March 2005 to the Habitats Committee (DocHab-04-03/03 rev.3, Annex F); EC 2017c.

[34] United Nations Convention on Biological Diversity 2010b.

Figure 8.9: Breeding and Wintering Bird Range Trends during the short- and long-term interims



Source: *ERA*[33]

8.3 PRESSURES AND THREATS

An assessment of the pressures and threats faced by those habitats and species listed in the Habitats Directive and found in the Maltese Islands was also completed in 2013. The assessment considered impacts with respect to pressures (factors acting now or that have been acting in the past few years) and threats (factors expected to be acting in the future). The results are shown in Figure 8.10 for habitats of Community Importance and Figure 8.11 for species of Community Importance. These charts only take into account the frequency of those pressures and threats considered as being of 'high' impact, which in other words, are those pressures and threats that have an important direct or immediate influence and/or act over large areas. Overall (for both species and habitats), the main combined pressures and threats are: invasive/other problematic species and genes, human intrusions and disturbances, natural biotic/abiotic processes, geological events and natural catastrophes, and natural system modifications.

[34] United Nations Convention on Biological Diversity 2010b.

Figure 8.10: Frequency of high pressures and threats for the habitat assessments

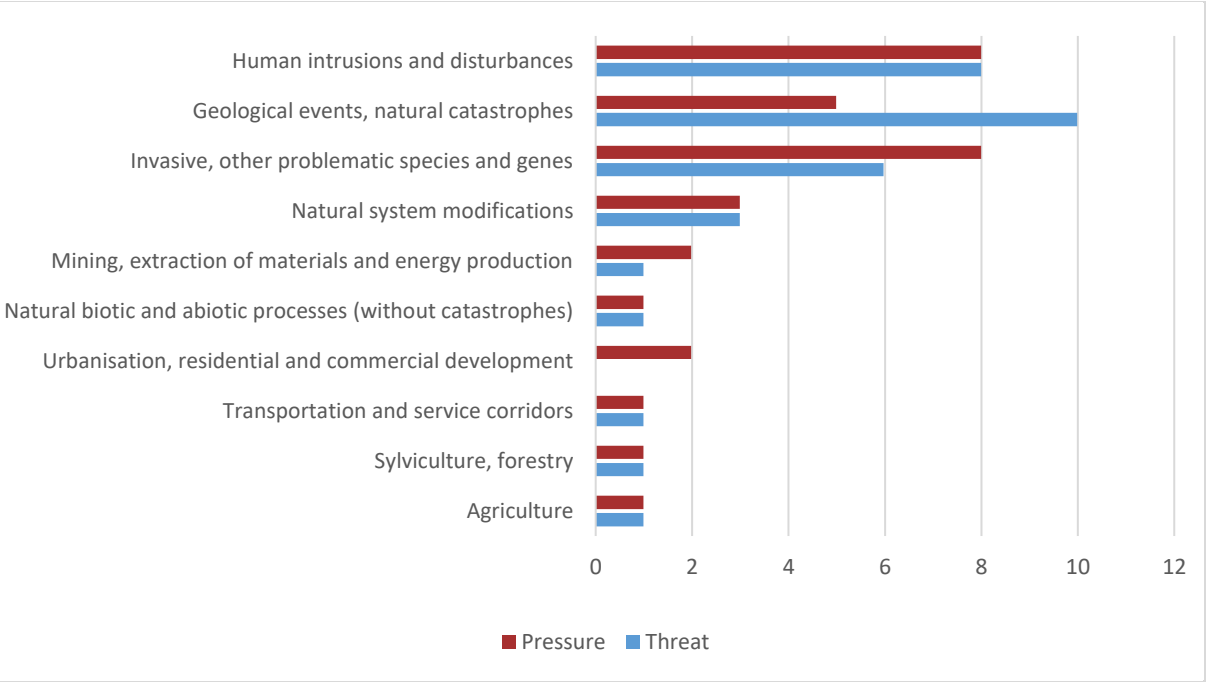
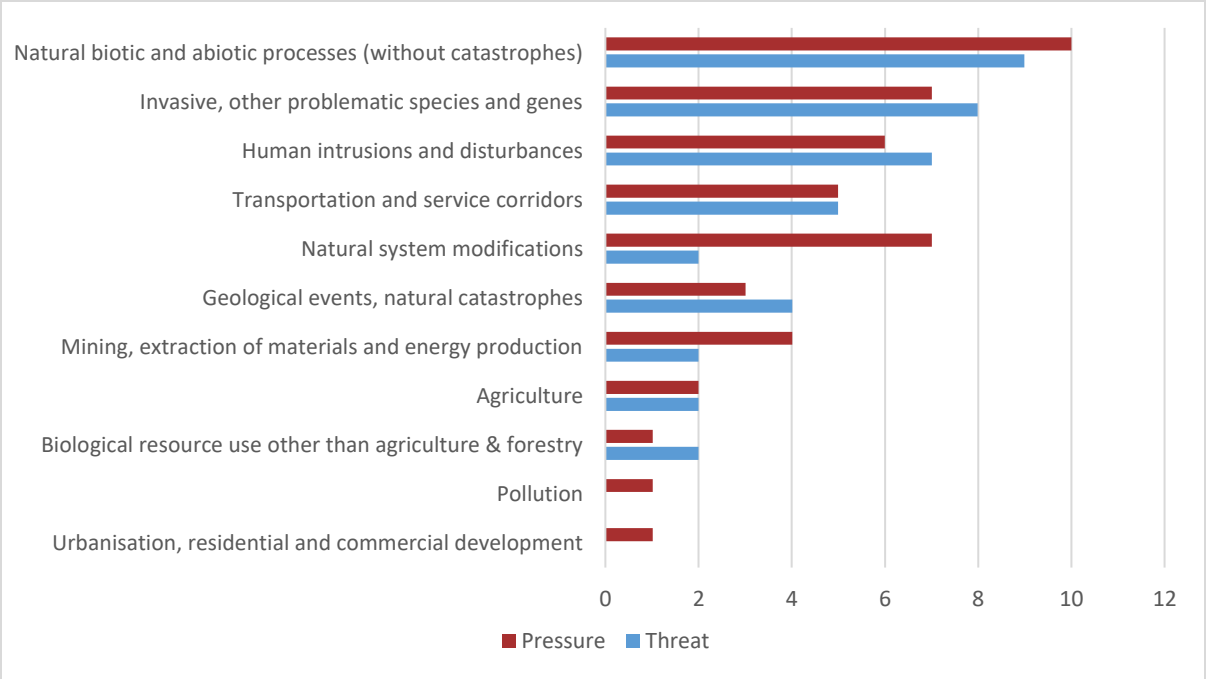


Figure 8.11: Frequency of high pressures and threats for the species assessments



If one were to consider the number of habitat assessments reported as being affected by one or more high importance/impact pressure, the pressure categories featuring most often as affecting habitats in Malta appear to be those related to the categories: human intrusions and disturbances, invasive and other problematic species and genes, geological events, and natural catastrophes. When

considering threats, these are on the same lines of the afore-mentioned pressures; with the exception that geological events and natural catastrophes feature as the most predominant threat category. The situation is slightly different when considering species, with the main pressure categories being: natural biotic and abiotic processes, followed by invasive and other problematic species and genes, and natural system modifications. In the case of threats, the categories in question are the same as those for pressures, with the exception of natural system modifications, invasive and other problematic species and genes predominating in this case.

8.4 MALTA'S BIODIVERSITY POLICY FRAMEWORK

The period under review embodies several landmarks that have been achieved for biodiversity. These achievements follow recognition by the international community that existing policy and efforts did not meet the global targets agreed in 2002 to significantly reduce biodiversity loss worldwide. Consequently, at the tenth meeting, the Conference of the Parties to the Convention on Biological Diversity (CBD) adopted the Global Biodiversity Strategic Plan for the period 2011 to 2020 (CBD COP10 Decision X/2).[34] The objectives of the CBD, of which Malta is Party, are threefold: (1) the conservation of biological diversity; (2) the sustainable use of its components; and (3) the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. The Global Biodiversity Strategic Plan to 2020 consists of 5 strategic goals and sets out 20 global biodiversity targets known as the Aichi Targets.[35] Parties to the CBD are required to develop national targets using this global strategy as a flexible framework in accordance with national priorities and capacities. These national targets contribute towards the achievement of the Aichi Targets whilst sustaining the objectives of the CBD.

In 2010, the EU adopted a 2020 headline target for biodiversity that calls for halting biodiversity loss and ecosystems degradation and their restoration, where feasible, in the EU by 2020, while stepping up the EU's contribution to averting global biodiversity loss.[36] In this regard, in May 2011 the Commission adopted a Communication entitled *Our life insurance, our natural capital: an EU Biodiversity Strategy to 2020*.[37] This communication sets out the EU strategy comprising 6 main targets and 20 accompanying actions. These actions are intended to reduce the key pressures on biodiversity; help mainstream biodiversity goals into EU agriculture, forests and fisheries policies; as well as ensure that the EU contributes its fair share to combating global biodiversity loss. The EU Biodiversity Strategy to 2020 is a progression from the 2006 EU Biodiversity Action Plan by learning lessons from its implementation and raising the level of ambition for 2020, with a focus on biodiversity as well as on related ecosystem services.

On 12 December 2012, Malta, as a Party to the CBD and as an EU Member State, adopted the National Biodiversity Strategy and Action Plan (NBSAP) entitled *Working Hand-in-Hand with Nature*, in line with the CBD's Global Biodiversity Strategic Plan and the EU Biodiversity Strategy to 2020.[38]

[34] United Nations Convention on Biological Diversity 2010b.
[35] United Nations Convention on Biological Diversity 2010a.
[36] European Council 2010.
[37] EC 2011.
[38] MEPA 2012.

Malta's NBSAP establishes the long-term vision that: 'All Maltese citizens will value the importance of Malta's biodiversity and work hand-in-hand with nature in their daily lives. Efforts aimed at sustainable and more resource-efficient choices and actions by local communities and relevant sectors have contributed to a significant improvement in the status of Malta's biodiversity and associated ecosystem services, for the well-being of present and future generations'. The logo adopted for the NBSAP portrays the diversity of the main taxonomic groups of species – mammals, fish, invertebrates, birds and reptiles - forming the canopy of the tree. The trunk of the tree ends in the root system in the shape of a human hand. This symbolises the linkages between man and nature and the pivotal role that man plays to help safeguard nature.

Malta's NBSAP is a key national tool for contributing to the advancement of the global and EU targets on biodiversity. Malta's NBSAP defines 19 national targets that are in line with the 20 Aichi Targets and the 6 EU Biodiversity Strategy targets, while still reflecting national priorities and contexts as shown in Figure 8.12. All targets have the same timeline, which is 2020. In order to reach the nineteen national targets, 80-based and outcome-oriented measures have been defined. These measures are categorised into 18 themes, in accordance with their nature. The NBSAP themes that address direct drivers of biodiversity loss relate to:

- genetic resources (address the threat of genetic erosion);
- species and habitats (address the threats of species extirpation and habitat loss and fragmentation);
- biological introductions (address the threat of invasive alien species and biosafety issues in relation to genetically modified organisms);
- sustainable use (address the threat of overexploitation of species and the threat of different forms pollution); and
- climate change (address the threat of climate change and associated environmental impacts).

The other themes in Malta's NBSAP address indirect drivers of loss, such as lack of public awareness; unsustainable consumption behaviours; insufficient biodiversity mainstreaming; failure to recognise the true value of biodiversity and ecosystem services in policy and decision-making; limitations in the required knowledge base to draw up effective conservation action; and themes on resource mobilisation and capacity building.

Figure 8.12: Mapping of Malta's National targets with the EU and CBD Aichi Targets

NBSAP Target 1: *By 2020, more than 55% of Maltese citizens are aware of the term "biodiversity", know what it means and also know what steps they can take to conserve and use biodiversity in a sustainable manner.*

- EU Biodiversity Strategy - Target 1: Fully implement the Birds and Habitats Directives
- Aichi Target 1

NBSAP Target 2: *By 2020, The values of biodiversity and ecosystem services, and the opportunities derived from their conservation and sustainable use, are recognised and integrated in national policies (including national accounting, as appropriate), as well as decision-making and planning processes.*

- EU Biodiversity Strategy - Target 6: Help avert global biodiversity loss
- Aichi Target 2

NBSAP Target 3: *By 2020, positive incentives for conservation and sustainable use of biodiversity are increasingly promoted. Malta cooperates in efforts to address environmentally harmful subsidies.*

- EU Biodiversity Strategy - Target 6: Help avert global biodiversity loss
- Aichi Target 3

NBSAP Target 4: *By 2020, main sectors that are beneficiaries of ecosystem services have incorporated biodiversity concerns into their sectoral and cross-sectoral plans, policies and programmes, as appropriate.*

- EU Biodiversity Strategy - No target; Aspects on patnerships for biodiversity
- Aichi Target 4

NBSAP Target 5: *By 2020, the rate of loss of natural and semi-natural habitats of conservation value is at least halved, and degradation and fragmentation is significantly reduced. The percentage cover of "forests and semi-natural areas" has not decreased below the CORINE land cover data of 2006.*

- EU Biodiversity Strategy - Target 3: Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity
- Aichi Target 5

NBSAP Target 6: *By 2020, pressure on vulnerable ecosystems through overexploitation of biological resources is reduced by adopting sustainable practices.*

- EU Biodiversity Strategy - Target 4: Ensure the sustainable use of fisheries resources
- Aichi Target 6

NBSAP Target 7: *By 2020, areas under agriculture and aquaculture are managed sustainably, ensuring the conservation of biodiversity.*

- EU Biodiversity Strategy - Target 3: Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity
- Aichi Target 7

NBSAP Target 8: *By 2020, the implementation of effective measures to address pollution (including from excess nutrients) in line with the requirements of established legislation, is showing signs of a decreasing trend in current pollution levels, where feasible.*

- EU Biodiversity Strategy - Target 2: Maintain and restore ecosystems and their services
- Aichi Target 8

NBSAP Target 9: *By 2020, measures are in place to prevent, in so far as practical, the introduction and establishment of new invasive non-native species, while those that are established are identified and prioritised for eradication or control, where feasible.*

- EU Biodiversity Strategy - Target 5: Help combat Invasive Alien Species
- Aichi Target 9

NBSAP Target 10: *By 2020, Malta's 13% land area covered by terrestrial Natura 2000 sites is maintained, and Malta's sufficiency in the designation of key marine biodiversity areas is improved through a representative network of marine protected areas.*

- EU Biodiversity Strategy - Target 1: Fully implement the Birds and Habitats Directives
- Aichi Target 11

Figure 8.12 (cont.): Mapping of Malta's national targets with the EU and CBD Aichi Targets

NBSAP Target 11: *By 2020, the risk of local extirpation of known threatened species has been reduced, with 30% of the species of European Community Importance in the Maltese territory having a favourable or improved conservation status.*

- EU Biodiversity Strategy - Target 1: Fully implement the Birds and Habitats Directives
- Aichi Target 12

NBSAP Target 12: *By 2020, the status of crop and livestock genetic diversity in agricultural ecosystems and of wild relatives has been safeguarded and improved, where feasible.*

- EU Biodiversity Strategy - Target 3: Increase the contribution of agriculture and forestry to maintaining and enhancing biodiversity
- Aichi Target 13

NBSAP Target 13: *By 2020, vulnerable ecosystems that provide essential services are safeguarded, with at least 15% of degraded ecosystems restored, while 20% of the habitats of European Community Importance in the Maltese territory have a favourable or improved conservation status.*

- EU Biodiversity Strategy - Target 2: Maintain and restore ecosystems and their services
- Aichi Target 14

NBSAP Target 14: *By 2020, the impacts of climate change on ecosystems have been reduced, in so far as feasible and, mitigation and adaptation responses to climate change that support and conserve biodiversity have been agreed and are being implemented*

- EU Biodiversity Strategy - Target 2: Maintain and restore ecosystems and their services;
- Aichi Targets 10 & 15

NBSAP Target 15: *By 2020, access to national genetic resources is regulated through a National Regime on Access and Benefit Sharing (ABS).*

- EU Biodiversity Strategy - Target 6: Help avert global biodiversity loss
- Aichi Target 16

NBSAP Target 16: *By 2020, Malta is implementing an effective and participatory national biodiversity strategy and action plan (NBSAP).*

- EU Biodiversity Strategy - Target 6: Help avert global biodiversity loss
- Aichi Target 17

NBSAP Target 17: *By 2020, the contribution of local communities/ entities to the sustainable management of biodiversity is recognised and enhanced.*

- EU Biodiversity Strategy - No targets; Aspects on building on the biodiversity knowledge base
- Aichi Target 18

NBSAP Target 18: *By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved and applied.*

- EU Biodiversity Strategy - No targets; Aspects on building on the biodiversity knowledge base
- Aichi Target 19

NBSAP Target 19: *By 2020, capacity for national implementation of the Convention on Biological Diversity, other related Multilateral Environmental Agreements (MEAs) and EU obligations, has increased from current levels.*

- EU Biodiversity Strategy - Target 6: Help avert global biodiversity loss
- Aichi Target 20

A review of Malta's NBSAP took place in 2014 and is earmarked to be repeated in 2017 and 2020. This review process (i) establishes the status of progress of efforts in achieving the targets and the implementation of measures; (ii) identifies successes, constraints and impediments to implementation; and (iii) seeks ways and means of addressing such constraints and impediments, including any required revisions to the NBSAP targets and measures.

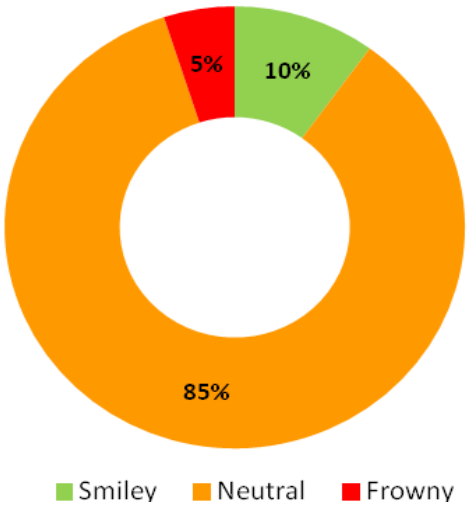
The first review of the NBSAP was carried out to cover the period up to 2014 and has been communicated through Malta's Fifth National Report to the CBD. This report provides a status update on the progress for the achievement of NBSAP targets and implementation of measures using a smiley scheme as a means for providing a visual and rapid representation to decision-makers and the public. The smiley scheme indicates the progress in efforts being made towards the achievement of a target or implementation of a measure, and should not be inferred as the current state of biodiversity in relation to the relevant target or measure.

Table 8.3: The smiley scheme showing the status of progress and the corresponding three smiley symbols used in the NBSAP review report

☺	Excellent progress has been made in efforts to reach a target or in the implementation of a measure (the target or measure will be fully achieved or implemented by the deadline if this rate of progress is maintained);
😐	Good progress has been made but further actions or initiatives are required to ensure that the target is reached or the measure is fully implemented by the deadline;
☹	Further progress is required as the action is not completed yet or it is still at a very early stage of implementation;
NA	Assessment of progress to be made in future reviews since implementation timeline of the target or measure is yet to commence.

The status of progress of implementation of Malta's NBSAP measures towards achieving the 20 Aichi Targets is reported in the review report and is summarised in Figure 8.13.

Figure 8.13: Progress on the implementation of the Aichi Biodiversity Targets

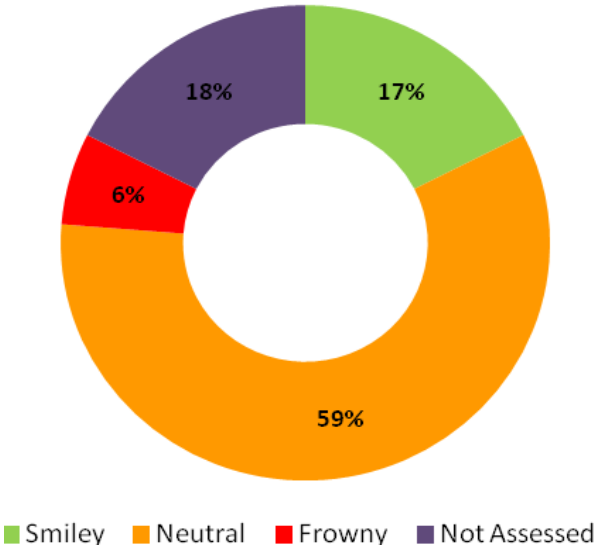


Excellent progress is noted for 10 % of the targets, that is 2 targets out of the 20 Aichi Targets. Good progress is reported for 85 % of the targets, that is, 17 targets out of the 20 Aichi Targets, for which further action is still required in order to successfully achieve the targets in question by 2020. Limited progress is noted for 5 % of the targets, that is 1 target out of the 20 Aichi Targets.

- Major progress has been achieved in the following areas: Enhanced biodiversity awareness with an increase of 11 % in biodiversity awareness when comparing 2010 and 2015 Euro-barometer surveys;
- Greater uptake of research projects and use of funds with four major ongoing LIFE funded projects: four projects targeting the marine environment and one project targeting Buskett;
- Strengthened legal nature protection regime;
- 40 % of species of European Community Importance having a favourable status in 2013, an increase from 20 % in 2007;
- 43 % of habitats of European Community Importance having a favourable conservation status in 2013, an increase from 6 % in 2007;
- Increasing populations in both the short-term trend (63 % of all breeding species) and the long-term trend (67 % of all breeding species) of the majority of the birds analysed as part of reporting obligations to the EC Birds Directive;
- Drawing up of management plans or Conservation Orders for all terrestrial Natura 2000 sites;
- National financing investment in biodiversity-related projects such as commissioned studies to assess conservation status of protected species and co-financing of EU funded projects;
- Designation of additional protected areas in the marine environment covering 190.8 km^2 of the territorial waters;
- Designation of additional protected areas in the marine environment, subject to findings of ongoing LIFE projects is in progress.

Consequently, the review report provides the status of progress of implementation of the eighty 80 NBSAP measures, as summarised in Figure 8.14. Excellent progress of implementation is reported for 14 measures (17.50 %); good progress is reported for 47 measures (58.75 %); while further progress is required for 5 measures (6.25 %). The status of progress of 14 measures (17.50 %) could not be assessed at this stage since the timeline for implementation of these measures is yet to commence.

Figure 8.14: Progress on the implementation of Malta's NBSAP Measures (Values)



Efforts at addressing knowledge gaps on biodiversity in the Maltese Islands have increased in the past years and important projects are ongoing in the marine and terrestrial realm. Furthermore, biodiversity considerations are increasingly being integrated in sectoral policies, plans and programmes. These initiatives have contributed to achieving a good and excellent status of progress of implementation of some NBSAP measures.

Nevertheless, the NBSAP review shows that effective and timely conservation action to address threats, as well as policy implementation on the ground is currently restricted due to resource constraints. The detailed exercise of assessing and mapping ecosystems and their services, which is yet to commence, will shed light on which areas merit conservation action including restoration, as well as any considerations of strengthening or deploying elements of green infrastructure. There is an increasing need to adopt a comprehensive monitoring strategy that addresses target species of EU Community Importance and also species of national importance. Biodiversity-related legislation allows for the enforcement of illegalities concerning wildlife and for court procedures to be effected as necessary. The presence of enforcement officials in the countryside to combat bird crime has doubled. However, continued and strengthened coordination and cooperation between relevant entities is needed to continue curbing such illegalities. Moreover, awareness of the importance of biodiversity and ways to safeguard it need to be increased and enhanced further through participatory conservation; which includes the involvement of the public in conservation efforts and citizen science. The latter is the collection and analysis of data related to the environment by the general public, which is then reviewed by professional scientists in order to strengthen the efficiency of the implementation of NBSAP measures with limited progress.

On an international level, the CBD will be reviewing its Global Strategic Plan in 2020 based on the assessment of progress in achieving the Aichi Targets. This process will be carried out in the context of the 2050 Vision of the current Global Strategic Plan, as well the 2030 Agenda for Sustainable Development and other relevant international processes, and is likely to call for the updating of the NBSAP of all Parties to the Convention, including Malta.

8.5 INVASIVE ALIEN SPECIES

A policy guidance instrument adopted in the period under review, deals with two aspects that are essential for reaching or maintaining the favourable conservation status of species and habitats. Whilst these aspects are dealing with the impacts of invasive alien plants, on the other hand, they are implementing the restoration of native plant communities. More information is presented in Box 8.2.

Box 8.2: Policy on Invasive Alien Species

Invasive alien species (IAS) are one of the major direct drivers of biodiversity loss and are a growing environmental, social and economic concern. These non-native species are either brought deliberately or accidentally by human action into new areas where, if met with favourable conditions, become established and possibly invasive to the detriment of local biodiversity. Acknowledging the lack of an EU comprehensive framework for dealing with IAS, the EU Commission in 2008 published a Communication entitled *Towards an EU Strategy on Invasive Species*, setting out the case for tackling IAS via a dedicated and comprehensive framework.

The Commission subsequently adopted, on 9 September 2013, a Proposal for a Regulation on the prevention and management of the introduction and spread of IAS, with the purpose of establishing a framework for action to prevent, minimise and mitigate the adverse impacts of IAS on biodiversity and ecosystem services. In this respect, the Commission drafted the text of EU Regulation 1143 on Invasive Alien Species[39] the core of which was a list of Invasive Alien Species of Union Concern. This Regulation came into force on 1 January 2015.[40] The three distinct types of measures in this EU Regulation follow an internationally agreed hierarchical approach to combating IAS and consist in aiming to prevent new invasive alien species from entering the EU and to deal more effectively with established ones on the basis of prevention, early warning and rapid response, and management.

Malta's National Biodiversity Strategy and Action Plan adopts a national target on invasive alien species and four accompanying measures. One measure requires for the adoption of eight codes of conduct on invasive alien species, which codes have already been drafted. Similarly, another measure requires the adoption of a national strategy in this context, which strategy, has also been drafted. The latter measure also calls for the development of policy guidance in this field. A set of guidelines on managing non-native plant invaders and restoring native plant communities in terrestrial settings in the Maltese Islands was adopted on 7 March 2013.[41] The Guidelines aim to promote best practices in line with the requirements of biodiversity-related Multilateral Environmental Agreements (MEAs) when planning and implementing invasive plant removal activities and when undertaking efforts to restore native plant communities.

A policy guidance *Guidelines on Trees, Shrubs, and Plants for Planting and Landscaping in the Maltese Islands* and a user-friendly booklet entitled *Common Species used for Landscaping in the Maltese Islands* (not available in a digital version) were also published by MEPA (Malta Environment and Planning Authority). They promote the use of native and archaeophytic species and indicates which species (particularly alien species) should not be used.

[39] MEPA 2013a.
[40] Regulation (EU) 1143/2014.

In the context of management, efforts to control or eradicate invasive alien species have continued, particularly in Natura 2000 sites, such as at *Selmunett*, *Rdum tal-Madonna, Wied il-Miżieb, il-Ballut ta' Marsaxlokk*, and *il-Magħluq ta' Marsaskala*. The invasive species addressed by such interventions include amongst others acacias, century plants (*Agave* spp.), Heartleaf Ice Plant (*Aptenia cordifolia*), Hottentot Fig (*Carpobrotus edulis* – Figure 8.15 refers), Great Reed (*Arundo donax*), vines escaped from cultivation (*Vitis vinifera*), Prickly Pear (*Opuntia* spp.), and *Rattus* species.

Figure 8.15: Hottentot Fig invades coastal sand dunes

8.6 DESIGNATION AND MANAGEMENT OF PROTECTED AREAS

The legal designation of protected areas is an important way of safeguarding species and habitats of high conservation value by regulating any potential harmful activities while at the same time also bringing various benefits to society. In Malta, there are various types of protected area designations, such as Nature Reserves, Bird Sanctuaries, Special Areas of Conservation, Special Protection Areas, Tree Protection Areas, and protected beaches to mention a few. An inventory of all of Malta's different designated areas is found on the Common Database on Designated Areas (CDDA) under the framework of the European Environmental Agency (EEA).[42] This database is updated annually.

In 2011, the boundaries for 30 Tree Protection Areas (TPA) covering a total of 5.35 km^2 were published in Government Notice 473 of 2011. Furthermore, in 2011, four more Areas of Ecological Importance (AEI) and Sites of Scientific Importance (SSI) were scheduled, together with another one in 2012, bringing the total to 74. In these areas, specific policies guide the type of development that can take place. In 2010, Malta designated four additional marine Special Areas of Conservation (SACs) bringing to a total of five marine designated areas. Consequently, Malta has a total of 39 Special Areas of Conservation of which 32 are of international importance and 7 are of national importance.

Malta also has three Nature Reserves affording protection to islets, 26 Bird Sanctuaries, and a National Park. Eight areas were also identified for their landscape value between 2008 to 2012. In addition, since 2007, all beaches and swimming areas in close proximity to urban areas or major roads, including 11 specifically named beaches, were afforded legal protection from hunting. As of end 2015, the Maltese Islands had a total of 21.5 % of land area under some form of legal protective designation.[43]

As a Member State of the European Union, Malta is also required, in line with the EC Habitats Directive, to designate sites to form part of the larger Natura 2000 Network. As of end 2011, Malta had 27 terrestrial sites covering 42.7 km^2 or 13.3 % of land area, and 1 marine area of 8.5 km^2 forming part of

[42] EEA 2016a.
[43] MEPA 2016.

the network. Four additional marine sites were submitted to the European Commission in 2011 to form part of the Natura 2000 network. These new sites were primarily identified for their conservation value when considering that they provide protection for over 80 % of the *Posidonia* beds found in the Maltese waters, as well as other marine habitat types, such as *Cymodocea nodosa* meadows and reefs, and also species, particularly the marine endemic Maltese Top Shell (*Gibbula nivosa*). These sites were adopted as Natura 2000 sites on the 16 November 2012. In all, the five marine sites cover an area of 190.8 km^2. At the time, Malta was praised by the Environment Commissioner for the addition of the four new marine protected areas.[44] These additional designations are indeed very important contributions to the expansion of the Natura 2000 Network, which incremented Malta's sufficiency in affording protection to the Maltese habitats and species of Community Importance.[45] In line with the obligations of the EC Birds Directive, by December 2008, Malta had designated 13 Special Protection Areas (SPAs) covering 16.5 km^2 or 5.2 % of land area. These SPAs are automatically Natura 2000 sites. Figure 8.16 shows the boundaries of Special Areas of Conservation (SACs) of national and international importance and the boundaries of Special Protection Areas (SPAs). As can be seen in the map, in some cases, the boundaries of the areas designated under the Habitats Directive and the Birds Directives overlap.

Additionally, since 2011, efforts have continued in line with the National Biodiversity Strategy and Action Plan through the designation of additional marine protected areas. In fact, through the work being undertaken by two related LIFE+ projects, namely LIFE+ Malta Seabird Project[46] (on marine Important Bird Areas (IBAs) and SPAs) and LIFE+ Migrate[47] (on marine Sites of Community Importance (SCIs) for the loggerhead turtle and the bottlenose dolphin) Malta designated additional protected areas in the marine environment. This increases the coverage of the Maltese Fisheries Management Zone from 190.96 km^2 to about 3500 km^2 within the review period. Furthermore, since October 2013, more work on the designation of marine protected areas through LIFE+ BaĦAR for Natura 2000 (N2K) sites (on marine habitats, namely sandbanks, reefs and submerged or partially submerged sea caves), contributed to the current designation of 35 % of the Maltese waters. Further information is available at http://lifebahar.org.mt/

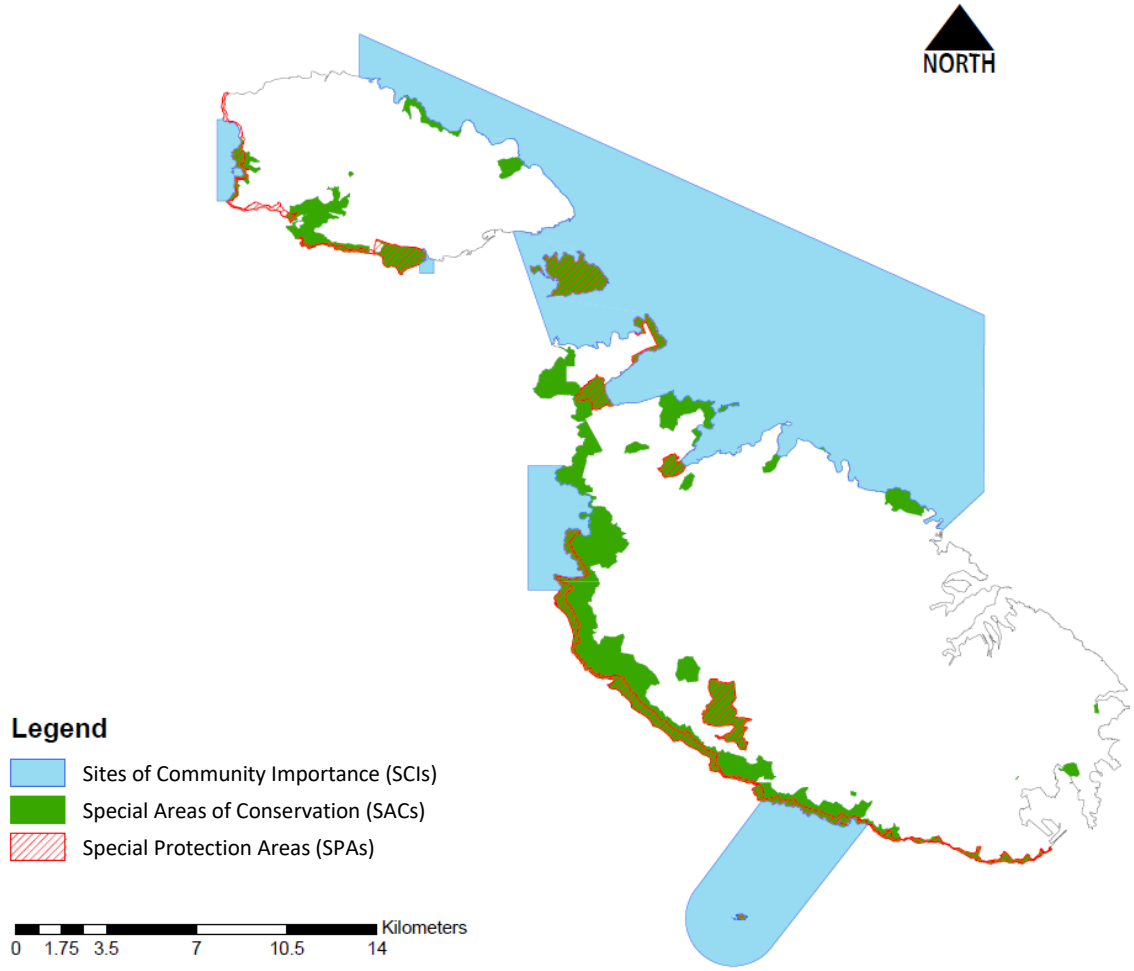
[44] EC 2012.

[45] Following the previous assessment of the Article 17 reporting cycle (June 2008), the terrestrial sites designated under the Habitats Directive were considered 93% sufficient in affording protection to the Maltese terrestrial habitats and species of Community interest.

[46] LIFE+ Malta Seabirds.

[47] LIFE+ Project Migrate.

Figure 8.16: Boundaries of SACs and SPAs



Source: *MEPA 2015*

When considering the EU Natura 2000 Network in the Maltese Islands and the coverage of Annex I habitats by habitat group (Figure 8.17 refers), overall, 67 % (20 out of 30) of the habitats assessed are 75-100 % covered by the Natura 2000 Network, whereas grasslands and sclerophyllous scrub habitat category groups are 100 % covered by the Natura 2000 network. The remaining 33 % (10 out of 30) are 25-75 % covered. None of the habitats assessed is less than 25 % covered by the network.[48]

[48] ERA 2016b and EEA 2015.

Figure 8.17: Percentage of habitat assessments in classes of coverage by Natura 2000 sites

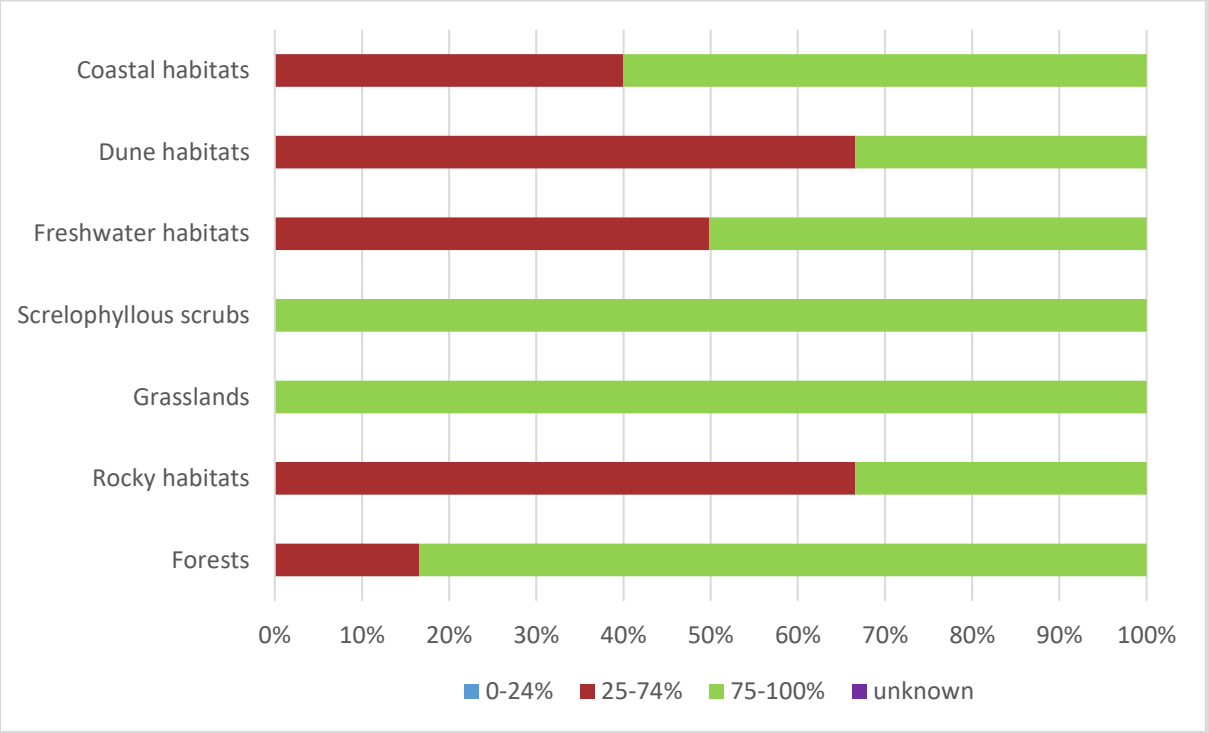
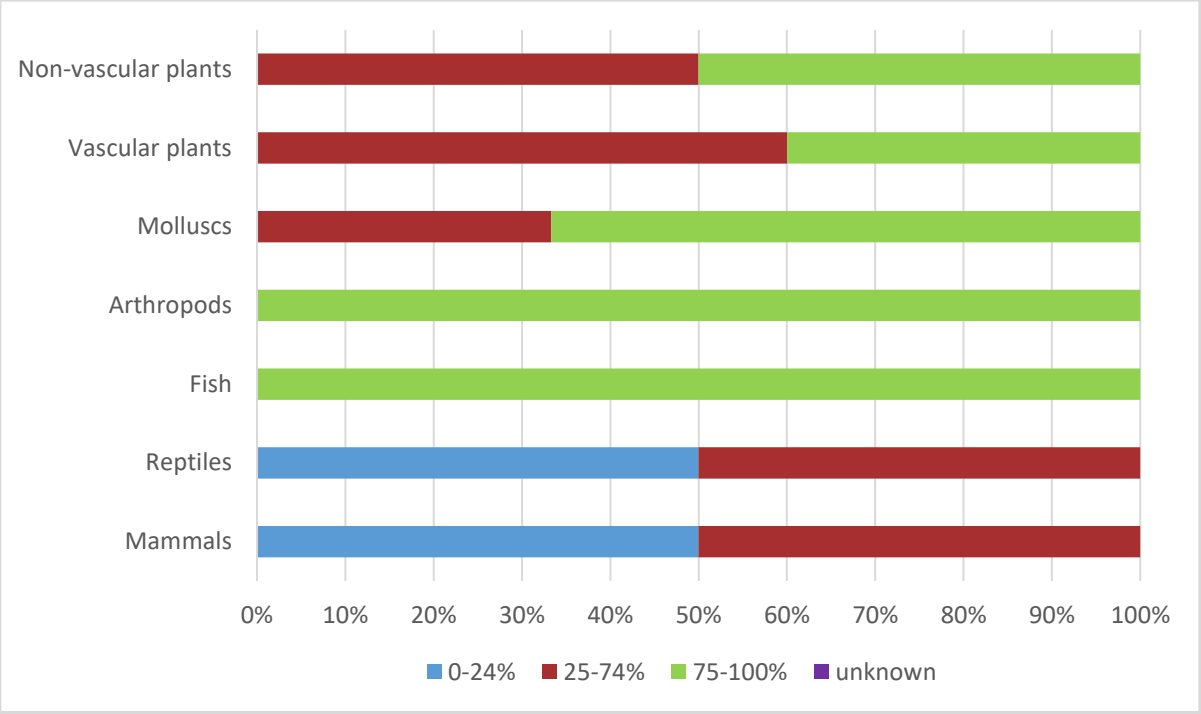


Figure 8.18 shows the coverage of Natura 2000 by taxonomic group when considering Annex II species only (excludes marginal species). 50 % (12 out of 24) of the species assessed are 75-100 % covered by the Natura 2000 Network. 8 % (2 out of 24) fall under the class of coverage 0-24 %. The latter applies in the case of *Caretta caretta* and *Tursiops truncatus,* which were both the subject of study in the LIFE+ Migrate project. Coverage is mainly attained for arthropods (4 species) and fish (1 species).

Figure 8.18: Percentage of Annex II species assessments in classes of coverage by Natura 2000 sites



Management agreements are in place for 5 sites shown in Table 8.3 below. These agreements with Non-Government Organizations (NGOs) tackle a number of management measures listed in the Natura 2000 management plans specific to the particular sites. Typically, these include actions regarding the control and removal of alien species, restoration of habitats, efforts to increase the population of endemic species, providing adequate habitats for migratory birds including breeding species, and habitat restoration mostly through the planting of trees and shrubs is a common activity. Public awareness is also high on the agenda through a number of actions including organising free public walks and other public activities. Whenever the site has an interpretation centre, the respective NGO is also responsible for its upkeep and running.

Table 8.4: Sites managed through a management agreement and the respective managing body

Site name	Managing Body
Ramla l-Ħamra	Gaia Foundation
Għajn Tuffieħa	Gaia Foundation
Għadira Nature Reserve	Bird Life
Simar Nature Reserve	Bird Life
Majjistral Nature and History Park	Heritage Parks Federation

In January 2011, the project on Natura 2000 management planning for Malta and Gozo was initiated with the co-funding of EUR 1.3 million by the European Agricultural Fund for Rural Development

(EAFRD) under Measure 323 of the Rural Development Programme for Malta, 2007-2013. Implemented through the collaboration between MEPA and Epsilon International SA – Adi Associates Environmental Consultants Ltd Consortium through a service contract, this was a landmark project for Natura 2000 in Malta. This is because it established a total of 22 Management Plans and 8 Conservation Orders to cover the 34 terrestrial Natura 2000 sites in the Maltese Islands.

The management planning exercise involved gathering information, carrying out surveys, defining conservation objectives, and identifying management measures as well as intensive stakeholder involvement throughout the entire exercise. The involvement of stakeholders (ranging from conservation experts to landowners, residents, businesses, local councils, community and environmental groups, etc.) in the management planning process was necessary to ensure that the management plans are appropriate to each site and can be successfully implemented. It is considered a key element in the gathering of data about each of the Natura 2000 sites.

Additionally, another important element is to inform and educate the public and all stakeholders, about the Maltese Natura 2000 sites. In fact, a secondary component of this project involved an awareness campaign on terrestrial Natura 2000 sites in the Maltese Islands amongst the public at large and amongst specific target groups, such as farmers and land managers.[49]

The conservation of the habitats of EU importance composed of mature trees at Buskett, a Natura 2000 site, is the aim of another project entitled LIFE+ Saving Buskett (an abbreviated name of the LIFE+ project entitled *Soil stabilisation measures to protect Annex I habitats in Buskett – Girgenti Natura 2000 site*).[50] This project is a EUR 2.7 million project, with 50 % co-financing by the EU LIFE+ Funding Programme under the Nature and Biodiversity priority area which has commenced in 2013 and is expected to be completed in 2018. Furthermore, co-financed research on marine habitats and species (including sea birds) is currently being undertaken with by the EU LIFE+ Funding Programme under the Nature and Biodiversity priority area with the ultimate aim of enabling the designation of new marine Natura 2000 sites by 2018. More information on these projects is available in section 8.8 on 'research and outreach'.

8.7 LEGISLATIVE UPDATES

Malta applies the Better Regulation Initiative - an initiative which aims at reducing administrative burdens by better policy and regulations - to strengthen its legal regime that affords protection to the environment and the regulation of activities that may harm the environment and biodiversity. Major legislative updates between the period 2008 and 2015 are the enactment of The Deliberate Release into the Environment of Genetically Modified Organisms Regulations 2010 (S.L. 549.60), and the Trees and Woodlands Protection Regulations 2011 (S.L. 549.64).

In 2012, an emergency conservation order was issued for *Ġnejna Bay*[51] in relation to the turtle nesting event that occurred on *Ġnejna Bay* for the purpose of conserving the nesting site. This order

[49] More information on this project: ERA 2017 and ERA 2016b.
[50] LIFE+ Saving Buskett.
[51] Refer to G.N. 683 of 2012, revoked by G.N. 985 of 2012, both issued under S.L. 549.44.

prohibited a number of activities from being carried out in the designated area. Guidelines were also issued by MEPA on dos and don'ts when encountering marine turtles on land. A conservation order was published for *Wied il-Qlejgħa* (Chadwick Lakes) in Rabat, Malta via Government Notice 1235 of 2012.

The schedules of the Flora, Fauna and Natural Habitat Protection Regulations, 2006 (S.L. 549.44) were amended to bring in line with changes to the EC Habitats Directive. There has also been the overhaul of The Conservation of Wild Birds Regulations, 2006 (S.L. 549.42), which effectively doubles existing penalties for illegal killing and capture of wild birds.

8.8 RESEARCH AND OUTREACH

Research and outreach are fundamental activities to help build an effective conservation regime to safeguard biodiversity. Research through surveying and monitoring is important to gain insight on the status of biodiversity and trends of change so as to build a strong knowledge base to then guide effective conservation measures. In this respect, it is of essence that research addresses policy needs. Research can take the form of commissioned studies or be undertaken as part of national or regional projects, and having targeted objectives and measurable outcomes. Examples of the former include commissioned studies by the Malta Environment and Planning Authority on the Noble Pen Shell (*Pinna nobilis*), and on the distribution and ecology of the Maltese Top Shell (*Gibbula nivosa*). Nature permits are issued for the undertaking of research on such threatened and protected species. The results of these commissioned studies were for instance used to complete the conservation status assessment of species listed in the Annexes of the Habitats Directive, as required by its Article 17.

In terms of regional projects, the MEDPAN (Mediterranean Marine Protected Areas Network) North project was approved for funding under the Programme Med in April 2010 and implemented over a span of three years. This project was a continuation of the MEDPAN project in which MEPA participated between 2004 and 2007. MEDPAN has brought 23 organisations from 11 countries to form a network of managers of marine protected areas in the Mediterranean region. MEPA's participation in this project resulted in a number of deliverables, such as, an interpretation manual for marine habitats within the 25 nautical miles fisheries management zone, a study which identifies the financing requirements for local marine protected areas and self-financing recommendations, and the implementation of two underwater trails at *Rdum il-Majjiesa* marine protected area, not to mention communication and awareness measures.

In line with the provisions of the NBSAP, other than the LIFE + Saving Buskett and as mentioned earlier under the section on 'designation and management of protected areas', Malta embarked on various EU funded biodiversity-related projects. In fact, during the period under review there were four research projects under the LIFE+ programme ongoing:

- LIFE+ Malta Seabird Project (LIFE10/NAT/MT/000090): Creating an inventory of marine IBAs for *Puffinus yelkouan* (Yelkouan Shearwater)*, Calonectris diomedea* (Scopoli's Shearwater)

and *Hydrobates pelagicus* (European Storm Petrel) in Malta. This shall assist Malta to afford further protection to seabirds, by protecting areas they use out at sea.[52]

- LIFE+ Migrate (LIFE11NAT/MT1070): Conservation status and potential Sites of Community Interest (pSCIs) for *Tursiops truncatus* and *Caretta caretta* in Malta. This shall assist Malta in affording further protection to these marine species.[53]
- LIFE+ BaĦAR for N2K (LIFE12NAT/MT000845): Life+ Benthic Habitat Research for marine Natura 2000 site designation. This shall assist Malta to address insufficiency regarding the designation of marine sites with the aim to protect certain marine habitats.[54]
- LIFE+ Arċipelagu Garnija (LIFE14 NAT/MT/000991): Securing the Maltese Islands for the Yelkouan Shearwater *Puffinus yelkouan.* This will assist Malta to ensure the long-term recovery of the species.[55]

Meanwhile, in 2010 Malta launched a biodiversity information campaign with the aim of raising awareness on biodiversity-related issues as part of the United Nation's International Year of Biodiversity. This campaign has been extended to cover the UN Decade for Biodiversity and targets various audiences but mainly the general public and children. This campaign involves the organisation of various information and education initiatives, which are undertaken by ERA to help disseminate information on the importance and status of Malta's biodiversity. Initiatives include the publication of biodiversity articles in local newspapers, the setting up of information panels, and maintaining Malta's national biodiversity clearing house mechanism to facilitate access and create transparency of data on biodiversity on the Authority's website.

MEPA also published a set of commemorative stamps to celebrate the 2010 International Year of Biodiversity, which depicted four species found in the Maltese Islands: *Podarcis filfolensis filfolensis*, *Hydrobates pelagicus*, *Anacamptis urvilleana* and *Potamon fluviatile lanfrancoi*. Posters on protected species, were available in digital format on the MEPA website, and continue to be distributed by ERA to interested parties. A series of bookmarks and coasters depicting important Maltese species had also been produced and were also widely distributed free of charge.

MEPA also participated in '*Malta u lil Hinn Minnha*', an educational television programme broadcasted on Sundays (with continuously repeated broadcasts on different days, times and stations) which has been awarded The Best Cultural Journalism Award by the Malta Broadcasting Authority every year since 2012 and has also won the Best Environment Journalism Award by the Institute of Maltese Journalist in 2012. During this programme, MEPA provided guided visits to protected areas, with information snippets on Malta's natural heritage. On the line of these programmes, MEPA, and now ERA, also organised an average of seven biodiversity well attended tours per year to selected protected areas for the general public.

Malta is especially aware of the importance of educating children and students on environmental and biodiversity-related issues. In fact, a considerable number of educational talks addressing what

[52] LIFE+ Malta Seabirds.
[53] LIFE+ Project Migrate.
[54] LIFE+ BaĦAR.
[55] LIFE Arċipelagu Garnija.

biodiversity is, why it is important and what can be done to safeguard it have been delivered to various social groups, schools, hotel employees and also to the general public in conjunction with local councils. NGOs have also assisted in this regard through programmes, such as BirdLife Malta's 'Dinja Waħda' and Nature Trust Malta's 'EkoSkola', that promote student participation to support biodiversity within their environment. Themes related to biodiversity were also incorporated in the Primary Science Curriculum. Schools also participate in national and international initiatives and projects such as Young Reporters for the Environment (YRE) and Learning About Forests (LEAF), related to environmental issues thus emphasising the role of biodiversity. During scholastic year 2013/2014, the Directorate for Student Services (DES) provided the service of nine peripatetic teachers that supported teachers' and students' participation in environmental awareness activities. State Colleges also organise locality-based events with the support of the peripatetic staff in close collaboration with local environmental NGOs.

The Centre for Environmental Education and Research (CEER) at the University of Malta (UoM) actively supports the formation of the Education for Sustainable Development (ESD) teachers working on the above-mentioned Foundation for Environmental Education (FEE) programmes (i.e. EkoSkola, YRE and LEAF). These programmes have a strong community outreach component and local research (conducted by CEER) has shown the positive impact children are having on their parents' lifestyles and choices. Moreover, the centre is responsible for the ESD component in the teacher training programme. CEER has also initiated the task of drawing up the National Strategy for Education for Sustainable Development. Additionally, the Department of Biology (DoB) at UoM covers aspects of biodiversity as part of study units that are included in undergraduate courses within the DoB. This department also holds basic courses on marine and terrestrial biology for the general public. Such courses include basic coverage of biodiversity. As of academic year 2014-2015 all MCAST (Malta College of Arts, Science and Technology) Levels 1, 2 and 3 students (amounting to 1,568 – based on first call statistics in academic year 2013-2014) followed a taught key skill module titled 'Science and Technology', which incorporates the living world and various biodiversity topics. Level 1-3 students amount to 1,568 (first call statistics) in academic year 2013-2014.

Other CEPA (Classification of Environmental Protection Areas)-related activities include those undertaken at The Cliffs Interpretation Centre in Dingli Cliffs which is managed by La Pinta Ltd and provides the public, particularly visitors and tourists with information about Dingli and the surrounding countryside, and at Il-Majjistral Nature and History Park which is managed by the Heritage Parks Federation and provides various awareness events such as guided nature walks, open days at the Park and also guided snorkelling just to mention a few.

Despite all the above efforts, in the light of the *Attitudes of Europeans towards Biodiversity Report* (Special Eurobarometer 436) for 2015 the need to enhance awareness continues. Even though between 2010 and 2015, overall the percentage of Maltese who have never heard of the term 'biodiversity' and 'Natura 2000' has decreased, the charts below show that the momentum gained between 2010 and 2013 was not extended between 2013 and 2015. Instead this period was characterised by an increase in the percentage of public who haven't heard about these terms. Additionally, the percentage of Maltese who have heard about biodiversity, and knew what it means has minimally increased when it comes to 'biodiversity', while it decreased for 'Natura 2000'.

Figure 8.19: Awareness on the term 'biodiversity' in Malta, according to the *Special Eurobarometer 436 – Attitudes of Europeans Towards Biodiversity*[56]

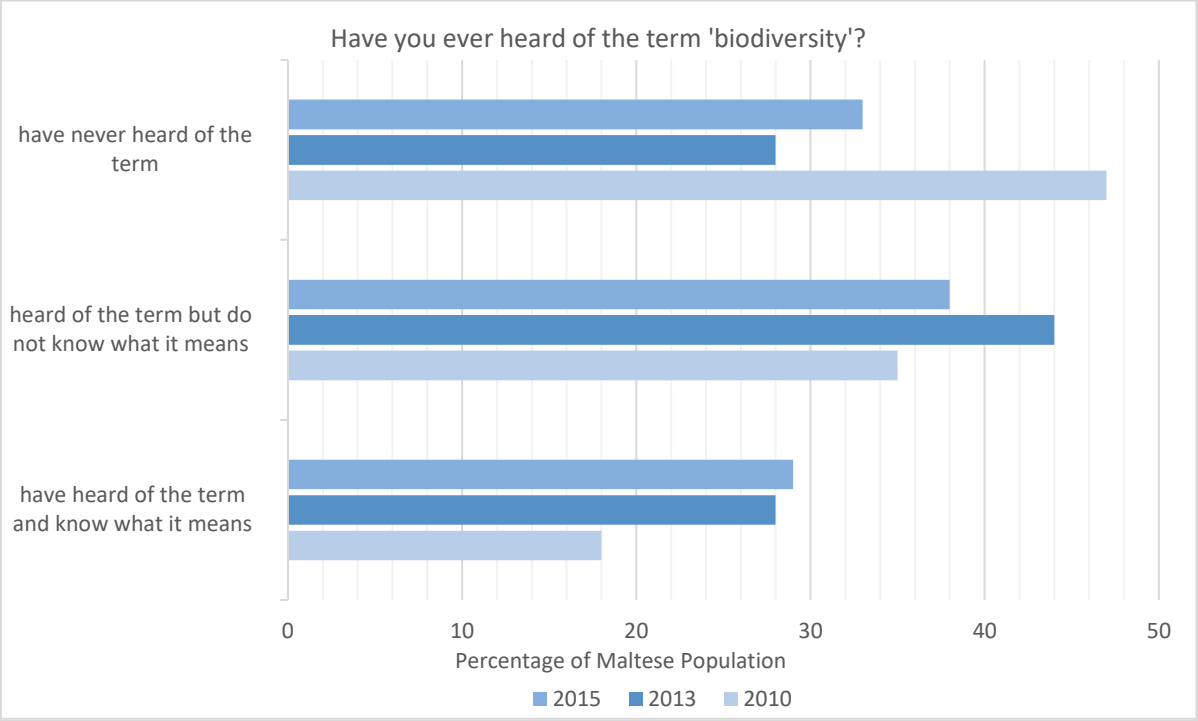
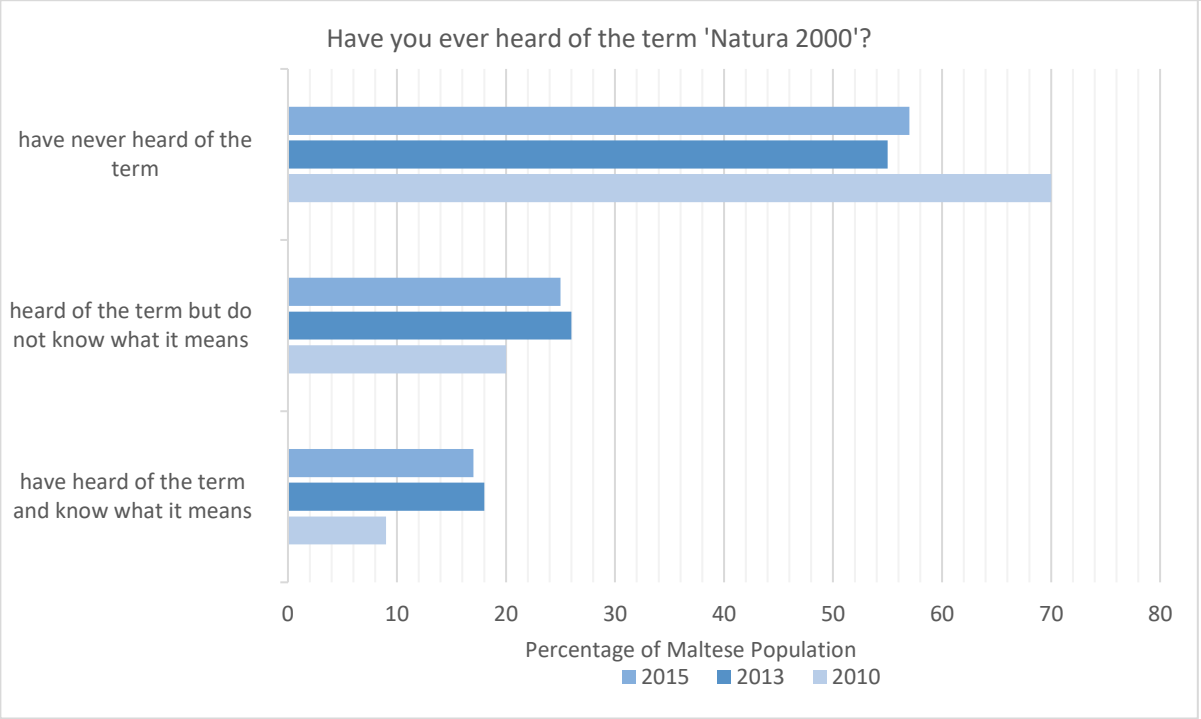


Figure 8.20: Awareness on the term 'Natura 2000 network' in Malta, according to the Special Eurobarometer 436 – Attitudes of Europeans Towards Biodiversity[56]



[56] The survey results are estimations, the accuracy of which, everything being equal, rests upon the sample size and upon the observed percentage. The statistical margins due to the sampling process (at the 95% level of confidence) vary as indicated in the Technical Specification (TS2) of the report by the European Commission (EC 2015b; EC 2015a).

Furthermore, in this report, 30 % of the Maltese replied that the decline and possible extinction of animal and plant species, natural habitats and ecosystems is a serious problem in the area where they lived (this being the highest response together with Greece). Malta resulted to be also one of the Member States whose respondents were most likely (68 %) to consider that the decline and disappearance of animal and plant species to be a serious issue (second highest with Bulgaria).

Of concern is that 11 % of Maltese respondents consider that economic development resulting in the damage or destruction of nature in protected areas such as Natura 2000 sites would be acceptable because economic development would take precedence (which is the second highest response together with Ireland). Notwithstanding this, Malta was one of the Member States whose respondents (57 %) were most likely to say that the conversion of natural areas to other land use very much threatened biodiversity. Malta was also one of four Member States where at least half of the respondents consider that the negative economic impacts of biodiversity degradation, such as the loss of income from nature-oriented tourism or fisheries, was a serious issue.

75 % of Maltese respondents said that nature protected areas are very important for promoting nature-friendly land use (this is the second highest response). Malta also scores highly on the number of respondents (60 %) who consider that a very important role for nature protection areas is stimulating local social-economic development.

During the period under assessment there was also an increasing interest in citizen science initiatives via the direct participation of the general public. These are recognised as an effective means of not only addressing the requirement for data generation over a large scale but also as a way of increasing the public's appreciation of elements in terms of biodiversity. Such outreach is also necessary for the understanding and valuing of the importance of biodiversity. One can mention that as part of the afore-mentioned MEDPAN North Project, the voluntary participation of divers was pivotal in collecting data on targeted marine invasive species in Malta's five marine protected areas. The citizen science approach is also adopted in the *Spot the Jellyfish* initiative under the framework of IOI-Kids.[57] This initiative engages children, parents and teachers in recording the sightings of species of jellyfish in the coastal waters around the Maltese Islands during the summer period. Apart from contributing towards awareness, the data obtained via this initiative also supports the monitoring by local marine biologists.

8.9 Conclusion

This chapter has provided information on the results of Malta's second assessment of the conservation status of habitats and species of Community Importance, as well as the pressures and threats that these face. The conservation status of those habitats and species of Community Importance, as assessed in 2013, has generally remained unchanged or improved when compared to the 2007 assessment, in line with the EC Habitats Directive. Changes are normally due to improved knowledge, and seldom in view of genuine changes. Nevertheless, it reveals the need to focus more attention on certain aspects, especially when considering the marine environment. In terms of assessing the status and trend of birds in line with the EC Birds Directive, the majority of the analysed birds have undergone a population increase, both during the short and long-term interim. Whilst a number of increases are

[57] IOI 2011.

due to the recent colonisation of new species, some of the increases are not necessarily due to genuine population changes but may only be the consequence of an improved sampling effort/diversification in method. Improvement in this regard should not only be addressed through addressing knowledge gaps, but also through the increase in effective and timely conservation actions, as well as the increase in the strengthening of coordination and cooperation between relevant entities to continue curbing illegalities. Needless to say, this explains the increasing need to adopt a comprehensive monitoring strategy that addresses target species of EU Community Importance and also species of national importance.

This chapter has also provided updates with regard to the legislative and other policy instruments, whilst acknowledging that policy implementation on the ground needs to be improved. Examples of such implementation would be addressing management measures within Natura 2000 sites and the issues related to invasive alien species. Progress by Malta is acknowledged in strengthening its national ecological network of protected areas. In the latter case, various EU funded projects have been initiated that cover either protected area management aspects and/or deal with data generation to assist in the identification of additional protected areas in the marine environment.

Another milestone that has been achieved is the adoption by government of the first comprehensive strategic framework for safeguarding the biodiversity of the Maltese Islands. The National Biodiversity Strategy and Action Plan (NBSAP) covers the period 2012 to 2020. It sets out the country's commitments towards the conservation of biodiversity by defining 19 national targets to be achieved by 2020. These are accompanied by strategic directions and are seen as pre-requisites for achieving these targets as well as other outcome-oriented measures grouped by thematic area. The targets address biodiversity awareness with a view to and to recognise its value, positive incentives, biodiversity mainstreaming, habitat loss, overexploitation and sustainability, pollution, invasive alien species, protected areas, species protection, ecosystem restoration, climate change mitigation and adaptation, access to genetic resources and benefit sharing, participatory conservation, improving knowledge, and enhancing capacity.

The NBSAP development process does not however stop with adoption. The implementation phase is crucial, during which the collaboration of all relevant stakeholders is of essence in order to translate the NBSAP measures into action. Through its implementation, the NBSAP will help to mainstream efforts to set Malta on the right track to improve the status of its biodiversity and associated ecosystem services and to strengthen the integration of biodiversity concerns across relevant sectors. However, in order to achieve successful mainstreaming, the value of biodiversity and associated ecosystem services needs to be well recognised.

Taking stock of the outcomes of the first review of the NBSAP as reported through Malta's Fifth National Report to the CBD and building on the lessons learnt through this assessment, Malta should sustain its efforts towards maintaining the levels of implementation and focus further on those policy areas which require further review and consideration.

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