



Natura 2000 Seminars

Mediterranean Biogeographical Region

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1 Introduction

This document forms the basic reference for the Mediterranean Natura 2000 Kick off Seminar that will take place in Thessaloniki from 26 to 28 May 2014. It presents, in a digested form, the contributions from habitat management experts from the nine Mediterranean EU Member States. These were identified by the members of the Mediterranean Steering Committee that met three times prior to the Kick off Seminar to select habitats for priority consideration within this Process. This first hand expert knowledge has been complemented with information presented in published sources, in particular, habitat related guidance and publications published by the national authorities and the EC.

The introduction of this document provides an outline of the Natura 2000 Biogeographical Process, its purpose and objectives, along with main stages and milestones. Also, it places the Natura 2000 Biogeographical Process in the wider context of delivering the EU 2020 Biodiversity Strategy.

The primary purpose of the Process is to provide an added value, practical means to ensure progress towards achievement of the favourable conservation status (FCS) of habitats and species of European Community importance in the Mediterranean region. By focussing on common priorities and shared interests identified by experts as being important to improve habitat management, the objective of the Seminar is to help Mediterranean Member States and expert stakeholders to identify and agree a number of collaborative, concrete actions that can be followed-up to address the main common priorities and shared issues identified.

The core of this document presents a summary account for the four habitat groups for priority consideration. Each habitat group chapter focuses on practical management issues, challenges and the scope for collaborative solutions. Each habitat group account is illustrated with a number of LIFE+ projects, a core delivery mechanism enabling adequate management of the habitats highly relevant to the Natura 2000 Biogeographical Process.

2 The Natura 2000 Biogeographical Process

2.1 Introduction

The Natura 2000 Biogeographical Process was launched by the European Commission in 2011 to assist Member States in managing Natura 2000 as a coherent ecological network. The Process provides practical means to exchange the information, experience and knowledge that is required to identify and define common solutions and develop cooperative actions, which can be delivered to ensure progress towards the EU 2020 Biodiversity targets.

Clearly, as responsibility for implementation of Natura 2000 and ensuring progress towards the EU's Biodiversity Strategy targets lies with Member States, they are key actors in the Natura 2000 Biogeographical Process. Also, there are significant opportunities through the Process to improve mobilisation of expert networks and inputs from other key stakeholders. This is important to benefit from the direct experience of Natura 2000 practitioners, expert stakeholders and Member States' representatives with specific responsibilities for implementation of Natura 2000. This underlines the strategic and operational importance of the Process and the integrated inputs required from diverse actors.

2.2 Core messages of the Natura 2000 Biogeographical Process

The following points highlight key features of the Natura 2000 Biogeographical Process:

- Participation in the Natura 2000 Biogeographical Process is voluntary;
- The Process provides a valuable means to work collectively towards achieving the legal obligations of the Nature Directives;
- The Process offers a practical framework for networking, sharing information and experience and building knowledge about the most effective ways to reach and maintain favourable status for habitats and species of European Community importance - this includes opportunities to identify and promote the multiple benefits linked to such actions;
- The Process focuses on practical habitat management and restoration activities and provides a framework to share best practices, compare approaches, build contacts, exchange information and build new knowledge;
- The Process is supported by follow-up networking events designed to further build practical knowledge and capacity, along with a dedicated Natura 2000 Platform to communicate and share information.

The primary aims and objectives of the Natura 2000 Biogeographical Process are:

- To improve and strengthen implementation of Natura 2000 and ensure progress towards the EU 2020 Biodiversity Strategy targets;

- To strengthen common understanding of what it means in practice to achieve favourable conservation status for habitat types and species subject to protection in Natura 2000¹;
- To take agreed priority management actions designed to improve or maintain favourable conservation status for those habitats and species within Member States' territories;
- To develop new management insights, cooperation between Member States, stakeholder organisations, environmental NGOs and specialist networks that can lead to new 'know-how' to support the achievement of FCS;
- To strengthen recognition and action for management of Natura 2000 that also contributes to socio-economic objectives, through the multiple benefits that derive from such action.

As a dynamic and continuing process, Member States and their representatives are supported by the team of contractors and other actors working for and through the Natura 2000 Biogeographical Process.

2.3 The Natura 2000 Biogeographical Process' contribution to the EU 2020 Biodiversity Strategy

The Natura 2000 Biogeographical Process is a vital means to help the European Commission, Member States and all other expert stakeholders in nature conservation to ensure progress to delivering the EU 2020 Biodiversity Strategy. As a reminder, the headline target is:

“Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.”

At the same time, ways to strengthen implementation of Natura 2000 through the Birds and Habitats Directives is the core subject of Target 1 of the Strategy:

“To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.”

However, ensuring progress towards implementation of Natura 2000 should also be considered in the wider EU agenda, in particular the following strategic objectives:

¹ There will be a need to examine ways of improving coherence with outcomes of work on assessing favourable conservation status through monitoring and reporting under Article 17, especially with regard to eventually determining how best to build a common understanding of what needs to be achieved for different habitats and species to reach FCS.

- **A more resource efficient economy:** The EU's ecological footprint is currently double its biological capacity. By conserving and enhancing its natural resource base and using its resources sustainably, the EU can improve the resource efficiency of its economy and reduce its dependence on natural resources from outside Europe;
- **A more climate-resilient, low-carbon economy:** Ecosystem-based approaches to climate change mitigation and adaptation can offer cost-effective alternatives to technological solutions, while delivering multiple benefits beyond biodiversity conservation;
- **A leader in research and innovation:** Progress in many applied sciences depends on the long-term availability and diversity of natural assets. Genetic diversity, for example, is a main source of innovation for the medical and cosmetics industries, while the innovation potential of ecosystem restoration and green infrastructure is largely untapped;
- **New skills, jobs and business opportunities:** Nature-based innovation, and action to restore ecosystems and conserve biodiversity, can create new skills, jobs and business opportunities. The TEEB (The Economics of Ecosystems and Biodiversity) study estimates that global business opportunities from investing in biodiversity could be worth US\$ 2-6 trillion by 2050.

In the same way, synergies should be sought with the other five targets of the EU Biodiversity Strategy, these are:

- **Target 2:** By 2020, ecosystems and their services are maintained and enhanced by establishing **green infrastructure** and **restoring** at least 15% of degraded ecosystems;
- **Target 3 A) Agriculture:** By 2020, maximise areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement² in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU 2010 Baseline, thus contributing to enhance sustainable management;
- **Target 3 B) Forests:** By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size³ that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline;
- **Target 4 Fisheries:** Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock, through fisheries management with no significant adverse impacts on other stocks, species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive;

² For both targets, improvement is to be measured against the quantified enhancement targets for the conservation status of species and habitats of EU interest in Target 1 and the restoration of degraded ecosystems under Target 2.

³ For smaller forest holdings, Member States may provide additional incentives to encourage the adoption of Management Plans or equivalent instruments that are in line with SFM (to be defined by the Member States or regions and communicated in their Rural Development Programmes).

- **Target 5:** By 2020, **Invasive Alien Species** and their pathways are identified and prioritised, priority species are controlled or eradicated and pathways are managed to prevent the introduction and establishment of new IAS;
- **Target 6:** By 2020, the EU has stepped up its contribution to **averting global biodiversity loss**.

Therefore, through the Natura 2000 Biogeographical Process, there are vital opportunities available for all stakeholders to contribute to this wider agenda. Joint actions developed in the context of the Process create new scope to generate greater synergies, realise shared benefits and establish new ways to demonstrate the integral value of Natura 2000 to reaching societal goals and conservation objectives.

3 The Mediterranean Natura 2000 Biogeographical Process

The added value of the Natura 2000 Biogeographical process is to enable stakeholders to work together to develop practical management actions on the common issues and shared priorities they identify. As a continuing learning process, stakeholders can work together to seek answers for the following critical questions:

- What problems and issues are experienced and which are the common priorities?
- What information and practical experience is present and can be shared?
- What are the possible solutions and what can we do together to address these?
- What actions can we agree to commit to and work on together?

Therefore, the Mediterranean Process brings representatives from Member States, nature conservation organisations, NGOs and expert stakeholder networks together to discuss real problems linked to areas of shared priority. The networking events offer a practical means to develop collaborative thinking, scope opportunities for joint working and focus attention on nature management matters of shared concern and priority, as that is required to build knowledge about ways to improve the conservation status of habitats and species of Community interest and achieve progress for the EU 2020 Biodiversity Strategy targets.

The Mediterranean Kick off Seminar is a key milestone in a continuing process to identify the main threats and pressures on Mediterranean habitats, develop practical solutions for common habitat management priorities and propose possible scope for precise cooperative actions. The Seminar is intended to be the catalyst for a continuing series of practical and feasible actions that will emerge from it. As such, it represents the starting point for a series of successful cooperative follow-up actions to be developed between stakeholders in Mediterranean countries. These actions should focus on the management and conservation of the habitats and species for priority consideration identified through the Process.

The Steering Committee of the Mediterranean Process is composed of representatives of the 9 Member States (France, Croatia, Cyprus, Greece, Italy, Malta, Portugal, Spain and the United

Kingdom (Gibraltar) and the European Environmental Agency (EEA), the European Topic Centre on Biological Diversity (ETC/BD), the European Habitats Forum, the Natura 2000 Users Platform and the European Commission. Based on the pre-scoping document and the discussions of the Steering Committee, four focus habitat groups were selected: coastal, grassland, forest, and freshwater and wetlands. For the Mediterranean Process, a number of species have also been identified.

3.1 Issues and solutions in the Mediterranean

The Mediterranean biogeographical region and the Mediterranean Sea⁴ constitute a frontier zone between Europe, Asia and Africa in terms of climate (warm, with hot summers and mild winters) and species. There are many complex issues facing nature conservation in the Mediterranean. The main pressure⁵ is currently the ongoing urbanisation, which includes areas of human habitation as well as industrial and commercial areas and other structures or buildings in the landscape. Urban development affects all habitats, but more specifically coastal areas, humid grasslands and areas near large cities, whilst rural areas are increasingly being depopulated and abandoned.

Another significant conservation pressure is the modification of the hydrological systems, which is linked with the development of the urban network but can also occur in less populated areas. Arid and desert conditions are already increasing, and water will become scarcer. Soil organic matter content is low in and the erosion risk is great in most areas.

Invasive species that modify the structure of habitats create an issue for the native species. The number of indigenous species is still the highest in Europe, the wider Mediterranean area being one of the two hotspots for biodiversity in Europe. There is also a high number of endemic species, as well as wild ancestors to cultivated plants. Although forest cover is only around 25%, trees are a dominant feature in the landscape, including orchards and olive groves. Oaks are important, because natural old forests are scarce. Sclerophyllous (evergreen) trees, shrubs and dwarf shrubs are characteristic of the region, and many have aromatic oil contents. Some large mammals are not threatened with extinction: wolf and wildcat populations have even spread in recent years. However, the Iberian lynx is close to extinction. Some of Europe's most important wetlands for birds migrating between Europe and Africa are found in Eastern and Western parts.

Tourism is a pressure, not only because of the development of new infrastructures, but also because of the sheer impact of visitor traffic on many habitats. More than 35% of the tourist visits in Europe take place in the region, exerting heavy pressure on land and coasts, water and natural resources.

⁴ Note that marine Natura 2000 sites are to be addressed as part of a dedicated Marine Natura 2000 Biogeographical Process.

⁵ Source: EEA (2003) Europe's biodiversity – biogeographical regions and seas. Biogeographical regions in Europe

A less frequent but still important issue is the pollution of surface waters, which may be of industrial origin or agricultural origin (for example, through over fertilisation). Former widespread dry grasslands and traditional agro-forestry with dehesa and montados are decreasing, the areas being used for intensive agriculture or abandoned to scrub formation. Intensive agriculture, growing vegetables and the large citrus orchards require intensive irrigation. Agriculture also has an impact through grazing and the use of biocides, hormones and chemicals.

The cultivation of new land and conversion of salt swamps into freshwater swamps for hunters' needs is less frequent but can also have an important effect. There are few lakes and bogs and the area covered by mires has decreased. Other important but notable pressures include mining and livestock farming. Specific management challenges are associated with natural phenomena, in particular pressures arising from climate change: drought and desertification are serious threats, as well as fires and managing the risk of fire, and also the impacts of severe flooding.

Many pressures arise from social and planning contexts within and around Natura 2000 sites. Often, site managers have to engage with multiple stakeholders, for example to manage the impacts of urbanisation, proposed infrastructure developments and large-scale agricultural projects. It is increasingly important that the general public, tourists, project developers, farmers and politicians are informed about the issues and positively engaged in the management of Natura 2000 sites, especially to prioritise the preservation and maintenance of habitats. At local levels, some work has been successful, for example, working with farmers to improve their practices, removing invasive species and regulation of visitor traffic. Significant priority requires to be attached to communication, public awareness campaigns and environmental education, which can lead to the development and implementation of integrated nature legislation and governance structures. Increasingly, habitat focused and specific site-based actions can be usefully generated through community-based initiatives.

Barriers to tackling the issues include and arise from inadequate access to financial resources, poor legal and policy frameworks, weak stakeholder engagement practices and collaborative structures, and also a lack of knowledge and skills. The tendency to prioritise economic gain over nature conservation contributes to significant tensions and negative impacts, which also makes it more difficult to attract funding for nature conservation. There is a lack of knowledge of theoretical issues, such as what a habitat conservation status actually means and what a habitat needs to continue to exist. In many cases, there is also a lack of knowledge about practical nature conservation management techniques and approaches and, therefore, significant opportunities to work together and share information through networking to achieve more for nature.

3.2 Habitats selected in the Mediterranean Biogeographical Process

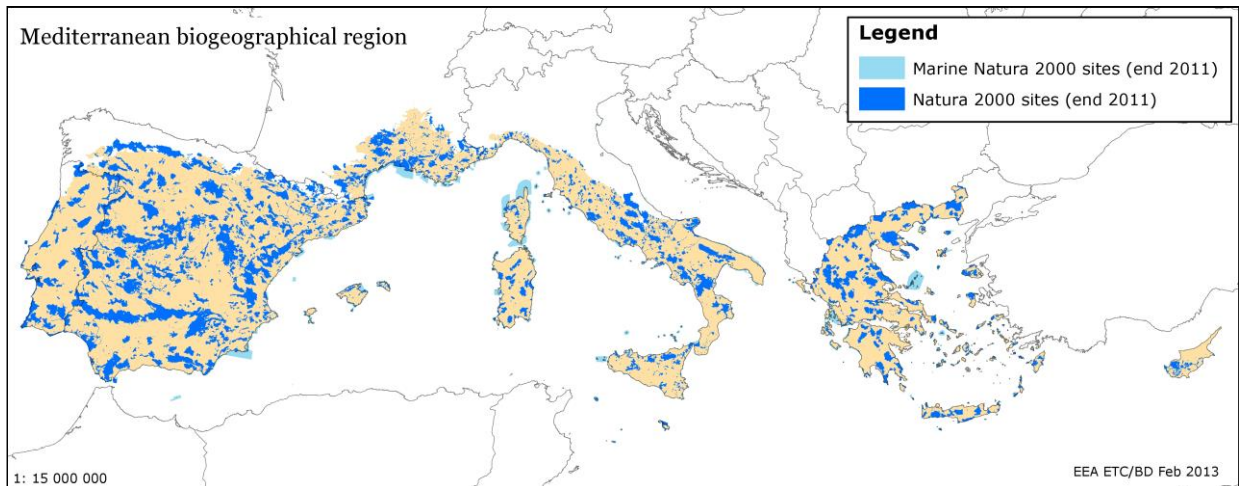
The habitat types are presented in ascending order of their Natura 2000 code as introduced in Annex I of the EC Habitats Directive. The colour codes refer to the habitat groups to which they belong: coastal (yellow), grassland (light green), forest (dark green), and freshwater & wetlands (blue).

Table 1: Selected habitats in the four habitat groups

CODE	HABITAT NAME
1120	Posidonia beds (<i>Posidonium oceanicae</i>)
1110	Sandbanks which are slightly covered by sea water all the time
1150	Coastal lagoons
1170	Reefs
1310	<i>Salicornia</i> and other annuals colonising mud and sand
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)
2110	Embryonic shifting dunes
2230	<i>Malcolmietalia</i> dune grasslands
2250	Coastal dunes with <i>Juniperus spp.</i>
5330	Thermo-Mediterranean and pre-desert scrub
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites)
6220	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea
6310	Dehesas with evergreen <i>Quercus spp.</i>
9260	<i>Castanea sativa</i> woods
9320	<i>Olea</i> and <i>Ceratonia</i> forests
9330	<i>Quercus suber</i> forests
9340	<i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests
9540	Mediterranean pine forests with endemic Mesogean pines
3170	Mediterranean temporary ponds
3290	Intermittently flowing Mediterranean rivers of the <i>Paspalo-Agrostidion</i>
92D0	Southern riparian galleries and thickets (<i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i>)

CODE	HABITAT NAME
92A0	<i>Salix alba</i> and <i>Populus alba</i> galleries

Map 1: Natura 2000 sites across the Mediterranean region



Note that the map shows the situation before Croatia joined the EU. The map shows all Mediterranean terrestrial sites and marine Mediterranean sites, except sites in Northern Adriatic. Marine sites in the Spanish and Portuguese Marine Atlantic are not shown either.

For further information on the Mediterranean region, please see:

- European Commission (2005) *Natura 2000 in the Mediterranean region* (characteristics of the region, number of Annex I habitat types and Annex II species compared to other biogeographical regions)⁶
- EEA (2003) *Europe's biodiversity – biogeographical regions and seas*. Biogeographical regions in Europe. The Mediterranean region – long influence from cultivation, high pressure from tourists, species rich, warm and drying.⁷

3.3 The Mediterranean Pre-Scoping Document

The Mediterranean Pre-scoping Document was produced to serve the discussion and planning of the Seminar for the Mediterranean region. The document was created to:

⁶ <http://ec.europa.eu/environment/nature/info/pubs/docs/biogeos/Mediterranean.pdf>

⁷ http://www.eea.europa.eu/publications/report_2002_0524_154909

- Identify and prioritise key issues in relation to establishing FCS for the identified four habitat groups and the habitat types and species within them;
- Discuss and prioritise potential solutions to those issues;
- Identify possible actions and consider what kind of concrete actions could be envisaged to accommodate key associated species.

Table 2: Chairpersons and facilitators of the four habitat groups

<i>HABITAT GROUP</i>	<i>Lead MS / CHAIR</i>	<i>Seminar support by the contractor</i>
Coastal	Ms Zrinka Jakl , Association for Nature, Environment and Sustainable Development Sunce, Croatia	Bernie Fleming (Fleming Ecology)
Freshwater & wetlands	Ms Stella Varelzidou , Management Authority of Axios - Loudias - Aliakmon Delta, Greece	Mark Snethlage (ECNC)
Grasslands	Dr Panayiotis Dimopoulos , University of Patras - Department of Environmental and Natural Resources Management, Greece	Hans van Gossum (ARCADIS)
Forests	Mr Constantinos Papisavvas , Cyprus Forest Association, Cyprus	Johan Lammerant (ARCADIS)

In addition, a number of species had already been identified in the Background Document⁸ for discussion.

⁸ Available for consultation on the Natura 2000 Communication Platform

3.4 The Next Steps in a Continuing Process

The purpose of the Kick off Seminar and its expected outcomes are to discuss the issues reported and highlighted in this document, as well as others identified and agreed during the Seminar as being of common priority, and to formulate preliminary concrete ideas for collaborative actions that address practical habitat management priorities. Also, there is scope to make specific recommendations about how to take these actions forward as part of the preliminary planning for necessary follow-up activities through the Natura 2000 Biogeographical Process.

Where possible, the recommendations and conclusions that are identified during the Mediterranean Kick off Seminar should confirm essential commitments to take agreed common priority actions forward – for example, this may include being willing to host a future workshop or ad hoc meeting in the coming months or years; also, it can include being willing to share available information, guidance or write up best practices in the form of case studies for upload to the Natura 2000 Platform. Therefore, the Seminar should seek to define clear timetables for the collaborative actions, agreeing a division of roles and responsibilities and, where possible, a willing lead within the region.

The following sections provide summaries for the four habitat groups. Each section is consistently structured. In particular, the sub-sections on “solutions” and “opportunities for joint action” (one for each habitat group) deserve particular attention, as these will be the focus of discussions during the Seminar.

As a reminder, as far as possible, the aim of our work during the Kick off Seminar is to identify practical actions of common priority and shared interest, which can be agreed for implementation in the future and specified in terms of resource inputs, roles, responsibilities and planning. The objective is not necessarily to go in to all details for the planned and agreed actions, but rather to confirm as a minimum the ‘what’, ‘when’, ‘who’ and ‘how’ of the actions. As part of the Natura 2000 Biogeographical Process, Member States and other organisations present should seek to develop consensus and cooperative commitments about how to bring (a selection of) these actions to fruition in the near future. The contract team and facilitators will work with you during the Seminar and in the subsequent months to facilitate and support this continuing process.

4 Habitat group accounts

The information presented in this section is a summary of the contributions of experts selected by the members of the Mediterranean Steering Committee. The experts have submitted detailed information about the ecology, threats and pressures and management solutions of the selected habitats. This expert information was completed with a review of selected published sources that are reported in the reference lists. Table 3 shows the number of experts per country that contributed to the habitat group descriptions included in this report.

Table 3: Number of experts per country that contributed to the four habitat group accounts (NB: some experts provided contributions for more than one habitat group)

	Coastal	Grasslands	Freshwater & wetlands	Forests	Total
Croatia		1			1
France	1				1
Greece	6	1	7	6	20
Italy	4	1	3		8
Portugal		1			1
Spain		4	1	3	8
United Kingdom	1				1
Total	12	8	11	9	40

4.1 Mediterranean coastal habitats

4.1.1 Summary description

Coastal habitats of the Mediterranean biogeographical region represent a transitional zone between Europe, Asia, Africa and the Atlantic. Highly varied (and variable) physical conditions ensure that the coastline and coastal waters support an incredibly diverse fauna and flora (including numerous endemics) in a dazzling array of habitats and communities. Hard, rocky coastlines with cliff, cave and reef communities can be found alongside sandy beaches, lagoons, estuaries and deltas. Littoral habitats extend into typically clear, highly saline, micro-tidal, oligotrophic waters which support characteristic reef and seagrass communities. Just inland, where space allows, a range of dry, halophytic, grassland and scrub habitats can develop.

Of the 85 coastal and marine habitats identified in the reference list for the Mediterranean biogeographical region, 10 were selected: three sublittoral habitats, four littoral and three found above the high-water mark. In terms of this exercise, these represent the most fragile, threatened habitats of the Mediterranean coastal zone and range from the endemic to the widespread and extensive.

The three sublittoral habitats selected were: 'Sandbanks which are slightly covered by sea water all the time' (1110), *Posidonia* beds (1120) and Reefs (1170).

Sandbanks comprise extensive mounds of sandy sediments in shallow coastal waters. They are dynamic, changing in size and shape according to sediment type, tides and currents which along with temperature and salinity, influence the composition and abundance of the plant and animal communities present. Where conditions are suitable they can support beds of *Posidonia*, *Zostera*, and coralline algae whereas animal communities are typically dominated by burrowing worms, crustaceans and molluscs.

Sandbanks are often found in association with mudflats and sandflats not covered by sea water at low tide (1140), *Posidonia* beds (1120) and reefs (1170) and often form integral components of estuaries (1130) and large shallow inlets and bays (1160). Sandbanks are relatively widespread throughout the Mediterranean but although they are found in favourable conservation status in Cyprus, Malta and Slovenia, these states support only the smallest examples of this habitat (Table 6, see Annex 2 starting page 82). The most extensive are found in Spain, France and to a lesser degree in Italy where they remain unfavourable, despite a slight improvement in France. Greece was unable to provide values in both reporting rounds, and the lack of reporting in 2006 casts doubt on the identification of any trend in the condition of this habitat.

Posidonia beds (*Posidonion oceanicae*) (1120) are endemic to the Mediterranean Sea and where conditions are suitable, can form extensive lawns in waters down to over 40m. *P. oceanica* is slow-growing, but long-lived and productive, spreading via an extensive rhizome system. It is also widespread, covering 1-2% of the sea floor. Established beds can be thousands of years old and support a highly diverse community of micro- and macro-algae, bryozoa and hydroids. Within the sediment, the foraminifer *Miniacina miniaceae* and large fan mussel *Pinna nobilis* are found only in healthy beds. Crustacea and molluscs represent the most abundant components of the fauna, which also includes the Green turtle *Chelonia mydas*. The growth of epiphytic and filamentous algae is a negative feature.

Posidonia beds provide a range of valuable functions and services. They encourage sedimentation, stabilise sediments, sequester carbon and represent important nursery areas for a range of fish species. *Posidonia* beds thrive in marine or near-marine conditions and though able to tolerate large variations in temperature and water movement, require clear, nutrient-poor waters. There are also strong functional links between *Posidonia* beds and other seagrass communities, sand dunes, saltmarshes and maerl beds.

Overall, conservation status appears to have improved since 2006 (Table 10, see Annex 3, starting on page 85). Although Spain was unable to report then, all other Member States have either recorded no change (unfavourable – inadequate) or improved to favourable (Cyprus and Slovenia), a status already achieved by Malta. Although welcome news, the latter states host the smallest areas of this habitat. Conversely, it is suggested elsewhere that *Posidonia* beds are declining in extent 5% per year, making them one of the most threatened marine ecosystems on the planet.

Reefs (1170) are rocky or biological structures that rise from the seabed. They are usually found below sea level but may extend as an unbroken transition onto the exposed shore to present a characteristic zonation of plant and animal communities. Rocky reefs are the most common and support communities of algae, invertebrates, fish and crustaceans. These vary with depth, light, geology, topography and exposure to air, waves and currents. Shallow reefs are more likely to be dominated by seaweeds, whereas deeper reefs will be dominated by animals like sponges, corals and sea-squirts. Biogenic reefs, created by dense populations of reef-building animal growing on and over one another (e.g. *Sabellaria*), are affected by the same variables, but are far less common. Reefs are often found in association with vegetated sea cliffs (1230, 1240 and 1250) and sea caves (8830), and frequently form a component of estuaries (1130) and large shallow inlets and bays (1160). They can provide important nursery areas for fish and are an important recreational resource. In some states there has been an improvement in conservation status since 2006. Cyprus, France and Malta now join Italy in being able to record favourable status. However, this is countered by the lack of data from Slovenia, Greece and especially Spain (as the latter hosts the vast majority of this habitat).

The four littoral habitats that were selected are: Coastal lagoons (1150), *Salicornia* and other annuals colonising mud and sand (1310), Mediterranean salt meadows (*Juncetalia maritimi*) (1410) and Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) (1420).

Coastal lagoons (1150) are areas of shallow water with highly variable salinity which are wholly or partially separated from the sea by a barrier. They may be natural or man-made but are often ephemeral. Several types of lagoon have been identified, based on the type of barrier and the degree of isolation from the adjacent sea or estuary. Plant and animal communities vary considerably depending on the type and salinity and a range of common species are often found. However, environmental conditions in lagoons are highly variable and can be affected by tidal incursion, rainfall, sedimentation and vegetation encroachment. This variability causes severe environmental stress and the presence of a number of highly restricted species. Coastal lagoons are scarce and have a restricted distribution around the European coastline. Conservation status also varies considerably although, overall, it remains a cause for concern. In 2006, three states, Greece, France and Portugal, only achieved unfavourable – bad status, with neither Italy nor Spain able to report. Since then, there has been no apparent change in Greece, France and Portugal; Malta and Spain remained unfavourable – inadequate. Italy is the only state able to report favourable status. Whilst uncertainty remains about the extent and condition of threats across the Mediterranean, and poor condition dominates the known resource, this habitat remains a source of

considerable concern especially given the high amount of habitat ‘protected’ by the Natura 2000 network.

Salicornia and other annuals colonising mud and sand (1310). This pioneer saltmarsh vegetation colonises intertidal mud and sand flats in places protected from strong wave action. The habitat varies little and comprises a limited number of highly specialised plants. All are strongly halophytic and most are annuals, able to rapidly colonise large areas of foreshore when conditions allow i.e. by the presence of fine sediments and sheltered waters, with both regular and prolonged tidal inundation. It is often the precursor to more established saltmarshes and as such has the potential to stabilise mobile sediments, providing a range of ecosystem services, but it can be ephemeral or long-lasting. The conservation status of this habitat is poor and has changed little since 2006, with positive progress only achieved in Malta. Favourable status has been maintained in Cyprus but elsewhere it is unrecorded or unfavourable – inadequate (in Italy, Malta and Portugal) or bad (in Greece and France – where it has actually declined). It remains a habitat under severe threat.

Mediterranean salt meadows (*Juncetalia maritimi*) (1410) occupy the upper zone of saltmarshes and form a transition with drier, terrestrial habitats. They are widespread but localised and characterised by the presence of rushes such as *Juncus maritimus* and/or *J. acutus* frequently found with sedges and clover along with numerous annuals. Conservation status varies throughout the Mediterranean. Portugal has maintained favourable status, now matched by progress in Cyprus. At the other end of the scale, ‘unfavourable – bad’ status remains in Greece but has now been joined by France; Spain has not reported in either round. Serious concerns remain about the prospects for this habitat.

Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) (1420) are usually restricted to the upper levels of saltmarshes on saline muds, often where there is a transition to dunes or shingle. This habitat is inundated only infrequently but is regularly subjected to wave-splash and sea-spray. Species composition can vary but is typically dominated by scrub and other perennial vegetation e.g. *Salicornia*, *Limonium vulgare*, *Suaeda* and *Atriplex* communities. Conservation status varies between states and over time presenting a full range of outcomes and trends. Spain has failed to report in either round and although progress has been achieved in Cyprus and Malta, decline is evident in France (which holds the greatest area) and Greece remains unfavourable – bad. This uncommon and restricted habitat must be regarded as under threat.

The three habitat types found above the high-water mark which were selected are: Embryonic shifting dunes (2110), *Malcolmietalia* dune grasslands (2230) and Coastal dunes with *Juniperus* spp. (2250).

Embryonic shifting dunes (2110) have a limited species composition, dominated by a restricted range of sand-binding perennial grasses, typically *Agropyron junceiforme* and *Leymus arenarius* and a small number of halophytic, annual plants e.g. *Honkenya peploides*, and *Eryngium maritimum*. It is a dynamic habitat maintained only by constant change and often varies in extent and species composition from year to year. Shifting dunes represent the first stages of dune construction first identified by characteristic ripples on the upper beach at the foot of the tall dunes. Where sand supply is abundant, the community can grow and persist, reducing tidal inundation and becoming dominated by grasses before developing into ‘white dunes’. The presence of embryonic dunes as part of a sequence of dune habitats is indicative of a healthy, active and functioning sand system but although widely distributed in the Mediterranean, good examples are fragmented and limited in extent. Conservation status for this

fragile habitat is a cause for concern and there is no evidence of any positive trend. Overall, three states (Spain, France and Italy) report 'unfavourable – bad' status and three states (Greece, Malta and Portugal) report 'unfavourable – inadequate'. Only Cyprus reports favourable condition although it supports the smallest extent of this habitat.

Malcolmietalia dune grasslands (2230) are found on deep sand in dry, inter-dunal depressions along the Mediterranean coastline. The habitat typically comprises numerous, small annuals e.g. with *Malcolmia lacera*, *Malcolmia ramosissima*, *Evax astericiflora*, *Evax lusitanica*, *Anthyllis hamosa*, *Linaria pedunculata*, providing a characteristic, often abundant, spring bloom. It has a fragmented but widespread distribution throughout the Mediterranean, restricted to specific circumstances in existing dune systems where its presence can be a positive indicator of a functional system. It is, however, extremely fragile and only the tiny fragment of this habitat in Cyprus is in favourable conservation status. Everywhere else it is unfavourable. Whilst this represents little change from 2006, the poor status of this fragile habitat, allied with its small area and restricted distribution is worrying.

Coastal dunes with *Juniperus* spp. (2250) are found throughout the (Atlantic and) western Mediterranean coastlines, but their distribution is very fragmented and restricted to healthy, functioning, dune systems. This habitat typically comprises a range of communities from scattered individuals to small, discrete stands of a range of *Juniperus* species intimately mixed with fixed dunes, dune grassland and dune heath. Characteristic species include *Juniperus oxycedrus* and *J. phoenicea* (including their sub-species), and *J. navicularis*. Spain and Italy were unable to report in 2006, but today the status of this rare and fragile habitat is bad and declining, despite the fact that the vast majority of examples are found in Natura 2000 sites. Pragmatic measures are required urgently to reverse this trend.

According to the ETC/BD calculations based on the latest version of the Natura 2000 database (version 2012), as summarised in the Mediterranean Pre-scoping Document, at least half of the area of each habitat type is found within the SCI network although the lowest figures are consistently found in the marine environment (Table 4).

Table 4 The percentage cover of selected habitats within the SCI network

Code	Habitat	% area in SCI
1110	Sandbanks which are slightly covered by sea water all the time	52%
1120	<i>Posidonia</i> beds (<i>Posidonium oceanicae</i>)	56%
1170	Reefs	59%
1150	Coastal lagoons	89%
1310	<i>Salicornia</i> and other annuals colonising mud and sand	80%
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	78%
1420	Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	77%
2110	Embryonic shifting dunes	79%
2230	<i>Malcolmietalia</i> dune grasslands	81%
2250	Coastal dunes with <i>Juniperus</i> spp.	77%

This means that the Natura 2000 network provides an important framework for the management of this habitat type. The number of SCIs and the habitat area (ha) within SCIs for each Member State are

presented in Figure 1, Table 4 and Table 6. The habitat area was calculated slightly differently compared to the calculations for the Natura 2000 coverage, thus the habitat area in hectares given in Table 6 should be considered as a minimum.

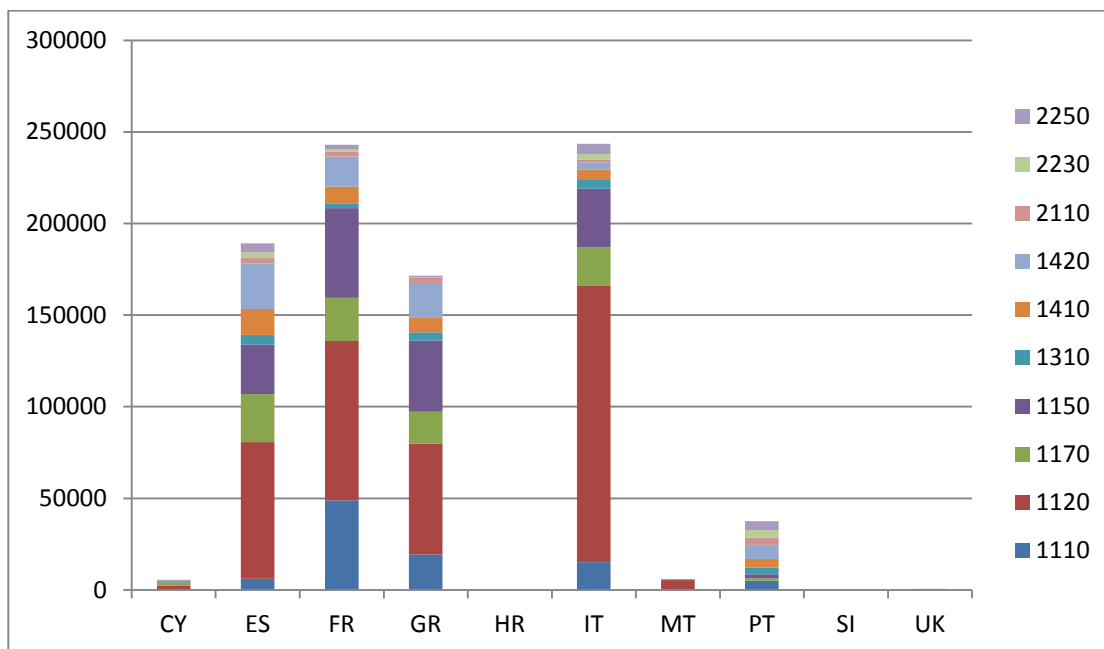


Figure 1 Area of selected coastal habitats (ha) within SCIs for each Member State in the Mediterranean biogeographical region

4.1.2 Conservation status and trends

For each of the 10 selected habitats, Table 10 (see Annex 3, starting on page 85) provides key information by Member State by which trends can be identified. Collectively, this makes for worrying reading. There are few indications of consistently positive trends, with many habitats not improving at all since the last reporting round. Indeed, there is clear evidence of decline for perhaps all the more restricted and fragile habitats. Overall, the conservation status of coastal habitats throughout the Mediterranean coastal habitats is a cause for concern.

4.1.3 Issues, pressures and threats

The Mediterranean coastline supports an incredibly diverse range of habitats and associated fauna and flora. However, this region also provides for other societal/economic needs with the result that this rare and precious biodiversity has come under intense pressure from competing land uses as Member States and their neighbours (over)exploit opportunities for agriculture, aquaculture, industry and tourism.

The Mediterranean is now the world's most important tourist destination with up to 90% of visitors to the region hosted by just France, Italy and Spain. Much of the natural coastline has now been lost to urbanisation and 48% of Mallorca's coastline is now artificial, a figure that is expected to be replicated across the entire Mediterranean in the near future. Elsewhere, 75% of the dunes from Gibraltar to Sicily have been lost since 1975 and over 500 plant species are now threatened directly and indirectly by tourism. Overall, approximately 40% of the EU population lives in and 40% of its GDP is generated within (all of its) coastal regions, and 75% of trade is conducted by sea.

The Mediterranean is also still vitally important for agriculture and fisheries. Traditional methods may be in decline, replaced by intensive practices (and often accompanied by major infrastructure, e.g. canalisation, drainage and irrigation schemes), but these are often still carried out by the same communities. Elsewhere, the coast will continue to attract industry, ports, residential centres and transport hubs. Common impacts on all include: urbanisation, sewage, urban run-off, industrial effluent, eutrophication, erosion, invasive species and non-sustainable exploitation of marine resources, and all are likely to be exacerbated by climate change.

The poor conservation status of the majority of the selected habitats provides evidence of the scale of the problem and, as might be expected, a considerable range and number of threats were identified by the country experts. Overall, the most common threats and pressures to coastal habitats reported by experts in the Mediterranean region are: surface water pollution (1120, 1150, 1170); Outdoor recreation, including trampling and mooring (1120, 1150, 2110); Abiotic processes (1150, 1310, 2110); Changes in abiotic conditions (1120, 1150, 1170); Use of biocides, hormones and chemicals (1120, 1150, 1170); Urbanisation (1150, 1170, 1410, 2110, 2230, 2250); Storms (1150); and Hunting, fishing (1120, 1150).

Given the large number of habitats involved, as well as their discrete positions on the coastal ecotone (i.e. above, at or below sea level), it is inevitable that some issues are specific to individual habitats. For example, though frequently identified, water pollution affects only littoral and sublittoral habitats, but with most threat categories encompassing a broad range of issues, it is apparent that most could be applied to more than one if not all habitats. Urbanisation and outdoor recreation, for instance, both occur regularly (especially when allied with other, related categories) and are not unrelated. Agricultural impacts could have had a greater apparent impact if not divided into so many sub-types. Other (lesser) threats suggested included a broad suite of related pollution, industrialisation and catchment management issues. Interestingly, invasive species and fishing did not score highly in this exercise and, intriguingly, sandbanks and thermo-Atlantic scrub were not identified as under threat, although this probably reflects the interests and experiences of respondents rather than any other factor. Importantly, it must be remembered that the sample of experts was relatively small and it is likely that a broader and perhaps more compelling list of issues and solutions could be identified with a larger audience and more time.

This is supported by evidence from elsewhere and highlights what will become recurring themes such as the threat of eutrophication of coastal waters from a range of pollution sources. Pollution from untreated sewage was also identified by the Posidonia Andalucía LIFE+ project (see below), along with sand extraction, beach regeneration, bottom trawling, invasive alien species (e.g. *Caulerpa taxifolia*) and climate change. National Article 17 reports from Member States frequently identified coastal defence, the operation and expansion of salt works, trampling, urbanisation, natural events, and agricultural abandonment (of traditional practices) followed by intensification. Technical reports identify

hydromorphological changes, direct loss of habitats and species, invasive alien species, eutrophication, hazardous substances and marine litter.

More specifically, otter trawling and illegal beam trawling have been identified as reasons for the loss of *Posidonia* beds, whilst invasive alien species are one of the most important direct drivers of biodiversity loss and ecosystem service changes. Elsewhere, hydromorphological changes as a consequence of erosion (and responses to it) were suggested as the most commonly occurring pressure, leading to direct losses of habitat and the disruption of coastal processes, which is amplified by urbanisation and negative sediment budgets, partly due to river regulation far upstream.

In a wider context, natural wetlands, deltas and other water bodies have also been systematically drained to provide water and land for intensive agriculture, whilst increasing urbanisation in response to the needs of the tourism industry increases the demand for water. Both conspire to directly and indirectly threaten remaining habitats.

And, of course, climate change underpins all these threats; the Mediterranean is getting warmer and drier, a fact that will exacerbate almost all negative impacts identified.

4.1.4 Management requirements and measures

The experts suggested that the following measures are required to achieve favourable conservation status. This short list, though relatively simple, was difficult to populate. The number of options tended to dilute the force of opinion and so, in some cases, results have been amalgamated for simplicity.

Policy-based management requirements focused on the development and implementation of management plans (1150, 1310, 2110) and the implementation of legislation (1150, 1310, 1410, 1420, 2110). General communication, especially awareness-raising with a wide range of sectors is also required (1150, 1310, 1410, 1420, 2110). Habitat and site-based management requirements concentrated on both restoration (1120, 1150, 1170, 1410) and the management of protected areas (1120, 1150, 1170, 2110, 2250). The need for research at the local and larger scales was also frequently identified (1120, 1150, 1170, 1420).

In general terms, management measures currently being employed reflected this list, although there is an understandable increase in communication education and awareness-raising in community-led projects.

Overall, it appears that the measures required to address the previously identified threats are nothing new. The four general themes were all represented, albeit with a clear focus on site-based practical actions. Although diverse and requiring to operation at very different geographical and social scales, the measures appear to apply to all (or most) broad habitat types (although not dune grasslands or sandbanks) and there is evidence from around the Mediterranean and beyond of where they have been pursued. Indeed, there are examples from the experts themselves of where this is happening already.

If not new, however, they may not necessarily be easy to achieve, with the obvious need to engage a potentially large and diverse range of stakeholders, many of whom have not had to take account of

biodiversity issues before. In general terms, effective management requires the development of management plans, ideally with stakeholder participation, and their subsequent support and implementation by public organisations. Management should then focus on restoration and future management as a means of preventing or reducing the scale of damaging activities within protected areas (e.g. disturbance, overfishing and fragmentation) and negative effects from outside (such as the inflow of pollutants and release of invasive alien species). There are several examples where zoning and the installation of alternative mooring points have successfully reduced pressure on dunes and *Posidonia* beds respectively.

On a wider scale, management plans for coastal areas should not just focus on biodiversity but also seek to influence the complex interactions with human activities. Such plans should provide an interface with national and international drivers on pollution, water quality and spatial planning.

In policy terms, there was a clear call for effective governance in the form of clear and consistently applied (existing) legislation and the need to exploit potential synergies offered by the Water Framework Directive (and, perhaps, the emerging directive on Marine Spatial Planning?). Beyond this, the call for greater research at the site level was clear. Biodiversity has long suffered from an uncoordinated and poorly funded approach with a focus on single issues that fails to influence policymakers, but given the apparent incomplete evidence base here, perhaps it is not surprising that support exists for the development of a wider, more strategic monitoring effort to better focus subsequent management efforts.

That said, it was surprising that communication or awareness-raising did not feature more highly. The issue featured highly in general text and in experiences gained from around the Mediterranean (see lessons learned below) and was regarded as a necessary precursor to the establishment of positive management and its continuation. Perhaps this was a function of the information gathering process and could be revisited during the workshop.

So, despite the fact that many of these management requirements are already in place, it appears that there are not enough of them, they do not cover enough sites, or they are not enforced or funded sufficiently to make an effective contribution to achieving favourable conservation status. If this is the case, then existing measures should not be criticised but should receive better support to improve their effectiveness. Of course, it should not be forgotten that there is a very real parallel need for financial and other resources to pursue these measures.

Overall, it is clear that coastal habitats are exposed to a wide range of pressures and that these are evident across the Mediterranean. Furthermore, it is clear that, despite the existence of the Nature Directives and national legislation, damage to biodiversity continues and existing measures are either not effective or not being utilised to stop or at least slow the decline in conservation status. This observation is not new and was the ‘number one priority’ in earlier reviews. It is a sobering thought that all these pressures are likely to continue unless major policy changes are made in the next few decades.

4.1.5 Bottlenecks and problems

The difficulty in developing and sustaining positive, collaborative relationships with key stakeholders was the most clearly identified bottleneck preventing the achievement of favourable conservation status. This was closely followed by the lack of consistent implementation of existing legislation. The two are probably connected.

We see evidence for a lack of public awareness of the intrinsic value of biodiversity and the ecosystem services it provides. This is apparently magnified where local governance or competent authorities are involved and so although effective tools exist, they are not employed effectively. Awareness is one thing but this gap in performance can also perhaps be explained by a lack of resources, data and knowledge. It seems that competent authorities may not have sufficient resources to properly carry out their task and face difficult decisions managing a series of competing socio-economic priorities.

4.1.6 Solutions and opportunities

Best practice throughout the Mediterranean and elsewhere suggest that the solutions to the pressures, threats and bottlenecks can be found initially in the development of education and awareness-raising campaigns. Such campaigns could support individual site-based projects as well as focus on strategic decision-makers in competent authorities. These can lead to the development of effective working relationships and constructive dialogue with key stakeholders (e.g. competent authorities, fisheries, industry, recreation, tourism) and the development of comprehensive, integrated plans and policies at the site level. Ideally, this could also be pursued across the entire management unit (e.g. catchment, coastline) integrating policy (e.g. WFD, MSFD) and best practice as well as funding, communication, research and knowledge management needs. These should be guided by the consistent, responsible use of legislation by competent authorities and other enforcement agencies.

When considered from a distance, this could be considered to be a call for Member States to embrace the principles of Integrated Coastal Zone Management (ICZM) (2002/413/EC). First promoted in 2002, and reinforced by the Barcelona Convention in 2008, the basic principles are still valid: a broad overall perspective (thematic and geographic); a long-term perspective; adaptive management; local specificity; working with natural processes and respecting the carrying capacity of ecosystems; involving all the parties concerned; support and involvement of relevant administrative bodies and use of a combination of instruments.

It is regarded as a universal panacea, but it is not. Progress has been made but weaknesses are apparent in the lack of clear administrative responsibility, clear, agreed objectives and a timetable. However, it remains the best choice for managing competing claims for space whilst embracing current and future policy that delivers locally. The approach is widely recognised and the integrated and system-based approach provides a basis for sustainable coastal management and development, supporting socio-economic development, biodiversity and ecosystem services.

4.1.7 Relevant cross-cutting issues

Clear themes developed during this process. Awareness-raising, effective enforcement, implementation of existing legislation, stakeholder engagement and an integrated approach could apply across all coastal habitats and further afield. In addition, there is a clear need and opportunity to engage with and develop synergies with the Water Framework Directive, the Marine Strategy Framework Directive and emerging policy on Marine Spatial Planning. Riverine impacts carried downstream clearly suggest the need for collaboration with terrestrial and freshwater interests far inland (and even in other biogeographical areas) on water pollution, loss of sediment and so on, which also interacts with the suggestion to plan and act at the catchment scale.

4.1.8 Opportunities for joint action

The greatest opportunities probably lie in the effective use of ICZM as a tool to deliver real gains in favourable conservation status. By definition it promotes collaboration between all parties at the most appropriate scale. It can, therefore, be purely site-based or encourage action between regions and/or states. By embracing socio-economic interests, it also provides a voice for those who feel threatened by biodiversity protection and vice versa.

At the practical scale, ICZM also provides opportunities for the exchange of knowledge and experience, allowing the effective spread of best practice, but this task need not be restricted to those places where ICZM is pursued. There is still a clear need for the organised collation of experience and knowledge in both traditional and modern, innovative ways. Importantly, we must learn how public attention has been shifted, especially that of policymakers. It must also include the sharing of data and the means by which it is collected and stored both within and between states. Those making important decisions deserve better data. The adoption of international litter campaigns and the use of ‘citizen-science’ may well help achieve both.

There is also the possibility of looking beyond the Mediterranean for assistance. Marine and coastal features have a wide distribution around Europe with common issues, problems and, perhaps, solutions, and already feature in the Atlantic biogeographical region outputs. There is, no doubt, much that can be learned from elsewhere, and the reverse is also true. It is important that we find ways to share our knowledge with those elsewhere.

4.1.9 Selected examples of best practice

The projects described briefly below represent just a small sample of work carried out across the Mediterranean to secure the favourable management of the selected habitats. Together, they provide evidence of best practice that may be beneficial to similar projects elsewhere.

Most projects are habitat-management based and most have achieved some degree of success. For example, the establishment of alternative mooring points to avoid anchor damage to fragile habitats appears to be highly successful. Projects which have had less success tend to focus on highly active

management interventions, e.g. the transplantation of *Posidonia*. It seems that some restoration strategies still carry considerable risk.

Few projects have attempted to directly influence local decision-making or policymaking. Awareness-raising efforts are more common and there appears to have been considerable success in changing local opinions. How this has subsequently informed policymaking (one of the key bottlenecks) is not always clear.

Most, if not all, projects are confined to one or more local sites. Whilst modern communication tools ensure best practice is shared between states to enable discrete projects to employ similar techniques, there is only limited evidence of direct measures to share experiences first-hand across borders.

Although numerous successes have been recorded, the conservation status of most habitats is struggling and these measures alone are not enough to change this trend.

LIFE09 NAT/ES/000534 Life Posidonia Andalucía – “Conservation of *Posidonia oceanica* meadows in Andalusian Mediterranean Sea”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3829

<http://www.lifeposidoniandalucia.es/es/index.aspx>

Expected outcomes:

1. Mapping of *Posidonia* beds.
2. Identification of baseline data.
3. 80% reduction of boat anchoring.
4. 100% prevention of uncontrolled trawling.
5. Demonstration of passive control measures.
6. Designing and undertaking a monitoring strategy.
7. Promoting public participation in site management.
8. Development of a management plan.
9. Increasing social awareness of functions and values of *Posidonia* beds.

LIFE00 NAT/E/007303 Life Posidonia Balears – “Protection of *Posidonia* grasses in SCI of Balears”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1775

http://lifeposidonia.caib.es/user/index_en.htm

Outcomes:

1. Effective monitoring strategy implemented.
2. New regulation controlling mooring in 7 SCIs.

3. Three new marine reserves.
4. Production and approval of 14 management plans for marine SCIs.
5. Collation of data on factors affecting *Posidonia* status.
6. GIS mapping.
7. Established volunteer network of scuba divers to monitor *Posidonia* beds.
8. Awareness-raising campaign.

LIFE09 NAT/IT/000176 POSEIDONE – “Urgent conservation actions of **Posidonia* beds of Northern Latium”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3808

<http://www.lifeposeidone.eu/>

Outcomes:

1. Safeguarding and restoration of areas of importance to the priority habitat 1120 **Posidonia* beds in the Tyrrhenian Sea. The conservation actions will take place in the Lazio region at: "Sandbanks between Chiarone and Fiora rivers" - IT6000001 (1 761.9 ha) and "Sandbanks of Punta Murelle" - IT6000002 (1,111.99 ha).
2. Approval of management plans for two large marine Natura 2000 SCIs.
3. Production of ex-ante and ex-post evaluations of the conservation efforts in the project areas to update the Natura 2000 schedules.
4. Allocation of 600 submarine structures subdivided in two SCIs to combat illegal bottom-trawler nets.
5. Two press conferences (in the initial and final phases of the project) and establishment of a website.
6. Implementation of an environmental education programme in schools (120 hours of teaching time for 2,500 students); production of a 20-minute video and distribution of 1,000 DVDs.
7. Publication and distribution of 12,000 leaflets.
8. Conclusion of an agreement with fishery associations to preserve the marine SCI areas.
9. Two European meetings on coastal and marine habitat conservation to define a common strategy at European level.

LIFE04 NAT/ES/000044 Enebro Valencia – “Recovery of the littoral sand dunes with Juniper spp. in Valencia”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2625

Outcomes:

1. Habitat restoration.

2. Restoration of dunes via germination of Juniper.
3. Predictive habitat management model.
4. Creation of permanent lagoon.
5. Awareness raising and networking.

LIFE06 NAT/P/000192 Biomares – “Restoration and Management of Biodiversity in the Marine Park Site Arrábida-Espichel”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3164

Outcomes:

1. Active management strategy for reefs and the restoration of sandbanks (H1170 & H1110).
2. Data collation and management.
3. Awareness raising.
4. Seagrass habitat re-establishment trials.
5. Review of fishing and recreational boat activity.
6. Removal of debris and establishment of floating mooring buoys.

LIFE12 NAT/IT/000331 LIFE-SeResto – “Habitat 1150* (Coastal lagoon) recovery by SEagrass RESTOration. A new strategic approach to meet HD & WFD objectives”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4838

Purpose/Expectations/Outcomes:

1. Transplantation of seagrass.
2. Achievement of good ecological status.
3. Quantification of ecosystem services.

LIFE 99NAT/GR/006475 – “Conservation management of Amvrakikos wetlands”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=403

<http://users.hol.gr/~etanam/life/english.htm>

The site is a complex of marsh, lagoon and delta supporting a range of coastal habitats with a rich and diverse breeding bird population. Increased salinity and insufficient circulation threaten the integrity of the site along with logging of adjacent woodland, overgrazing, illegal hunting and human disturbance.

Purpose/Expectations/Outcomes:

1. Integrated species and habitat management objectives that fit in with the local development agency's strategy for the sustainable development of the area.
2. Creation of a system of sluices and channels to manage freshwater flows, management of terrestrial habitats, effective wardening, education and outreach programmes for key target groups.
3. Habitats restored, economic benefits secured (fish stocks) and outreach programme 'guaranteed good acceptance of the project by local stakeholders'.

LIFE10 NAT/IT/000256 MC-SALT – “Environmental Management and Restoration of Mediterranean Salt Works and Coastal Lagoons”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4065

Expectations:

1. Management of six Natura 2000 sites in three countries.
2. Improved conservation status of dune and coastal habitats and breeding bird assemblage through:
3. Restoration and conservation of 14 000ha of coastal lagoon habitat.
4. Fire management and removal of invasive species *Salicornia*, Mediterranean salt-meadow and halophilous scrub habitats.
5. Production of a management model and management plan.

LIFE00 NAT/GR/007198 Drana lagoon – “Restoration and conservation management of Drana lagoon in Evros Delta”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1750

Drana lagoon is the biggest of three lagoons in the Evros Delta, one of the most important wetlands in Europe. The site was drained in 1987 to improve adjacent farmland.

Purpose/Expectations/Outcomes:

1. Elaboration and implementation of a management and monitoring strategy enabling the restoration of the (now 5000ha) lagoon and, importantly, the connection to the sea, improved circulation of freshwater (largely by the installation of ditches and sluices, etc.) and recovery of breeding bird population.
2. Creation of 30ha humid grassland and 22ha of riparian woodland to manage salinity levels on adjacent farmland; wardens reduced trespass and a visitor centre provided a focus for visitors.

LIFE02 NAT/GR/008491 Strofylia-Kotychi – “Conservation management in Strofylia-Kotychi”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1960

Kotychi is the largest lagoon in the Peloponnese and lies adjacent to sandbanks, dunes, forest, marshes and farmland, alongside valuable bird and reptile populations. Lagoons are threatened by sedimentation and pollution, unsustainable water use, erosion, human pressure and lack of awareness by key communities and user-groups.

Purpose/Expectations/Outcomes:

1. Study of water parameters and aquatic flora to inform a management plan.
2. Subsequently a canal was re-opened and breeding sites for birds established.
3. Wetland and forest was integrated to influence grazing and public pressure.
4. Access and recreational sites were identified and promoted and public support gained via DVDs and promotional material.
5. Project gained the support of local and national authorities and a range of other stakeholders.

LIFE06 NAT/IT/000053 CILENTO IN RETE – “Management of the network of pSCIs and SPAs in the Cilento National Park”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3218

<http://www.lifecilentoinrete.eu/>

Second largest National Park in Italy with a range of habitats but without an integrated management plan despite threats to coastal habitats from tourism and to marine habitats from the mooring of boats.

Purpose/Expectations/Outcomes:

1. The project aimed to establish a participatory approach for stakeholders to prepare a regulatory system for the park and to allow for the production of a management plan.
2. The project succeeded, producing a plan for 16 Natura 2000 sites which was approved by the Campania Region.
3. Simple people-management techniques were used to guide public pressure away from sensitive areas, educational material was produced, and approval by the regional administration should guarantee future support.

LIFE04 NAT/CY/000013 Comanacy – “Conservation management in Natura 2000 sites of Cyprus”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2652

Purpose/Expectations/Outcomes:

1. The main objective was to secure favourable conservation status for a range of habitats and sites.
2. Actions included the production of management plans, pilot management actions, long-term management and actions for public awareness and communication including conferences and workshops.
3. *Posidonia* beds, *Salicornia* habitats, salt meadows and halophilous scrub all benefited from management and restoration actions.

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4.2 Mediterranean forest habitats

4.2.1 Summary description

The forest habitat group consists of the following habitat types: *Castanea sativa* woods (9260), *Olea* and *Ceratonia* forests (9320), *Quercus suber* forests (9330), *Quercus ilex* and *Quercus rotundifolia* forests (9340) and Mediterranean pine forests with endemic Mesogean pines (9540).

Castanea sativa woods (9260) are supra-Mediterranean and sub-Mediterranean forests, dominated by *Castanea sativa*, and old established plantations with semi-natural undergrowth.

Olea and *Ceratonia* forests (9320) are thermo-Mediterranean or thermo-Canarian woodland, dominated by arborescent *Olea europaea* ssp. *Sylvestris*. Subtypes are Wild olive woodland: *Olea europaea* ssp. *sylvestris* dominated formations (45.11); Carob woodland: *Ceratonia siliqua*-dominated formations (45.12). Characteristic species are *Ceratonia siliqua*, *Pistacia lentiscus* and *Myrtus communis*.

Quercus suber forests (9330) are West Mediterranean silicolous forests, dominated by *Quercus suber*. The habitat is mostly associated with the Iberian Peninsula but also occurs locally in Italy and southern France. Subtypes are Tyrrhenian cork-oak forests (*Quercion suberis*): mostly meso-Mediterranean *Quercus suber* forests (45.21); Southwestern Iberian cork-oak forests (*Quercion fagineo-suberis*) (45.22); Northwestern Iberian cork-oak forests (45.23); Aquitanian cork-oak woodland (45.24).

Quercus ilex and *Quercus rotundifolia* forests (9340) are relatively widespread holm oak (*Quercus ilex*) forests of the cooler parts of southwest France and the Mediterranean region, often occurring in the mountains, and *Quercus rotundifolia* (also known as *Q. ilex* ssp. *rotundifolia*) dominated woodlands of the Iberian Peninsula. Subtypes are Meso-Mediterranean holm-oak forests (45.31); Supra-Mediterranean holm-oak forests (45.32); Aquitanian holm-oak woodland (45.33); *Quercus rotundifolia* woodland (45.34).

Mediterranean pine forests with endemic Mesogean pines (9540) are Mediterranean and thermo-Atlantic woods of thermophilous pines, mostly appearing as substitution or paraclimatic stages of evergreen oak (*Quercus* spp) or carob (*Ceratonia siliqua*) forests. Long-established plantations of these pines, within their natural area of occurrence, and with undergrowth basically similar to that of paraclimatic formations, are included. Subtypes are Maritime pine forests: forests and plantations of *Pinus pinaster* ssp. *Atlantica* (42.81); Mesogean pine forests: forests of *Pinus pinaster* ssp. *pinaster* (= *Pinus mesogeensis*) (42.82); Stone pine forests: Mediterranean forests and old naturalised plantations of *Pinus pinea* (42.83); Aleppo pine forests: woods of *Pinus halepensis* (42.84); Aegean pine forests: *Pinus brutia* forests of Crete and eastern Aegean islands (42.85). Characteristic species are *Pinus pinaster* ssp. *Atlantica*, *P. pinaster* ssp. *pinaster* (= *P. mesogeensis*), *P. pinea*, *P. halepensis*, *P. brutia*, *P. mugo* and *P. leucodermis*.

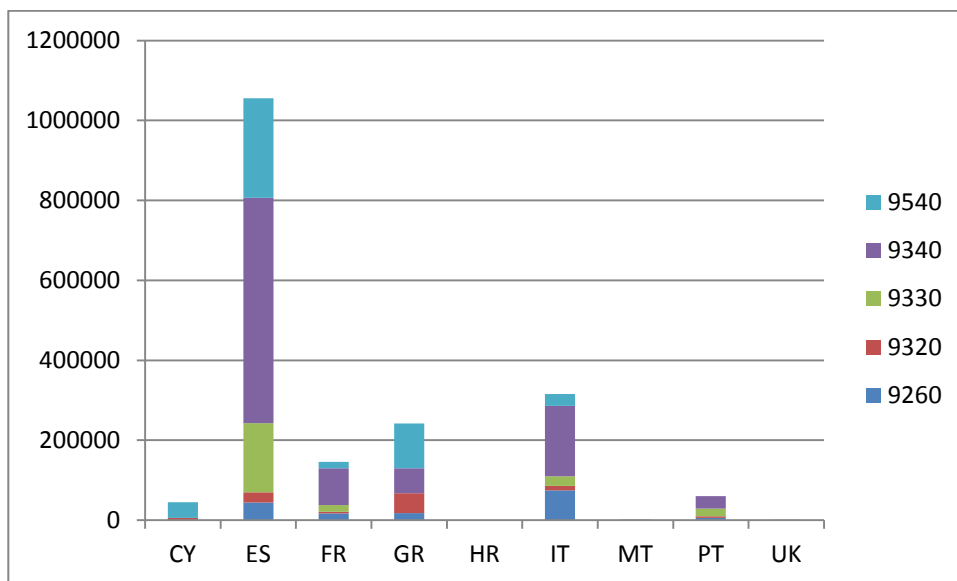


Figure 2 Area of selected forest habitats (ha) within SCIs for each Member State in the Mediterranean biogeographical region (see the low figures for HR, MT and UK in Table 7, see Annex 2 starting page 82)

4.2.2 Issues, pressures and threats

Forests throughout the Mediterranean are significantly affected by human activity: change of land use, inappropriate management, lack of management and human disturbance are all key pressures.

Change of land use and land management threatens all Mediterranean forest habitat types. In Spain, changes in land use and land management are the main pressures for *Castanea sativa* woods. In France, the conversion and abandonment of chestnut groves poses the main threat to *Castanea sativa*, because the cultivation and processing of sweet chestnuts is no longer economically viable. Change of land use for agriculture and stock-breeding also threatens *Olea* and *Ceratonia* forests in the Andalusia region in Spain. Urbanisation and land conversion into pastures are issues for *Quercus suber* forests. Pressure on land use by urbanisation and recreational resorts is a threat for Mediterranean pine forests with endemic Mesogean pines, as is deforestation. Excessive load of ungulates (either domesticated or wild) causes a threat to *Quercus ilex* and *Quercus rotundifolia* forests.

Mismanagement often occurs because of a strong focus on production of wood and fruits. Inappropriate practices, linked to the commercial importance of cork oak, such as inadequate debarking (in the wrong season or incorrect frequency of debarking method), threaten *Quercus suber* forests. The conservation of these habitats depends largely on the possibility of the continuation or resumption of cork-oak cultivation. In Greece, *Castanea sativa* is also often unsustainably managed as a coppice, due to the particularly high productivity of chestnut woods. The short 20-year rotation period results in the degradation of the soil, since *Castanea sativa* is a relatively demanding species. An inappropriate forest management practice for *Quercus ilex* and *Quercus rotundifolia* forests is coppicing for fuel wood, which prevents the forest from maturing and maintains an unmixed, even-aged structure of the forests which substantially reduces biological diversity. Coppicing results in large surfaces of totally bare understorey

soil with no vegetation and leads to drastic impairments to the soil and water retention of the forest. A lack of management of *Quercus ilex* and *Quercus rotundifolia* forests also poses a threat, because it results in very dense formations that are susceptible to wildfires and have low value as habitats for plants and animals.

Wildfire poses a threat to all the habitats in the forest habitat group. *Quercus suber* forests are particularly threatened by wildfire just after debarking has taken place, because without bark the trees are unprotected. Coppice forest habitat types are also prone to fires. Moreover, the fire can spread very quickly and is difficult to extinguish due to the dense vegetation of the coppice.

Further human-created threats include the disturbance of the Mediterranean pine and Mesogean pines forest ecosystems through outdoor sports and leisure activities, vehicles and camping.

Diseases also pose a serious threat to many of the forest habitats, particularly *Castanea sativa*. Examples include Chestnut blight (a disease caused by the ascomycete fungus *Cryphonectria parasitica*, formerly *Endothia parasitica*), which has infected almost all Greek chestnut forests. Beetles and some hemipterans can attack Sweet chestnut trees. A disease affecting the Mediterranean pine forests with endemic Mesogean pines is Maritime pine bast scale (*Matsucoccus feytaudi*). Resistance to diseases and beetles depends on stand characteristics.

Temperature increase and reduced precipitation as a result of climate change are augmenting the pressure on ecosystems and causing an increase in natural mortality. Augmentation of the natural mortality, together with an exigent regeneration (regeneration depends on various forms of animal and plant species during different phases of the regeneration cycle), can cause a regeneration deficit.

Genetic pollution, through the spontaneous crossing of native olive trees with grafted cultivars, threatens the survival of native species and is an important issue for *Olea* and *Ceratonia* forests.

A serious threat to *Olea* and *Ceratonia* forests, *Quercus ilex* and *Quercus rotundifolia* forests and Mediterranean pine forests with endemic Mesogean pines in the Buskett-Girgenti Natura 2000 site in Malta is the erosion in the valley (LIFE Project: LIFE saving Buskett).

4.2.3 Main conservation requirements and measures

A vital conservation requirement for the Mediterranean forest habitats is appropriate management practices.

The coppice system is usually used in *Castanea sativa* production (9260), either to produce wood in small or medium dimensions and fuel wood, or for fruits. If the coppice system is used to produce timber, a rotation between 16-25 years is applied for the production. The time depends on the timber size, technical requirements of the timber, use of timber and climatic conditions. For fruit production an interval of 8-12 years is often employed. Lack of management, due to the increasing phenomenon of land abandonment, is leading to the decline of habitat type 9260. Therefore the usually short rotation period of the chestnut coppice should be raised to 40 years in order to avoid soil degradation and to produce better quality of wood. Others argue that the actual ecological value of chestnut groves (9260)

in terms of the production of wood or nuts can be questioned. Chestnut groves represent an ethnological, historical and landscape heritage rather than a natural heritage. Thus, the abandonment of the cultivation of sweet chestnut will allow the spontaneous succession of vegetation in the former chestnut groves, and will often lead to more natural, durable forests.

Also *Quercus ilex* and *Quercus rotundifolia* forests (9340) has a coppice system for the production of tannins and fuel wood. For this habitat the following conservation measures are recommended: abandonment of coppice management or a combination of coppice management with a long rotation cycle (50 years), clear cutting on small surfaces and conversion into high forests by selective inversion thinning in order to select and favour the best individuals (positive selection) .

In *Quercus suber* forests cork extraction should be implemented in a more appropriate way (based on season, frequency and extraction method). The legal rest periods between debarking should be strictly respected, and if possible extended, and there should always be some trees left without debarking in order to reduce the damage in case of wildfires. Debarking should only take place in ideal conditions and by qualified people. .

In Greece the habitat Mediterranean pine forests with endemic Mesogean pines (9540) are mainly managed by the Forest Service, based on management plans that are drawn up every 10 years. Management includes logging and light grazing and helps to preserve the forest, thus promoting the conservation of the species that inhabit it (e.g. small raptors).

In extensive forests, horizontal heterogeneity should be favoured, maintaining or generating mosaics of forest-bush-grassland, with representation of all the dynamic forest phases. Conversion of the pure chestnut forests into mixed high stand forests where *Castanea sativa* is mixed with other species (such as *Corylus avellana*, *Carpinus betulus*, *C. orientalis*, *Fraxinus excelsior*, *F. ornus*, *Juglans regia*, *Prunus avium*, *Tilia cordata*, *T. tomentosa*, *Ostrya carpinifolia*, *Fagus sylvatica*, *Quercus conferta*, *Q. trojana*, *Betula sp.*), will lead to more natural forests that are better resistant against any disease or natural threat.

The threat of disease should also be directly addressed. Chestnut blight impact can be reduced by applying a less aggressive strand of the fungus (introduce infections with the white, non-aggressive, hypovirulent strains) and by properly removing the infected trees and the infected parts. Vaccination of seedlings can be applied as a preventive measure. The activity of the fungi *Phytophthora cambivora* and *Phytophthora cinnamomii* can be reduced by the application of organic matter and fertilisers in order to increase the microbial antagonism for root regeneration of the infected trees and the host's ability to regenerate new root systems. Renewal of infected trees can be encouraged by cutting the stumps low at the ground, below the infected zone. Offshoots that develop on these stumps afterwards can be resistant, especially when they are consecutively cut within each of the next three years.

Defragmentation is an important tool to restore Mediterranean forest habitats. In areas with high fragmentation connections should be created to preserve or restore the biological connectivity and the potential areas for organisms with colonisation capacity. Special attention should be given to extensive forest fragments and other zones that are well located to fulfil a connectivity function. Habitat can be restored by new plantations adjacent to existing bushes, which serve as protection. When selecting olea trees for new plantations it is important that native, non-cultivated populations are used for reproduction, without any risk of genetic pollution. They can usually be found on coastal ledges and

rocky places. In order to respond to the high demand of agricultural land, olive agriculture can be implemented around or within *Olea* and *Ceratonia* forests. Olive agriculture is compatible with these forests and can reduce the fragmentation problems, given the fact that these cultures accommodate frugivore avifauna, which are very important for the dispersion of these forest species.

Controlling ungulate populations has a benefit for forest habitats. Populations of wild or domestic ungulates should be increased or decreased when necessary, aiming to find a balance between the ecological and economic advantages derived from the use of herbivores and their negative impacts on the vegetation and the soil. In forests where the ungulates' presence prevents the tree canopy from regenerating, this pressure should be taken away, applying rotating shifts during a period extensive enough to help the regeneration of the tree canopy or protecting the juveniles from grazing.

Leaving dead wood in the forest can serve as obstruction structures that decrease the downslope movement of soil and debris. Other advantages of dead wood are that it provides shelter for fauna and it favours the presence of saproxylic organisms and their predators, which leads to an increase in biodiversity.

Wildfires should be avoided, especially in *Quercus suber* forests if the cork has recently been removed from the trees. These forests are very resistant to wildfires and debarking activities in natural conditions. Nonetheless, trees that have just been debarked are very sensitive to wildfires.

Protection of water masses, even the temporary ones, located within the forests or in the surroundings is important for *Quercus ilex* and *Quercus rotundifolia* forests. These water masses are very important for insects (Odonata genus mainly) and other invertebrates, amphibians, Black Stork (*Ciconia nigra*), and many other fauna species that use them as drinking water reservoirs. When these water masses are used as drinking areas for stock-breeding, restricted access areas ('amphibians only') should be delineated, avoiding steep banks or slopes that could impede the exit of amphibians. Riparian or littoral associated vegetation should also be protected.

Measures should be taken to protect fauna which can promote pollen and seed transportation. For example, by providing enough heterogeneity in the forest and increasing the number of mature trees. The number of native trees and bush species that produce fruit or seeds, a basic food for some fauna species, especially during the winter, should be maximised. Management forestry practices should be avoided during the mating and nesting seasons of the most sensitive species.

Reducing high densities of *Quercus ilex* forests can improve their resistance to climate change. Reducing densities can increase the soil water availability for the remaining trees which will improve their resistance to drought.

Communication and information activities can increase the acceptance of local communities of measures to reduce human disturbance, in particular the exclusion of vehicles from the forest habitats.

4.2.4 Bottlenecks and problems

A whole range of problems with regard to conservation management of the selected Mediterranean forests has been identified.

A huge problem, in particular for *Castanea sativa* woods (9260) is change of land use and land abandonment. Reduced economic viability is the main driver for this evolution. Change of land use for agriculture and stock-breeding threatens *Olea* and *Ceratonia* forests (9320) in the Andalusia region in Spain. Urbanisation and land conversion into pastures are issues for *Quercus suber* forests. Pressure on land use by urbanisation and recreational resorts is a threat for Mediterranean pine forests with endemic Mesogean pines, as is deforestation. A lack of management, due to land abandonment, of *Quercus ilex* and *Quercus rotundifolia* forests (9340) poses wildfire threats.

The intensification of forest management at the expense of traditional management practices is another major issue. Commercial considerations are the driver here. An increased production of wood, cork and fruits (chestnuts, olives) is the purpose. As a result inadequate debarking (in the wrong season or incorrect frequency of debarking method), threaten *Quercus suber* forests (9330). Short rotation periods for coppice managed *Castanea sativa* forests (9260) result in soil degradation or in the case of *Quercus ilex* and *Quercus rotundifolia* forests (9340) in unmixed, even-aged structure of the forests which substantially reduces biological diversity. The increased demand for wood has adverse consequences for Mediterranean pine forests with endemic Mesogean pines (9540), as in some cases many old trees are cut, and these are essential for the preservation of several forest species (birds such as woodpeckers; bats and invertebrates).

Wildfire – very often human-induced – poses a threat to all the habitats in the forest habitat group. *Quercus suber* forests (9330) are particularly vulnerable just after debarking. Coppice forest habitat types are also prone to fires.

Further human-created threats include the disturbance of the Mediterranean pine and Mesogean pines forest ecosystems (9540) through leisure and recreation.

Excessive load of ungulates (either domesticated or wild) causes a threat to *Quercus ilex* and *Quercus rotundifolia* forests (9340).

Diseases and beetles also pose a serious threat to many of the forest habitats, particularly *Castanea sativa* (9260) but also Mediterranean pine forests with endemic Mesogean pines (9540).

Temperature increase and reduced precipitation as a result of climate change are augmenting the pressure on ecosystems and causing an increase in natural mortality.

Genetic pollution, through the spontaneous crossing of native olive trees with grafted cultivars, threatens the survival of native species and is an important issue for *Olea* and *Ceratonia* forests (9320).

Other problems have a more institutional character (e.g. administrative difficulties causing delays in the implementation of the use of the hypovirulent strains of Chestnut blight to protect habitat 9260 in Greece) or are linked to difficulties to raise awareness amongst key stakeholders (e.g. many forest managers and private forest owners still need to be convinced of the long-term degradation of the soil as a consequence of short rotation coppice).

4.2.5 Solutions and opportunities

Beyond the rehabilitation of existing chestnut groves and maintaining various ancient practices, habitat type 9260 needs a boost of rural activity and new opportunities for the cultivation of chestnuts, with special attention to the biodiversity of the ecosystems. More durable cultivation is required in order to ameliorate the conservation status of habitat type 9260.

Funding is needed for making clearings in forests of habitat type 9540, as some areas are not easily accessible and the wood is often of low quality.

Personal communication of experts with the forest managers and forest owners of habitat type 9260 can convince them of the negative impact of management practices on forest ecosystems, for example the short rotation coppice.

4.2.6 Relevant cross-cutting issues

Defragmentation of forest ecosystems is a clear cross-cutting issue. The same applies to land abandonment and the associated loss of traditional management practices (cross-cutting with grasslands).

4.2.7 Opportunities for joint action

The elaboration of easily accessible documents for forest owners and managers would provide a valuable resource. Advice could be given about good practices, “do’s and don’ts” for the sustainable management of *Castanea sativa* woods in the Mediterranean region, preferably illustrated with informative pictures. Documents could also contain specific issues for each Member State.

Diseases and pests do not respect borders between Member States, so pest management should also be cross-border. Member States should exchange knowledge and cooperate to carry out pest control.

4.2.8 Selected examples of best practice

[LIFE98 ENV/IT/000171 Cilento LIFE – “Innovative action of reforestry by means of environment restoration by using advanced biologic technologies of the areas covered with fire in San Mauro Cilento and Pollica \(SA\) territories”](#)

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=757

Purpose/Expectation/Outcome:

1. Aimed at implementing an innovative methodology to restore the tree and shrub vegetation in areas where the green cover had been destroyed by fire.
2. The innovative aspects consisted mainly of using seeds of tree and shrub species instead of herbaceous species and using locally collected seeds.
3. Successfully carried out in two areas; shows the positive balance of the cost-benefit ratio, both in economic and environmental terms.
4. The project produced a detailed analysis of the cost-benefit ratio which illustrates the advantages of the adopted technique.
5. The potential for transferability is very high, as the methodology was applied in “extreme” conditions (very steep slopes) whereas forest fires often occur on less steep terrain.

LIFE99 NAT/GR/006481 Mainalo Mountain – “Conservation and management of Mainalo Mountain”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=404

Purpose/Expectation/Outcome:

1. To promote the legislative background for the protection of the site, according to national legislation;
2. To re-orient intensive silvicultural practices in sensitive forest habitats, to sustainable ones;
3. To support the local forest service to achieve sustainable and environmentally friendly timber production; preparatory actions including a ‘Specific Environmental Study’, and a ‘Timber Certification and Accreditation Study’ were completed. Forest Stewardship Council (FSC) certification was achieved, but it was left uncertain whether or not this would be used to guarantee sustainable forest management in the area.
4. To plan sustainable tourist activities;
5. To preserve and enhance sensitive habitats and key species (priority or indicator species);
6. To improve connectivity among sensitive habitats in Mainalo and the surrounding mountain regions;
7. To increase inhabitants' and visitors' awareness about the values of the local environment, and to promote their engagement to conservation activities;
8. To inform locals about economic and employment opportunities coming from alternative tourism.

LIFE99 NAT/IT/006279 Rete NATURA 2000 – “NATURA 2000 network in Italy: management models”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2514

Purpose/Expectation/Outcome:

1. Reconversion of oak coppice to tall forest stands and reintroduction of traditional management of chestnut woods will be achieved through agreements with landowners.
2. Tourist flows will be regulated through construction of fences and paths and placing of information panels in the most sensitive areas.
3. The LIFE project restored *Quercus pubescens* and chestnut woodlands, demonstrating that such areas can be recovered and protected from degradation

LIFE13 NAT/CY/000176 LIFE-FORBIRDS – “Improving lowland forest habitats for birds in Cyprus”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=5089

Purpose/Expectation/Outcome:

1. The project aims to implement conservation/management measures that will substantially improve ecological conditions for selected bird species listed in Annex I of the Birds Directive found in three Natura 2000 sites in Cyprus. It also plans to demonstrate to Cypriot foresters and other stakeholders the benefits of adopting a more holistic forest management approach that addresses the needs of birds.
2. These goals will be achieved by: improving the availability of food in the project sites; improving the availability of permanent water sources during the long dry period; enhancing nesting conditions in the sites; reducing human disturbance through more awareness and limiting access in sensitive areas; restoring bird habitats in the sites; contributing toward combating bird crime through strict enforcement of legislation and implementation of an effective communication campaign; introducing practices during routine forest management that favour birds; and increasing public awareness on the need to conserve bird populations.

LIFE98 NAT/E/005311 Punta de la Mora – “Sustainable management of Punta de la Móra in Tarragona”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=321

Purpose/Expectation/Outcome:

1. Measures were taken in the agricultural and forest zones to restore eroded areas and degraded woodlands.
2. Information and awareness campaigns aimed at visitors and local people were realised

LIFE99 NAT/E/006327 Cabañeros – “Conservation of the threatened fauna and vegetation in the Cabañeros National Park”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=559

Purpose/Expectation/Outcome:

1. The purchase of two estates. Both estates are of exceptional value and included, according to 2002 estimates, 64 breeding pairs of the Black Vulture, the main species targeted.
2. Although not strictly part of the project, habitat improvement works were undertaken in “El Caracol” consisting in the eradication of the exotic *Eucalyptus* spp. to restore native Mediterranean forest. The removal of the plantation was carefully made and the wood was used to build refuges for rabbits.
3. After purchasing the estates, disturbing activities for the birds (mainly hunting, cork extraction and apiculture) were stopped.

LIFE99 NAT/P/006441 Sítio de Cabeção – “Montados of the Cabeção site: management of habitats and species”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=401

Purpose/Expectation/Outcome:

1. A management plan was developed for the Cabeção site. Management measures were implemented for all habitats found on the leased land plots.
2. These measures focused on conserving the natural habitats while maintaining their use, namely for cork extraction and cattle raising. The actions included: fencing and planting of native species; restoring river beds, reintroducing *Leuzea longifolia* and management of montados, riparian, pseudo-steppe and dunes and dry heaths.
3. For each habitat, detailed measures were developed. For example, the management of montados – the most widespread habitat in the pSCI – entailed the selective cutting of scrubland (54.68 ha); controlled grazing of 400 pigs (on 54.68 ha); planting of *Quercus suber* (on 32.78 ha); maintenance of draining lines; promotion of cork removal practices and natural fertilisation through the planting of nitrogen-fixing plants.
4. These measures contributed to the recovery of a significant area – 359.29 ha – covering several community interest habitats, including four priority habitats.
5. The management measures were tested, implemented and disseminated to local forest producers, farmers, forestry technicians, as well as to institutions linked to nature conservation.
6. The project results were disseminated to local stakeholders mainly through the distribution of a management guide of the montado habitat (1 000 copies) and a management code for the Cabeção site. The latter guidance document for the pSCI included estimations of costs for implementing each advised management measure for each habitat.

Raising awareness:

Finally, the project’s dissemination effort raised awareness of the opportunities to maintain the use of natural habitats – such as for cork extraction – while guaranteeing conservation of important habitats.

LIFE96 NAT/F/003200 chênaie verte – “Mediterranean holm oak grove integrated management”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=88

Purpose/Expectation/Outcome:

1. One of the most widely distributed ecological complex in the Mediterranean basin is the evergreen oak wood, consisting of various dynamic stages (from grassland to forest). These habitats are currently threatened by changes in land use: abandonment of grazing and forestry which is gradually leading to the disappearance of open areas and their associated species and expansion of leisure activities which disturb certain sensitive species and degrade fragile environments.
2. This project overall aim was to implement, as a demonstration measure, a strategy for integrated management of the evergreen oak wood ecosystem on both sites of the Gardon and the Montagne de la Clape.
3. A framework document for each of these natural complexes, was to be used as a reference instrument for the forestry management of these habitat types and as an educational tool to assist communities and private owners in adopting forms of management conform to the requirements of Natura 2000.
4. Furthermore, to guarantee preservation of these natural habitats biodiversity, pilot and demonstration projects were foreseen in holm oak copses and riverbank woodlands. The results of these integrated actions were to be spread through training programmes and the publication of a summary brochure.
5. The restoration of the riparian forest of the Gardon river has also been experimented: willows plantations and pruning of poplars have been carried out in order to rehabilitate the habitat itself but also to improve the quality of foraging resources for Castor fiber.

LIFE08 NAT/GR/000533 FRAMME – “Fire restoration methodology for Mediterranean forests – environmental safety & sustainability of 4 interventions in the Rhodes NATURA 2000 site”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3527

Purpose/Expectation/Outcome:

1. The project aims to close the knowledge gap in contemporary science regarding the management of Mediterranean forests and their restoration after fires.
2. In parallel, restoration work has been done in areas with cypress forests (Acero-Cupression) and Mediterranean pine forests with endemic Mediterranean pines.
3. Amongst the results were fenced experimental segments within the damaged forest showcasing anti-erosion measures, soil improvement, planting and irrigation;
4. A good practice restoration guide for burnt Mediterranean forests was prepared.

LIFE02 NAT/GR/008491 Strofylia-Kotychi – “Conservation management in Strofylia-Kotychi”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1960

Purpose/Expectation/Outcome:

1. The Kotychi-Strofylia site, part of which is classified as a wetland of international importance (RAMSAR), is located on the west coast of the Peloponnese. It is a special complex of habitats with sand banks and dunes, coastal pine forests, lagoons, marshes, water meadows, reed beds and agricultural land. It encompasses the very important Strofylia coastal forest with its native stone pine (*Pinus pinea*). This forest is the most extensive of the three of its kind in Greece and one of the biggest in Europe.
2. The ecological integrity of the area has been threatened by a.o. erosion of sand dunes, limited natural regeneration of the stone pine forest, and lack of understanding and appreciation of the conservation value of the site by the inhabitants and visitors.
3. The forest was intensively studied through 20 experimental plots to produce management guidelines. A significant part of the forest was fenced and thus relieved from grazing pressure and vehicle trespassing. 4,000 young trees of Umbrella Pines were planted and fenced. With the assistance of the forest service, many illegal roads were permanently blocked.

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4.3 Mediterranean freshwater and wetland habitats

4.3.1 Summary description

The freshwater habitat group consists of the following habitat types: *Salix alba* and *Populus alba* galleries (92A0), Southern riparian galleries and thickets (*Nerio-Tamaricetea* and *Securinegion tinctoriae*; 92D0), Intermittently flowing Mediterranean rivers of the *Paspalo-Agrostidion* (3290) and Mediterranean temporary ponds (3170). It means that out of 15 freshwater habitats present in the reference list for the Mediterranean biogeographical region, only two habitats were selected for the New Biogeographical Process (3170 and 3290 - temporary water habitats). The group was supplemented by two other forest habitat types related to freshwater environment (92A0 and 92D0 – riparian galleries).

Both mentioned Mediterranean temporary rivers and ponds exist only during a part of the year (mostly in winter or late spring). The ponds are very shallow (a few centimetres deep) and represent a priority Natura 2000 habitat type. Their flora is mainly composed of Mediterranean therophytic and geophytic species belonging to the alliances *Isoetion*, *Nanocyperion flavescentis*, *Preslion cervinae*, *Agrostion salmanticae*, *Heleochoion* and *Lythron tribracteati* (with characteristic plants e.g. of genera *Crypsis*, *Cyperus*, *Isoetes*, *Juncus*, *Lythrum*, *Marsilea*, *Serapias* and other). The Mediterranean temporary rivers can completely dry out or leave only some pools. According to the Interpretation Manual of European Union Habitats, their characteristic plants are *Polygonum amphibium*, *Ranunculus fluitans*, *Potamogeton natans*, *P. nodosus* and *P. pectinatus*. However, several Member States note that this list is in contradiction with the temporary nature of these rivers and that it is the list of characteristic species of the water phase and rather of downstream areas, and not of the dry phase.

Of the two forest habitats included in this group, *Salix alba* and *Populus alba* galleries (92A0) are more widely distributed. They represent riparian multi-layered forests of the Mediterranean and Black Sea basins and Central Eurasia and are found in all terrestrial biogeographical regions of Europe with the exception of the Boreal and Macaronesian regions. These galleries are dominated by *Salix* spp., *Populus* spp. or other trees (*Alnus* spp., *Fraxinus* spp., *Acer* spp., etc.). The habitat 92A0 contributes significantly to the maintenance of a high level of biodiversity. It also plays an important role in reduction of erosion in the riverbed and riverbanks, in soil protection, maintenance of landscape heterogeneity, and provides shelter and a trophic base for different animal species. Southern riparian galleries and thickets (92D0) of tamarisk, oleander, and chaste trees and similar low ligneous formations of permanent or temporary streams and wetlands are present in the thermo-Mediterranean zone and southwestern Iberia, and in the most hygromorphic locations within the Saharo-Mediterranean and Saharo-Sindian zones. This habitat includes formations of *Tamarix smyrnensis* (syn. *T. ramosissima*), of stream sides and coastal localities of the Pontic and Steppic regions of western Eurasia. Further characteristic plants are *Nerium oleander*, *Vitex agnus-castus*, *Tamarix* spp., *Securinega tinctoria*, *Prunus lusitanica* and *Viburnum tinus*. This habitat is well adapted to alternating regimes of torrential flooding and very long periods of drought. Two main habitat sub-types can be distinguished: 1) habitats associated with freshwater courses; 2) habitats associated with (salty) coast.

According to the ETC/BD calculations based on the latest version of the Natura 2000 database (version 2012), as summarised in the Pre-scoping Document for the Natura 2000 Seminar on the Mediterranean

region, 51-75% of the area of the habitat 3170 and 76-100% of the area of the rest of the selected habitats (3290, 92A0 and 92D0) is located within SCIs. This means that the Natura 2000 network provides an important framework for the management of this habitat type. The number of SCIs and the habitat area within SCIs for each Member State are presented in Figure 3 and Table 8 (see Annex 2 starting page 82). Since Cyprus, Portugal and Greece provided no area for habitats in 2012, the data from 2011 had to be used. The habitat area was calculated slightly differently compared to the calculations for the Natura 2000 coverage, thus the habitat area in hectares given in Table 8 should be considered as a minimum area.

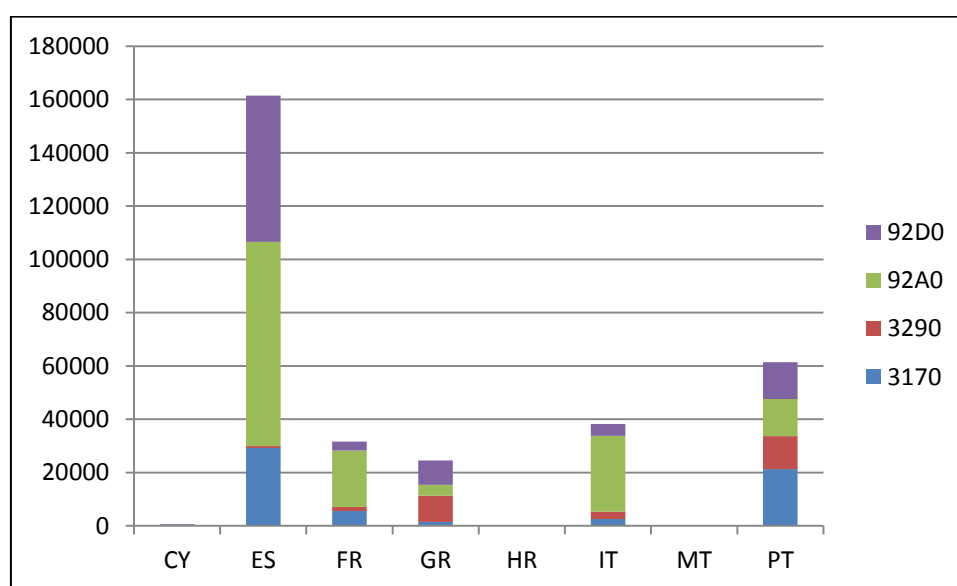


Figure 3: Area of the selected freshwater and wetland habitats (ha) within SCIs for each Member State in the Mediterranean biogeographical region (see the low figures for CY and MT in Table 8, see Annex 2 starting page 82)

Based on the reports of the Member States according to Article 17 of the Habitats Directive for the period 2001-2006, the overall conservation status of all these habitats in the Mediterranean region is unknown or could not be assessed because of unavailable information in Spain (and also in France in the case of 3290) where a significant proportion of these habitats are found (see Table 12, Annex 3, starting on page 85). They were reported in favourable status from Italy and mostly also from Greece and Portugal, but always in bad status from France. Spain collected the data for the period 2007-2012. However, only in the case of one habitat (3170) was a favourable status recognised and the rest of the habitats are in unfavourable condition. The recent assessment of other Member States indicates improvement in Cyprus (where there is only a very small proportion of these habitat types) and improvement of 3290 habitats in France (see Table 12). On the other hand, Italy and Portugal reported worsened status in several of the habitat types concerned. Therefore, the regional conservation status of the listed habitats and the related trends are mostly unfavourable. Only Greece seems to have most of the habitats in favourable status. However, this Member State has not reported for the period 2007-2012 and by default it is only assumed that the assessments for 2001-2006 are still valid for the period 2007-2012. This confirms that the selected habitat types deserve increased attention and conservation measures in the Mediterranean biogeographical region.

4.3.2 Issues, pressures and threats

The freshwater habitats are often strongly influenced by human activities that have caused their disappearance or radical transformation in large areas, resulting in fragmentation and impoverishment. The main reasons underlying the unfavourable situation of freshwater habitats are the transformations and destruction of riparian plant communities as well as the inadequate management of river or pond systems (e.g. hydrological alterations, periodic clearing) that does not take into account biodiversity and the ecological functions of these habitats.

The human-induced changes in hydrological conditions represent the main threat to freshwater habitats identified by the Member States in their 2013 reports on favourable conservation status (Habitats Directive, Article 17) and are also frequently mentioned in the literature. These changes are the result of a broad range of human activities, e.g. building of dams that change the water regime of rivers, canalisation and construction of embankments and other anti-flood measures that modify the structure of watercourses (leading to river straightening), exploitation of springs, water deviation for irrigation and pumping for domestic consumption, groundwater abstractions, draining, dredging, destruction of gravel banks and mud flats, construction works for roads and other modifications of the basin. In the case of Mediterranean temporary ponds, other activities such as silting, filling in with soil, rocks, swamping/flooding (creating permanent ponds or reservoirs) also threaten their hydrological conditions.

Pollution of surface and groundwater is an important issue as well. It usually results in the eutrophication (or hypertrophication of normally eutrophic waters) caused by intensive grazing, fertilisers, sewage discharges or outlets of sewage water treatment plants. Especially in standing waters (3170) this leads to increased growth of helophytes and reduction of submerged aquatic macrophytes. The application of biocides, soil pollution and the solid waste disposal are also perceived as a problem.

The freshwater habitats of this group suffer from high pressure caused by the invasion of non-native plant species - especially after habitat disturbance (even regenerating from their cut parts after mechanical treatment) or due to abandonment (succession of herbaceous and woody plants). The list of alien species that most frequently invade the freshwater habitats includes *Robinia pseudoacacia*, *Ailanthus altissima*, *Acer negundo*, *Acacia dealbata*, *Amorpha fruticosa*, *Buddleja davidii*, *Helianthus tuberosus*, *Solidago gigantea*, *Parthenocissus quinquefolia*, *P. tricuspidata*, *Arundo donax*, *Lonicera japonica*, *Phytolacca americana*, *Ricinus communis* and *Nicotiana glauca*. The hybridisation of the wild individuals of *Nerium oleander* with the oleander varieties planted in both gardens and surrounding landscape for ornamental purposes represents a specific threat for the habitat 92D0.

Urbanisation of floodplains is reported as an important pressure on floodplain habitats. This includes compact or discontinuous urbanisation, i.e. location of industrial or commercial areas, agricultural buildings and other structures on floodplains, building of roads, paths and railroads, utility and service lines. Urbanisation is connected with some of the threats mentioned above, such as water abstraction, pollution, waste deposits, etc. Human use of these habitats is also linked to excessive trampling and overuse caused by vehicles, horseback riding and other sport, leisure and recreational activities.

The freshwater habitats are also threatened by intensive agriculture or its intensification. Besides the activities mentioned above (e.g. irrigation, fertilisation), threats are also represented by clearing for agricultural purposes, intensive grazing (cattle trampling), expansion of intensive land cultivation or

modification of cultivation practices. Intentional burning of existing vegetation (like reeds) also falls under inappropriate agricultural practices, not forgetting that uncontrolled fires could disturb much larger areas.

Forestry represents another group of management activities. Forests influence alluvial habitats especially when the forest exploitation is performed without replanting or supporting natural re-growth, or if artificial afforestation introduces non-native tree species. Some other management practices (such as clearing, habitat transformation in favour of fast-growing hybrid poplar plantations, thinning of the tree layer, removal of forest undergrowth and any illegal logging) also damage the forest alluvial habitats and their surroundings.

Management of freshwater habitats is often not optimal and, for instance, mechanical cleaning of unregulated watercourses disturbs these habitats. Mining and quarrying in the floodplains and the riverbed (especially through sand and gravel extraction), contribute to the disturbance of freshwater habitats as well.

Other man-induced threats are of less important: hunting, fish farming and competition from introduced non-native fish species. The literature less frequently mentions the threats related to climate change or to natural disasters such as droughts, floods or storms. Their impact is not very high, also because the freshwater habitats of this group are adapted to the dynamic nature of the river systems they show high resilience to natural disturbances, even in the case of extreme and frequent changes, and have good regeneration ability.

4.3.3 Main conservation requirements

Maintenance of natural hydrological conditions and their restoration in the sites where they were changed represent crucial conservation requirements for the targeted freshwater habitats. In the case of rivers, it is necessary to consider the riparian ecosystem in a complex way, as a continuum and an interlinked system depending on processes happening upstream. The maintenance of the flow or of a natural hydrological regime should include, for example, avoiding heavy works and serious technical intervention. Limitations on abstraction should be applied (to avoid water pumping, draining, dredging, deepening, drilling wells) in order to effectively guarantee a minimum vital flow/water level sufficient for the maintenance of these habitats. Facilitating or increasing water flow and flooding can be achieved through the progressive reduction of drainage systems. Besides these measures, it is also necessary to avoid building artificial anti-flood structures on rivers, as well as implementing other riverbank regulation measures. As an alternative, it is necessary to ensure the control of critical sections of the river where floods can start and avoid blocking the flow there by other means. The restoration or improvement of the hydrological regime also requires providing conditions for the natural morphogenetic action of the water and thus for re-expansion of the torrential river areas. Large-scale sand and gravel extractions should be banned.

Some Mediterranean temporary ponds (3170) do not require active management (usually the most natural ones in the most oligotrophic sites). However, in many other ponds the fragile balance between natural processes and disturbance by human activities requires active management and some further

measures. In general, it is necessary to focus on the conservation of a variety of small ponds to preserve their biodiversity. Avoiding excessive evaporation by using shelters is recommended, as is avoiding excessive shading using shrubs and trees. The ponds should not be deepened and water reservoirs should be created in other places. The restoration measures for this habitat type also require the supply of a balanced amount of water from the surroundings and the removal of excessive sediments (in two phases: half first, after two years the other half).

Preservation or creation of buffer zones around the freshwater habitats is a general measure to mitigate the impact of human activities such as trampling, bank erosion and water pollution (including hypertrophication). Another important principle is the prevention of excessive construction development in floodplains and especially urbanisation of the banks of water bodies. Standard and strict measures to prevent pollution and waste disposal in watersheds, waterways and shores should be adopted – e.g. reduction of inputs of pollutants through the verification and possible enhancement of the treatment plants upstream. The best measure for the prevention of urban and industrial waste management is to place the related activities outside the floodplains. Farming, including intensive grazing on the edge of watercourses, should be avoided as well.

It is important to set and respect the minimum margins for the development of riparian vegetation, in order to contain the encroachment of riverbanks by non-native invasive plant species. It is also necessary to prohibit the cutting of native woody species and to adopt standards and measures for better protection of older and larger trees. In addition, it is advisable to keep some old or dead individuals and woody debris deposits in so far as they do not threaten the general flow of the river. They also contribute to the diversity of habitats (generally favourable for animal diversity or breeding of aquatic species). If beavers are present, special measures may be given to protect the species or the habitat.

The maintenance of the native structure of the vegetation represents the main measure against invasions of alien plant species, especially those mentioned under threats. The current decline of the wild black poplar, linked to the fragmentation of suitable areas for its recovery or even the disappearance of some riverine waterways, requires increased vigilance of alluvial stands with remnant populations of *Populus nigra*. The existing remnant populations should be maintained. It is preferable to limit the removal of adult poplars to maximise sexual reproduction in addition to vegetative propagation. This conservation objective may be more crucial for adaptation and the fight against parasites, as *Populus nigra* is a source of genes resistant to canker (*Xanthomonas populi*). In the case of heavily degraded formations, it is important to preserve all the remaining stands, even of isolated individuals, because they act as centres of natural dispersion and are the guarantee of future recovery of the ecosystem. The plant material in each section of the courses is the result of centuries of selection and self-cloning to adapt to extreme weather and site conditions. Any reforestation undertaken must therefore be based on this indigenous material and not use the ornamental varieties.

In the invaded and damaged sites, restoration measures should be applied: clearing invasive species from invaded vegetation (preferably manually) and removal of the cut parts of invasive plants (it is not recommended to leave them on the spot). After removal, control of invasive alien species is necessary – sometimes through the application of regular management (e.g. mowing), sometimes by removal of persisting or newly established individuals. The removal of exotic and invasive species is more successful and less costly if it is applied in the initial phases of invasions, when the abundance of the invading alien species is low. Careful and constant monitoring of the habitat structure can ensure a prompt assessment

of critical situations linked to the expansion of unwanted species. The creation of barriers between the habitats to be conserved and irrigation channels represents a special measure to avoid colonisation by exotic predators, particularly crayfish.

Where some form of agricultural management is already established, it is necessary to introduce measures to control agricultural activities (both on-site and in the surrounding catchment area) and to introduce good agricultural practices. The measures to be applied include the maintenance, re-building or introduction of walls or fences to control the access of livestock, the introduction or maintenance of suitable grazing management (preferably by sheep in the case of temporary ponds), and avoiding the concentration of herds at the water's edge.

Good agricultural practices should be promoted, including the regulation of the use of fertilisers and avoiding discharge of waste or manure. For the Mediterranean temporary ponds (3170), domestic ducks are especially disastrous as they defecate in the water and feed on the flora and fauna of this habitat type. For its restoration, it is necessary to block the access of these animals.

For the forest habitat 92A0 (and partly also for 92D0), the regulation of forestry activities is important. The best option is to abandon forestry in sites where there are good perspectives for natural succession and favourable habitat development without regulation. There the clearing and cutting of the riverine forest should be prohibited. In sites where forestry management is in place and cannot be discontinued, the principles of "close-to-nature" forestry should be prioritised. If the current management does not meet these principles, it should be adapted. It is also crucial to avoid plantations of exotic species such as *Populus* hybrids and *Eucalyptus*. In the heavily damaged sites, the restoration of the forest habitats is necessary.

Appropriate regulation/management of hunting and fishing is another issue that needs special attention.

4.3.4 Management and conservation measures

The management and conservation measures currently applied in the targeted freshwater habitats are quite diverse. Besides the most important ones mentioned in this chapter, some additional measures are reported in the cross-cutting issues and in the chapter on lessons learned.

Few measures were reported on the improvement or restoration of natural hydrological regimes. However, some key measures include refusal of any action that negatively influence the water regime or structure of the river and the alluvial habitats concerned, either directly (abstractions, impoundments, retention basins) or indirectly (opening of roads, trails, trenches, bullet-fire in the watershed of the river). The promotion of integrated planning of water bodies represents a key principle for the proper management of watersheds. It should be accompanied by proper awareness-raising campaigns focusing on the managers involved in the development of projects on the conservation and promotion of older stands of habitats. Direct damage to water habitat should also be prevented by prohibiting the mechanical cleaning of water edges with heavy machinery.

Some measures focus on the control of agricultural activities in the surrounding catchment area such as: reduced grazing and control of erosion (including reconstruction of dry stone walls or construction of new ones), and restoration of fords.

Other measures are implemented in order to reduce the input of polluting substances and to stop waste disposal in the habitat (e.g. control of untreated effluents, and waste disposal, increased quality and extent of the treatment of municipal, agricultural and industrial effluents). These measures are complemented by active removal of the waste. The cooperation of several bodies proved to be effective. Greece reported the joint intensive patrolling of the management authority and the forestry authorities in the riverine areas to locate illegal activities, inform all competent authorities and monitor all appropriate restoration actions. They launched the garbage campaigns and clean-up with the help of volunteers.

Regulation of urbanisation and tourism (linked with construction activities) and restricted movement of vehicles are also efficient measures.

Clearing of vegetation (targeted removal of invasive/competitive species) and mowing is usually applied to control alien invasive and competitive species. Planting of autochthonous plants along water embankments is another suitable measure applied for partial restoration of the habitat and for prevention of invasions of alien species. The culture of practiced coppice helps to maintain the habitats in France.

Some measures are specific to the Mediterranean temporary ponds (3170), namely restoring or preserving the natural hydro period of the pond – this includes stopping abstraction of significant amounts of water from the ponds, blocking drainage ditches, stopping extraction of soil from the ponds (but cleaning away excessive sediments), and visitor control (including fencing of ponds). Another specific measure is the restoration of the population of native fish adapted to survive in the pools created in the dry phase of the temporary rivers (e.g. artificial reproduction of *Ladigesocypris ghigii* in a fish refuge in the Greek island of Rhodes).

4.3.5 Bottlenecks and problems

The main issues related to the problems or barriers for implementation of the actual management requirements are related to the areas of policy, policy application, knowledge/awareness raising and cooperation.

A lack of appropriate policies was identified as a problem. In addition, where they do exist, some policies are inadequate or inadequately applied and enforced. Sometimes a clear policy framework is missing (e.g. controlled grazing in the case of habitat type 3170). Inadequate law enforcement could sometimes be attributed as the cause of missing or insufficient (outdated) management plans. The lack of legally enforced protection results in inadequate guarding of the protected areas due to the lack of funds or because local and national authorities wish to avoid conflict with the local communities.

Another important problem that hinders better conservation of freshwater habitats is found in the field of awareness-raising and cooperation with stakeholders. This is especially true for the lack of knowledge

and awareness of local authorities, users and other stakeholders regarding the habitats and their management. This leads to situations with “uncooperative stakeholders”, “public resistance to conservation efforts”, or difficulties in modifying people’s attitude towards nature conservation.

Success in the application of suitable measures for conservation or management of the freshwater habitats is also hampered by insufficient financial resources or inability to absorb, manage and use the existing funds adequately.

Some problems/bottlenecks are specific to the Mediterranean temporary ponds (3170), namely lack of scientific knowledge, especially related to the typological classification of ponds (also a lack of a common name for them in literature), natural processes and the impact of different disturbances. In the case of this habitat type, the problem of uncooperative stakeholders is mainly linked to stock-breeders and to the issue of controlled grazing. Greece reported a specific problem of illegal occupation of public land that is caused especially by the lack of a cadastre system in Crete.

The increased need for wood as a major fuel source during the winter months (because of the financial crisis and rising oil prices) represents a problem that is specific to the forested freshwater habitats.

4.3.6 Solutions and opportunities

Some solutions lie in the policy area. There is a possibility to influence policies at national, regional and local level, and to initiate legislation measures that can contribute to a better management and conservation of the freshwater habitats, including the establishment of protected sites or areas.

Besides the development and implementation of regulations, experience with the preparation of management plans and action plans for sites as well as the application of a holistic approach addressing the entire watershed should be shared. In this respect, “environmental flow management” (see literature list) represents a possible tool that has the potential to restore processes and functioning of riparian ecosystems through strategically managing flows at appropriate times, volumes and scales.

The exchange of experience concerning an effective use of available funds and exploration of additional funding possibilities could increase the effectiveness of the target habitats’ management and conservation.

Consistent law enforcement, control of human activities and effective guarding of the (protected) conservation areas could also eliminate or reduce existing problems. Cooperation with authorities (e.g. Forestry Service, management bodies) and a broad range of stakeholders represents an essential component of the management and conservation activities.

A very effective approach is the control over land ownership and land use through land purchase for nature conservation purposes, land lease for implementation of suitable management or establishment of habitat management/protection agreements with owners. It is necessary to bring together the stakeholders and to find suitable management approaches motivated by habitat conservation for setting-up the process in order to establish such measures. Permanent exchanges of knowledge between scientists, site managers and land owners/users should be a crucial part of this process.

Public awareness-raising and education represent an important field of activity that could contribute to the success of the conservation management of the freshwater habitats. In this respect, sharing experience from the management work, experimental management and restoration measures and promotion of best practice from successful projects are important. Dissemination activities include direct communication, setting up conservation and information centres, seminars for stock-breeders, press articles, etc... Besides communicating best practice, these activities should also emphasise the habitats' wider values and benefits and publicise the importance of habitat conservation. The popularisation and dissemination of correct scientific information is essential. The educational activities should include continuous training and education of policymakers, stakeholders and administrative staff in the field of environmental conservation. The recently broadly used concept of ecosystem services could represent a useful approach to addressing some barriers. The cooperative relationships between governmental agencies and NGOs can also provide opportunities for balancing conservation with human demands, resulting in sufficient protection of the target habitats.

4.3.7 Relevant cross-cutting issues

Some cross-cutting issues are mentioned in the previous chapter, namely those related to the enforcement and implementation of legislation and awareness, cooperation and participation of stakeholders.

A further development of the Natura 2000 network in the floodplain areas and the improvement of the conservation status of the freshwater habitats should take advantage of mutual synergies with the Water Framework Directive (as conservation of these habitats can also contribute to the WFD targets). In this respect, the measures targeting water pollution (agriculture, industry, waste), water use (wells, pumping) and improving/restoring the environmental functions of the freshwater habitats are particularly relevant.

Regarding typical cross-sectoral approaches, the importance of spatial planning and its tools could be highlighted. They are important for the ecologically suitable location of human activities, and contribute to both conservation of the target habitats and human livelihoods through the provision of ecosystem services.

The practical implementation of habitat management and restoration activities could take advantage of the recent trend to support integrated projects that will use multiple sources of funding besides the LIFE programme funding (traditionally used for nature conservation purposes).

4.3.8 Opportunities for joint action

Probably the most important area for the joint action is the exchange and distribution of experiences gained in the field of policy, management and conservation implementation. The best practices in these fields should be systematically collected, processed and published in a suitable format, also using the opportunities offered by modern information and communication technologies. The synthesis of

experiences from the successful projects and programmes is important - it should include and broaden the existing activities in synthesising the experience from the LIFE projects. The exchange of knowledge between countries that reported favourable conservation status and those that need to improve the inadequate status of these habitat types could be useful, but there are also opportunities for the transfer of knowledge within Member States. The studies dedicated to the dynamics of freshwater habitats, to the impact of disturbances (levels of grazing, impact of wild boars, etc.) and experiments testing various restoration measures (type, frequency, intensity) should be jointly promoted and shared. The knowledge acquired could then be used to develop a common strategy for the maintenance and restoration of the targeted habitat types.

Coordinated awareness-raising represents another opportunity for common action. A wide range of approaches could be used, starting with printed publications and ending with media campaigns. The most suitable forms could be selected through a consultation between the countries on the basis of expert knowledge and opinion. The involvement of users, stakeholders and the general public in education and monitoring of suitable conservation status of freshwater habitats and their components (like species) using different forms (including citizen science) could benefit both public awareness raising and collection of knowledge about the target habitats and their status at particular sites. The awareness-raising activities should be based on the experience of the habitat and nature conservation experts, but should involve communication specialists as well.

4.3.9 Selected examples of best practice

The practical examples of management and projects listed below and grouped by habitat type can provide useful input to other sites with similar challenges.

3170 - Mediterranean temporary ponds

LIFE99 NAT/F/006304 mares temporaires - “Conservation of Mediterranean temporary ponds”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=478#Top:

Purpose/Expectations/Outcomes:

1. The increase of knowledge and the drawing-up of management plans (inventory of over 100 sites supporting almost 1,000 pools in France).
2. Control over land ownership and land use (land purchased, management agreements with owners).
3. Management work (experimental scrub clearing, digging-out of pools, removal of invasive exotic species, and restoration of filled-in pools; monitoring of its impact).
4. Raising awareness.
5. Integrated management (permanent exchanges between the site managers and the scientists).

LIFE03 NAT/E/000067 Lago Bañolas – “Recuperation of the aquatic environment of Porqueres and the lake of Banyoles”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2449

http://www.consortidelestany.org/index.php?life_project

Purpose/Expectations/Outcomes:

1. Eradication of exotic species (in particular *Prunus* sp., *Arundo donax*) and planting of autochthonous vegetation helped enlarge and protect different habitats (mainly 3170).
2. phGlyphosates were applied professional cutting was undertaken to avoid sprouting.
3. Yearly manual uprooting of these unwanted species.

LIFE04 NAT/IT/000172 ISOTOSCA – “Tuscan Islands: new actions towards sea birds and habitat”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2631

Purpose/Expectations/Outcomes:

1. Control of shrubs and invasive plants in open priority habitat 3170.
2. Action plan was produced and approved for the protection of priority habitats.

LIFE04 NAT/GR/000105 MEDPONDS – “Actions for the conservation of Mediterranean temporary ponds in Crete”

http://www.life-medponds.gr/EN/index_en.htm

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2674&docType=pdf

Purpose/Expectations/Outcomes:

1. Re-establishment of natural hydrohydro period prior to human intervention.
2. Re-establishment of the habitat's original communities, controlled grazing through management scheme and protective measures to avoid future overgrazing.
3. Restoration and preservation of ponds' water quality to a favourable status.
4. Clean and protected habitat areas, free of solid waste.
5. Public participation in habitat protection and preservation.
6. Non-access areas and controlled eco-tourism development.

LIFE05 NAT/ES/000058 BASSES – “Management and conservation of temporary ponds in Minorca”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2910&docType=pdf

Purpose/Expectations/Outcomes:

1. Six different temporary pond classifications were confirmed.
2. Thorough inventory of the island's 76 temporary ponds.
3. Successful proposals for inclusion of representative temporary ponds within Natura 2000.
4. Management actions: invasive species were eradicated, vegetation was cleared, road access was controlled, and traditional drainage systems and stone walls were also restored.

5. Many of these actions have been included in an agri-environmental scheme for the Biosphere Agricultural Contract (CARB) for long-term continuity.
6. A multidisciplinary technical committee was set up to foster synergies.
7. The project also improved operational systems for environmental management within local government departments.
8. Dissemination activities.

LIFE05 NAT/E/000060 – “Restoration of priority habitats for amphibians”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2912

<http://www.cma.gva.es/web/indice.aspx?nodo=5072&idioma=C>

Purpose/Expectations/Outcomes:

1. Habitat restoration works were carried out at 96 locations within 25 SCIs: e.g. helophytic plant control and eradication of exotic fauna (different habitats, including 3170).
2. Some 14 land owners received support to restore and conserve ponds located on their properties.
3. These habitat sites are expected to be included in a Fauna Reserve Network of the regional government (16 declared, 10 in the process in the project lifetime).
4. Limnological, vegetation and amphibian studies and monitoring.
5. Results were used to update a GIS inventory of 153 important ponds in Valencia.
6. Data contained in the inventory are being used to elaborate an Action Plan for aquatic habitats.
7. Raising awareness.

A starting project LIFE11 NAT/GR/1014 FOROPENFORESTS – “Conservation of priority forests and forest openings in ‘Ethnikos Drymos Oitis’ and ‘Oros Kallidromo’ of Sterea Ellada” –

www.foropenforests.org/en

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4304

Purpose/Expectations/Outcomes:

One of several targets is the restoration of the hydrogeology and of the biotic communities of the temporary ponds (3170*):

1. Grazing management under control (not complete ban).
2. Visitor control (including fencing of ponds).
3. Restoration of hydrological conditions (after studying the hydrology of ponds).
4. Restoration of plant communities (after relevant study; with vegetation clearing).
5. Shrub clearing.
6. Removal of litter.

3290 - Intermittently flowing Mediterranean rivers of the Paspalo-Agrostidion

LIFE97 NAT/IT/004140 Piscinas/Arcuentu – “Dune di Piscinas-Monte Arcuentu”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=224

Outcomes:

1. A site management plan was developed.
2. Restoration and cleaning of riverine habitats: waste material was collected, a ford was restored and 500 autochthonous plants were placed along the water embankments.

LIFE98 NAT/GR/005279 Ladigesocypris Ghigii – “Conservation measures for the endangered fish Ladigesocypris ghigii”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=316

Outcome:

1. Restoration of the population of native fish adapted to survive in the remaining pools (artificial reproduction of *Ladigesocypris ghigii* in a fish refuge in the Greek island of Rhodes).

92A0 - *Salix alba* and *Populus alba* galleries

LIFE96 NAT/E/003098 Galachos – “Restoration of riparian ecosystem in the natural reserve of Galachos, Spain”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=110

Purpose/Expectations/Outcomes:

1. Reforestation of riverine woodland with native species.
2. A new lagoon area was created.
3. Creation of a tree nursery of the most important native species.
4. The experiences acquired from this restoration were compiled into a publication.

LIFE98 NAT/IT/005130 Delta Po – “Safeguard of the habitat and nesting places in Delta of the Po”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=293

Outcomes:

1. Removal of infesting species and in planting of native ones, among which *Acer campestre*, *Alnus glutinosa*, *Fraxinus angustifolia*, *Cornus sanguinea*, *Populus alba* and *Populus nigra*, *Salix alba* and *Salix cinerea*.
2. Thanks to forestry measures, the protection and the status of this priority habitat has been significantly improved.
3. The entire area of the project has been cleaned (removal of waste material).

4. A metal fence (1690 m) has been completed in order to prevent cars and motorbikes from entering the most fragile area of the site and make sure that no new waste material is deposited.
5. Excavation and restoration of a canal (600 m) to regulate the water flow has been completed.

LIFE02 NAT/IT/008572 Fiume Toce – “Toce River: conservation of riparian habitats in favour of breeding and migratory birds”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1981

Purpose/Expectations/Outcomes:

1. Restoration of riverbanks and artificial embankments to reduce erosion.
2. The creation of new alluvial forests through afforestation with seedlings of *Alnus glutinosa*, *Populus alba*, *Quercus robur*, *Salix alba*, *Populus nigra*, *Salix fragilis*, *Salix purpurea*, *Sambucus nigra*, *Cornus mas*, *Rhamnus frangula*, *Euonymus europaeus*.

LIFE03 NAT/E/000067 Lago Bañolas – “Recuperation of the aquatic environment of Porqueres and the lake of Banyoles”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2449

http://www.consorcidelestany.org/index.php?life_project

Purpose/Expectations/Outcomes:

1. Land purchase for nature conservation purposes.
2. Construction of lagoons, eradication of exotic species and planting of autochthonous vegetation.
3. Approval of a revised ‘Regulation of lake activities,’ and of a Special Conservation Plan for the whole lake basin.

LIFE05 NAT/E/000073 GERVE – “Ecosystemic management of rivers with European mink”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2925

Outcomes:

1. 13.04 ha of riparian galleries forest habitats (92A0 and 92D0) were restored and 70.52 ha experienced improved quality.
2. A dump site of 1,250 m³ was sealed and rehabilitated to boost desired habitat cover.

LIFE08 NAT/IT/000324 DINAMO – “Increasing endangered biodiversity in agricultural and semi-natural areas: a demonstrative management model”

<http://www.life-dinamo.it>

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3555

Outcomes:

1. Development and implementation of a territorial resource management model capable of harmonising the contributions of public and private stakeholders in conservation of agricultural and semi-natural habitats that support certain priority species.
2. Publication of guidelines on how to replicate the proposed model.

92D0 - Southern riparian galleries and thickets (*Nerio-Tamaricetea* and *Securinegion tinctoriae*)

See [LIFE05 NAT/E/000073 GERVE](#) under habitat 92A0 above.

Running project LIFE10 NAT/IT/000256 MC-SALT – “Environmental management and restoration of Mediterranean salt works and coastal lagoons”

<http://www.mc-salt.eu/>

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4065

Purpose:

1. Conservation, including fire prevention and invasive plant removal, of a wide range of habitats, including this one.

In the near future, some recently started LIFE projects should bring results contributing to management and restoration of the target freshwater habitats, e.g. LIFE12 NAT/ES/000595 LIFE "Oeste Ibérico" - Landowners club for the conservation of Western Spain, LIFE12 NAT/GR/000275 LIFE-Stymfalia - Sustainable management and financing of wetland biodiversity – The case of Lake Stymfalia.

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http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_pr oj_id=224
- Project LIFE99 NAT/E/006325 Doñana – “Land acquisition of strategic areas in Doñana district”
http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_pr oj_id=480
- Project LIFE99 NAT/F/006304 mares temporaires – “Conservation of Mediterranean temporary ponds”
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4.4 Mediterranean grassland habitats

4.4.1 Summary description

The prioritised grassland habitats group consists of the following habitat types: Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) (6210), Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea* (6220), Thermo-Mediterranean and pre-desert scrub (5330) and Dehesas with evergreen *Quercus* spp. (6310). Thus, out of the total of 75 grassland habitats listed on the reference list for the Mediterranean biogeographical region, only three habitat types were selected for the Natura 2000 Biogeographical Process (6210, 6220 and 6310). (However, this does not mean that other grassland habitat types cannot be addressed through the Process.) The group was supplemented by one more habitat type from the group of heath and scrub (5330).

Festuco-Brometalia grasslands (6210) are formed, on the one hand, by steppic or sub-continental grasslands (*Festucetalia valesiaca*) and, on the other, by the grasslands of more oceanic and sub-Mediterranean regions (*Brometalia erecti*). In the latter case, a distinction is made between primary *Xerobromion* grasslands and secondary (semi-natural) *Mesobromion* grasslands with *Bromus erectus* which are characterised by their rich orchid flora. Abandonment results in thermophile scrub with an intermediate stage of thermophile fringe vegetation (*Trifolio-Geranieta*), often, in association with scrubland and thermophile forests and with dry pioneer *Sedum* meadows (*Sedo-Scleranthea*). These grasslands, present in almost the entire European continent, are among the most species-rich plant communities in Europe and contain a large number of rare and endangered species. This habitat includes dry to semi-dry grasslands and scrubland, occurring from the planar to the mountain level on calcareous to neutral substrates. Calcareous grasslands play a major, but not always well-recognised or understood, role for society (production, employment), the environment and biodiversity. The grasslands are key habitats for many species: herbs, grazing animals, butterflies and reptiles, and many birds. Birds of prey, such as *Falco biarmicus*, *Pernis apivorus*, *Circaetus gallicus* and *Circus pygargus*, use these grasslands as hunting areas during the breeding season. Many passerines, such as *Emberiza hortulana*, *Sylvia nisoria*, *Lullula arborea* and *Lanius collurio*, use this environment for nesting and roosting, while other birds breed in these grasslands, such as *Burhinus oedicephalus*. This habitat also hosts a rich invertebrate fauna, particularly butterflies.

Pseudo-steppe with grasses and annuals (6220) includes a variety of xeric, thermophilic and mostly open Mediterranean perennial and annual grasslands growing on usually eutrophic, but also oligotrophic, soils. Pseudo-steppe with grasses and annuals has a typical Mediterranean distribution, with a significant area located in the Iberian Peninsula (mostly in Spain), followed by Italy, France, Greece, Cyprus and Malta. The habitat has been favoured by traditional management schemes and contributes to the so-called cultural landscapes. It usually occurs in a mosaic pattern with a wide variety of related habitats, many of which are also included in the Habitats Directive.

Three major sub-types should be considered: one of perennial basophile rather hard short-grass communities, included in *Lygeo-Stipetalia*; another one of very dense and short but highly productive perennial summer drying swards, created by intense and continuous livestock activity, included in *Poetalia bulbosae*; and one of pioneer and ephemeral basophilous annual grasslands, included in

Brachypodietalia (Trachynietalia) distachyae. The diversity of plant, invertebrate and vertebrate communities is usually high.

Thermo-Mediterranean and pre-desert scrub (5330) includes a wide variety of scrub formations characteristic of the thermo-Mediterranean zone. This includes the hotter, more arid parts of the Mediterranean and Macaronesian regions, together with an adjacent part of the Continental region in Italy. Similar vegetation also occurs in northern Africa and the Middle East. Included formations are for the most part indifferent to the siliceous or calcareous nature of the substrate. The habitat type includes the numerous, strongly characterised, thermophile formations endemic to the south of the Iberian Peninsula, mostly thermo-Mediterranean but sometimes meso-Mediterranean. In terms of their great local diversity, they are a western counterpart of the mostly eastern Mediterranean phryganas.

Dehesas with evergreen *Quercus* spp. (6310) form a characteristic landscape of the Iberian Peninsula. In this landscape, crops, pasture land or Meso-Mediterranean arborescent matorral, in juxtaposition or rotation, are shaded by a fairly closed to very open canopy of native evergreen oaks (*Quercus suber*, *Q. ilex*, *Q. rotundifolia*, *Q. coccifera*). It is an important habitat for raptors, including the threatened Iberian endemic eagle (*Aquila adalberti*), the crane (*Grus grus*), large insects and their predators, and the endangered felid (*Lynx pardinus*).

According to the ETC/BD calculations based on the latest version of the Natura 2000 database (version 2012), as summarised in the Pre-scoping Document for the Natura 2000 Seminar on the Mediterranean region, 76-100% of the area of habitat 6210 are located within SCIs. This means that the Natura 2000 network provides an important framework for the management of this habitat type. For the other three habitat types (6220, 5330 and 6310), a potentially important part of their management needs occurs outside the Natura 2000 network as, according to the ETC/BD calculations, only 0-50% of the area of these habitat types are within SCIs. The number of SCIs and the habitat area within SCIs for each Member State are presented in Figure 4 and Table 9 (see Annex 2 starting page 82).

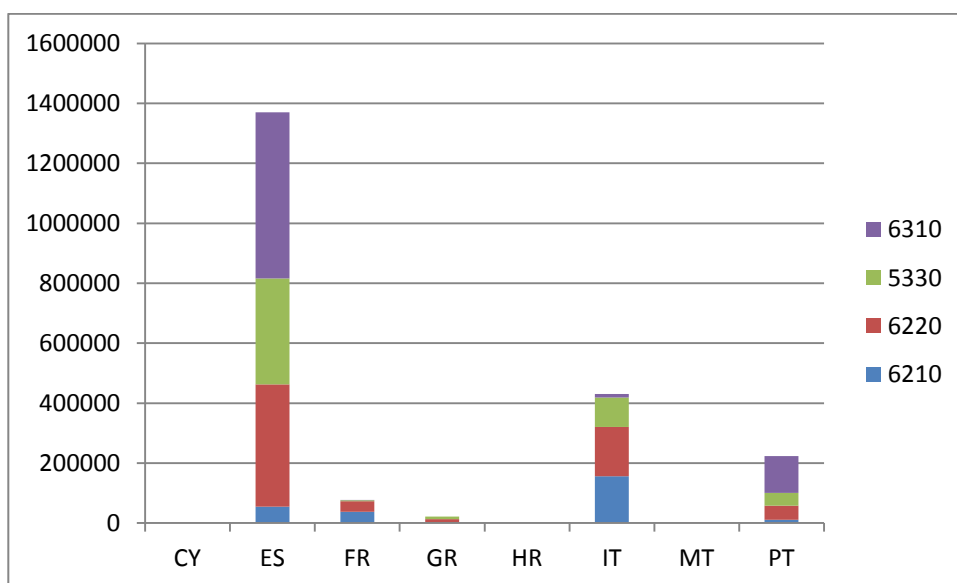


Figure 4: Proportion of the habitat area (ha) within SCIs for each Member State in the Mediterranean biogeographical region (see the low figures for CY, GR and MT in Table 9)

Based on the reports of the Member States according to Article 17 of the Habitats Directive for the period 2001-2006, the overall conservation status of all these habitats in the Mediterranean region could be seen as unknown, or was not assessed, because of unavailable information in Spain, where the large majority of these habitats are found. In the case of 6220, which also has the largest range in Spain, it has been reported as unfavourable–inadequate. At the same time, Italy and Portugal reported all of the habitats as being favourable (except for 6310, reported unfavourable–inadequate by Portugal). For the period 2007-2012, there much more data is available (only France reported 6310 as being unknown). However, there are now also several ‘unfavourable–bad’ assessments (6210 in Spain and France; 6220 in France, changed from favourable; 6310 in Spain). Portugal reports three out of four habitats to be favourable (except for 6310 unfavourable–inadequate), while Italy had a similar situation but in the last round of reporting reported conservation status to have deteriorated to unfavourable for three habitats (6210, 5330 and 6310). Only Malta reported an improved conservation status to favourable for 6220. All of this indicates that the overall conservation status of the selected priority grassland habitats in the Mediterranean biogeographical region seems to be deteriorating, and confirms that the selected habitat types deserve increased attention and conservation measures (see the full comparison in Table 13, see Annex 3, starting on page 85). Also, when looking only at the reported trends in range and area of these habitats, the majority of the reports are stable or increasing, with some unknown assessments from Spain and a decrease in both range and area reported by Italy for 5330 and 6310.

Table 5: Summary of habitat types

Habitat	Main features	Associated species
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites)	Dry to semi-dry calcareous grasslands of the <i>Festuco-Brometea</i> . This habitat is formed by steppic or subcontinental grasslands (<i>Festucetalia valesiaca</i>) and by the grasslands of more oceanic and sub-Mediterranean regions (<i>Brometalia erecti</i>). In the latter case, a distinction is made between primary <i>Xerobromion</i> grasslands and secondary (semi-natural) <i>Mesobromion</i> grasslands with <i>Bromus erectus</i> ; the latter are characterised by their rich orchid flora.	Plants: <i>Mesobromion</i> - <i>Anthyllis vulneraria</i> , <i>Arabis hirsuta</i> , <i>Brachypodium pinnatum</i> , <i>Bromus inermis</i> , <i>Campanula glomerata</i> , <i>Carex caryophylla</i> , <i>Carlina vulgaris</i> , <i>Centaurea scabiosa</i> , <i>Dianthus carthusianorum</i> , <i>Eryngium campestre</i> , <i>Koeleria pyramidata</i> , <i>Leontodon hispidus</i> , <i>Medicago sativa</i> ssp. <i>falcata</i> , <i>Ophrys apifera</i> , <i>O. insectifera</i> , <i>Orchis mascula</i> , <i>O. militaris</i> , <i>O. morio</i> , <i>O. purpurea</i> , <i>O. ustulata</i> , <i>O. mascula</i> , <i>Polygala comosa</i> , <i>Primula veris</i> , <i>Sanguisorba minor</i> , <i>Scabiosa columbaria</i> , <i>Veronica prostrata</i> , <i>V. teucrium</i> . <i>Xerobromion</i> - <i>Bromus erectus</i> , <i>Fumana procumbens</i> , <i>Globularia elongata</i> , <i>Hippocrepis comosa</i> . <i>Festucetalia valesiaca</i> : <i>Adonis vernalis</i> , <i>Euphorbia seguierana</i> , <i>Festuca valesiaca</i> , <i>Silene otites</i> , <i>Stipa capillata</i> , <i>S. joannis</i> . Animals: <i>Papilio machaon</i> , <i>Iphiclides podalirius</i> , <i>Libelloides</i> spp., <i>Mantis religiosa</i> .
6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea	Meso- and thermo-Mediterranean xerophile, mostly open, short-grass annual grasslands rich in therophytes; therophyte communities of oligotrophic soils on base-rich, often calcareous substrates.	Plants: <i>Brachypodium distachyum</i> , <i>B. retusum</i>

<p>5330 Thermo-Mediterranean and pre-steppe scrub</p>	<p>Scrub formations characteristic of the thermo-Mediterranean zone. Included here are those formations, for the most part indifferent to the siliceous or calcareous nature of the substrate, that reach their greatest extension or optimal development in the thermo-Mediterranean zone.</p>	<p>Plants: <i>G. fasselata</i>; <i>Crataegus azarolus</i> var. <i>aronia</i>; <i>Euphorbia dendroides</i>; <i>Ampelodesmos mauritanica</i>; <i>Chamaerops humilis</i>; <i>Ziziphus lotus</i>, <i>Maytenus senegalensis</i> var. <i>europaeus</i>, <i>Periploca laevigata</i> ssp. <i>angustifolia</i>, <i>Salsola webbii</i>, <i>Sideretis foetens</i>, <i>Ulex argentatus</i> ssp. <i>erinaceus</i>, <i>Genista umbellata</i>; 32.26 - <i>Lygos sphaerocarpa</i>, <i>L. monosperma</i>, <i>L. raetam</i> ssp. <i>gussonei</i>, <i>Genista cinerea</i> ssp. <i>speciosa</i>, <i>G. valentina</i>, <i>G. spartioides</i> ssp. <i>retamoides</i>, <i>G. s.</i> ssp. <i>pseudoretamoides</i>, <i>G. haenseleri</i>, <i>G. ramosissima</i>, <i>G. ephedroides</i>, <i>G. dorycnifolia</i>, <i>Cytisus aeolicus</i> <i>Euphorbia melitensis</i>.</p>
<p>6310 Dehesas with evergreen Quercus spp.</p>	<p>Subtypes: 32.21G <i>Genista fasselata</i> brush; 31.8B5p Xerophilous <i>Crataegus azarolus</i> var. <i>aronia</i> scrub. 32.22 Tree-spurge formations; 32.23 - Diss-dominated garrigues; 32.24 Palmetto brush; 32.25 - Mediterranean pre-desert scrub. <i>Periplocion angustifoliae</i>, <i>Anthyllidetalia terniflorae</i>; 32.26 Thermo-Mediterranean broom fields (retamares); 32.441p Spiny spurge garrigues</p> <p>A characteristic landscape of the Iberian Peninsula in which crops, pasture land or Meso Mediterranean arborescent matorral, in juxtaposition or rotation, are shaded by a fairly closed to very open canopy of native evergreen oaks.</p>	<p>Plants: <i>Quercus suber</i>, <i>Q.ilex</i>, <i>Q.rotundifolia</i>, <i>Q.coccifera</i>.</p>

4.4.2 Issues, pressures and threats

Literature

Pressure on grassland habitats in Europe is steadily increasing, mainly due to abandonment or change in use. The total area of grassland in the EU fell by an average of 12% between 1975 and 1998, with increases in only a few areas. In the areas where the habitat is still present, the lack of management results in a continuing decrease in range of the many species that depend on it. Active management of the habitat includes grazing, cutting or a combination of both. In rural areas, grazing is important both to the local economy and to maintain the aesthetic value of grassland sites for the benefit of the local community.

Across Europe, large grassland areas have disappeared in the last century, causing severe fragmentation of the remaining habitat areas and a consequent drop in populations of certain species by as much as 20-50%. The main causes of decline are unregulated and overgrazing and land use-changes and abandonment. Afforestation and succession are also an issue, specifically in the case of calcareous grasslands (such as 6210). Pressures on other grassland habitat types (such as 6220) further include significant changes in management practices and increasing threats by fire. In many cases traditional management practices have been replaced by transformation into intensive agricultural land and utilisation of pesticides, herbicides and fertilisers. In addition urbanisation and tourism cause pressure on the health of these grasslands, especially in coastal areas. While tourists are attracted to 6220 landscapes, this is a positive signal concerning its preservation, but also this brings pressure through access for these same landscapes.

EC reporting

These findings are also supported based on recent Article 17 reports from the Member States. Specifically, these highlight the changes in grazing practices (too intensive in some cases and abandonment of grazing practices in others). Directly connected to grazing practices are the abandonment of pastoral ecosystems and changes in cultivation practices, and the natural succession that result from these. Changes in land use result in another commonly reported pressure – expansion of built-up urbanised areas. This is often the case, especially in the coastal areas where natural habitats are often completely substituted by urban structures.

Returning to the threat of fire to grasslands, 85% of (forest) fires occur in the Mediterranean region. About 95% of wildfires in Europe are caused by human activity, mainly intentional fires related to agricultural practices (i.e. for pastoral burning of shrubs to induce the growth of forage).

Finally, for a more transitional habitat type such as 5330, invasive non-native species have been reported as a significant pressure.

Experts

Expert contributions confirm the identified pressures. For example, in Spain, main pressures are indicated to be: agriculture and forestry activities; mining and extractive activities; urbanisation and industrialisation; transportation and communications; leisure and tourism; and natural processes. More specifically, these include: pastoral farming and grazing; reforestation with non-native species; burning; open-cast mines and quarries; mountaineering, rock climbing and potholing; ski resort projects; and finally, potential habitat reduction due to disturbances and climate change.

According to the expert's input, the Croatian population of *Coenonympha oedippus* (False Ringlet, a butterfly) inhabits small and fragmented meadows of 6210. The largest threat to the False Ringlet is habitat loss and degradation as a result of various activities, including agricultural improvements such as land drainage and watercourse regulation, as well as abandonment and changes in habitat management. The species' survival has a strong connection with the groundwater level.

Expert contributions from Portugal report that farmland intensification, through monocultures and irrigations, destroys habitat 6220, thereby negatively affecting the bird species *Tetrax tetrax* (Little Bustard).

4.4.3 Main conservation requirements

Grassland management objectives vary from site to site. Within one site, different goals may be set for different areas. A balanced approach is needed to maintain the main plant communities, along with the main features of importance to animals, such as areas of bare soil, scattered bushes and scrub margins.

Considering the natural tendency of *Mesobromion* grassland to evolve towards scrub and woodland, the management should focus on the localised recovery of nuclei of scrub and tree vegetation, in a way that is compatible with the autochthonous evolution series of vegetation. An exception should be made for

Mesobromion grassland, which hosts precious floristic elements, such as orchids, which if left to evolve naturally would tend to disappear. In these cases, management should tend to the conservation of the *Mesobromion*, preventing its natural evolution, through cutting and/or grazing. This type of habitat should be excluded from afforestation. As *Mesobromion* grasslands are a semi-natural vegetation, only on-going management prevents its reversion to woodland and allows the maintenance of the floristic and vegetation value of these environments.

The habitat features, conservation values and context (history and development) of the semi-natural dry grasslands (6210) are very different between the various countries and biogeographical regions. Therefore, when considering the conservation requirements and planning the management for the habitat, it is important to take into account the following general aspects, which could allow sensible management decisions to be taken:

- site-specific objectives and targets with reference to the conservation status of species;
- local/regional land use and livestock husbandry traditions, practices and techniques - the conservation values of today are often the result of the land use and grazing regimes of the past;
- (although it is often neither possible, nor appropriate) historical management practices, whilst also considering recent knowledge and experience.

The objective of grassland conservation management should be to provide variety in structure and composition, both on a macro and micro scale, favouring different structural elements to form a mosaic of longer and shorter grass, of shrubby vegetation and small bare areas that will benefit different forms of wildlife. Insects, for instance, need open areas alternating with scrub areas, on a scale of one square metre, while birds or mammals need more extended areas, on the scale of one hectare. The desirable sward structure or mosaic of structures for a particular grassland site will depend on the particular nature conservation objectives.

Due to the pioneer or semi-pioneer character of every community included in the 6220 habitat type, it is obvious that management, especially grazing, is required to perpetuate them. However, management intensification can be negative both for persistence and for conserving high biodiversity levels at many scales: landscape and structure, ecotones, species and genetics (e.g. plant ecotypes selected by livestock grazing through millennia). Therefore, as a general rule, traditional extensive management schemes should be considered as the desired conservation management model. As a consequence of the large variety of communities included in the 6220 habitat type, and given the large area they occupy, there are many other types of habitats that are associated or in contact with it. As these habitat types often share the same landscapes, their ecological requirements and management tend to be rather similar - for example, Thermo-Mediterranean and pre-desert scrub (5330), when in contact with 6220 habitat type - these two habitats complement each other for fauna and flora conservation purposes: the first one provides shelter for both flora and fauna (facilitation), and the second one, food for wildlife. Dehesas with evergreen *Quercus* spp. (6310) are closely related with *Poetalia bulbosae* communities - the best sward type of the dehesa system - a cultural landscape used for extensive livestock rearing. Their management needs therefore coincide to a great extent with those of 6220.

According to expert input, the conservation of 6210 habitats indirectly means ensuring food requirements for *Canis lupus*. Similarly, birds linked to this habitat use it for feeding and, in some cases, for breeding (e.g. *Alauda arvensis* and *Alectoris graeca*).

4.4.4 Management and conservation measures

Before making decisions on how to manage grassland, it is necessary to define specific objectives for the specific area. Grassland management objectives will vary from site to site, and, within one site, different goals may be set for different areas; a balanced approach is needed to maintain the main plant communities, along with the main features of importance to animals, such as areas of bare soil, scattered bushes and scrub margins. In addition, it is sensible to review these objectives from time to time to take into account newly acquired knowledge about the site and the changing status of grassland types and species elsewhere. The management objectives for nature conservation of calcareous grasslands (6210) might include the following:

- maintaining the nature conservation interest of grassland communities valued for nature conservation with their component species of flora and fauna;
- limiting the establishment of undesirable robust competitive grasses and herbs;
- diversifying the grassland structure and increasing plant species richness;
- creating specific conditions for key-stone species;
- removing/checking scrub invasion and, where possible, enhancing its ecological interest;
- retaining some areas of unmanaged grassland, if appropriate.

Semi-natural grasslands, such as 6210, require low intensity or extensive management to maintain their nature conservation value. This can be achieved either by grazing or mowing. In both cases, a number of factors need to be taken into account and particular regimes should be followed (e.g. by grazing: stock type, grazing periods, stocking rates, duration of grazing, grazing system; by mowing: timing, frequency, distribution, methods). It is not always clear whether grazing or mowing is the most appropriate regular management for high quality calcareous grasslands.

According to the experts input, appropriate management for the *Coenonympha oedippus*, which is dependent on the 6210 habitat, should include extensive grassland management with rotational mowing, maintaining dense habitat networks to support meta-populations and large areas of suitable habitat with minimum levels of management. Removal of bushes and/or reeds should be performed every few years, as intrusion changes the microhabitat structure and destroys the habitat.

Some recommended management actions for the 6220 habitat type could be the following: grazing - essential for creating and maintaining grasslands where forests or shrub communities constitute the potential vegetation (i.e. everywhere in European Mediterranean countries); mineral fertilisation - an advisable treatment only for *Poetea bulbosae* communities - with small quantities of phosphoric rock

every few (3-6) years (note that fertilisation with other nutrients, or on other 6220 habitat type communities, is neither necessary nor advisable); conservation and restoration of traditional infrastructures (i.e. water points, traditional hedges, stone walls) present in landscapes with 6220 habitat type communities are usually of a high value for wildlife and have a high cultural value; agriculture - occasional cropping on small plots of land with deeper and richer soils; beetle-banks or evenly distributed patches of unploughed land in large purely agricultural areas; control of woody vegetation (scrub) encroachment; silvicultural treatments - especially in dehesa system, where *Poetalia bulbosae* communities are widespread – aiming at achieving a minimum of over 200, preferably uneven-aged, young trees per hectare. There are technical prescriptions, techniques, examples and constraints for many of those management actions.

Based on the reports of the Member States according to Article 17 of the Habitats Directive for the period 2001-2006, the high importance conservation measures reported for all of the selected habitat types are *legal protection of habitats and species* and *establishment of protected areas/sites*; for three of them (not for 5330), these are *maintaining grasslands and other open habitats* and *adapt forest management*. Further to these, the high importance conservation measures as reported by Member States are: *specific single species or species group management measures* (for 6210); *regulating/management exploitation of natural resources on land* (for 6210 and 6310); for 6220: *urban and industrial waste management* (for 6220 and 5330); *manage landscape features* (for 6220 and 5330); *regulation/ management of hunting and taking* (for 6220 and 5330); *restoring/improving forest habitats* (for 6220 and 6310).

A common feature of experts' opinion is that there is a need to keep farmers farming at low intensity. To achieve this, targeted agri-environmental measures are needed as tools to promote best farming practices. In the long term, there is a need for mechanisms to improve the income from low intensity farming such as: nature based tourism, and branding of products and services.

4.4.5 Bottlenecks and problems

A general problem for all of the grassland habitat types in the Mediterranean seems to be associated with changes in farming practices – land abandonment on one hand, and farming intensification on the other (land-use polarisation). Tourism, as the growing sector in this region, also represents a problem causing rapid land-use change by stimulating urbanisation, and therefore habitat loss and fragmentation. Beyond urbanisation, tourism generates additional pressures through uncontrolled leisure and recreational activities.

Management plans have not yet been developed for all Natura 2000 sites and the process of their development does not always run smoothly or there are delays in their approval once prepared. Reasons for this are often lack of capacity and funding, but also problems in policy coordination.

According to expert opinion, in Greece, the authorities responsible for the management and protection of Natura 2000 sites lack both human and financial capacity. Additionally, the present legal framework does not always sufficiently support the mission of these authorities.

Experts report that in Portugal decision-makers on rural development and farmers' unions sometimes resist implementing and supporting the correct policies regarding agri-environmental measures.

4.4.6 Solutions and opportunities

The success of management models for Natura 2000 habitats, especially grasslands, requires the involvement and agreement of many stakeholders: land owners, users, inhabitants of nearby villages, hunters, livestock owners, public administrations, environmental associations, NGOs and many others. This is why land management agreements have proved to be a suitable tool to achieve success in many European countries, as well as in Canada, the United States of America, Costa Rica and many other countries. Most European countries are doing this through official agreements, usually including management plans and budgets for every management unit. The LandLife project (<http://www.landstewardship.eu>) aims to communicate the value of land stewardship as an effective and successful tool for nature and biodiversity conservation, including the management of Natura 2000 sites.

4.4.7 Relevant cross-cutting issues

Spatial planning is one of the key sectors to be engaged within the cross-sectoral cooperation in order to achieve the balance between protecting valuable habitats and finding space for controlled development and urbanisation – to meet the needs of growing tourism industry.

The problem of changing farming practices shows a clear need to engage with the agricultural sector and to seek funding opportunities within the CAP, agri-environmental subsidies and rural development funding. Green infrastructure might be a useful hook to attract funding from these funding sources - and others, not immediately linked to nature conservation - and use them to support management and restoration of grassland habitats.

Other cross-cutting issues emerging from all of the above include the need for: awareness raising and stakeholder involvement; increased capacity for the planning and implementation of proper management measures; and policy coordination between different sectors.

4.4.8 Selected examples of best practice

The practical examples of management and projects listed below can provide some useful input to other sites with similar challenges.

6210 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)

PROGRAMMA RETE NATURA 2000 BASILICATA

<http://www.natura2000basilicata.it>

Purpose/ Expectations/ Outcome:

1. Formulation of a cognitive framework in relation to the characteristics of the sites and their various components (physical, biological, socio-economic, cultural and landscape), based on prior knowledge and, when necessary, on detailed studies., Geo-referenced databases and thematic maps at an appropriate scale have been developed in support of the cognitive framework.
2. Analysis of the ecological needs of habitats and species through the use of indicators to assess their conservation status and to forecast their development.
3. Formulation of management objectives and general objectives , with indication of possible conflicts and priorities for action, based on strategic assessments that meet the aims set up for the sites.
4. Definition of a management strategy and plan of action, with development of management strategies and maximum specific actions to be undertaken, together with an assessment of the costs that must support these actions and deadlines for their implementation.
5. Identification of indicators and monitoring measures to periodically assess the conservation status of habitats and species and the effectiveness of management actions.

LIFE08 NAT/IT/000362 COLLI BERICI NATURA 2000 – “Conservation actions, habitat and species improvement, and preservation of the SCI Colli Berici nature reserve”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3585

Purpose/Expectations/Outcome:

1. Conservation and preservation of species living inside the SCI Colli Berici nature reserve.
2. Wetland restoration and creation to help the presence of amphibious and reptile species.
3. Creation of a spatial database and GIS.
4. Increase in biodiversity and its evaluation through the monitoring of Diptera (insect biodiversity indexes) as well as the creation of an index on avian species.
5. Improvement, restoration and protection of habitats, for example through use of gates or grates.

LIFE99 NAT/GR/006498 Gramos and Rodopi – “Implementation of management plans in Gramos and Rodopi areas”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=568

Purpose/Expectations/Outcome:

1. Protection of 6 priority habitat types and the brown bear, which is vitally related to three of the priority habitat types.
2. Contribute to the conservation and sustainable management of priority habitat types of key importance for the brown bear species at the national level.
3. Ensure the connectivity between targeted priority habitat types and species at a transborder scale, by placing contiguous critical sectors under specific conservation and management status.

4. Trigger the creation of a specific monitoring infrastructure at a local scale for the long-term management of targeted priority habitat types and species.
5. Overall, the project achieved its objective as well as the expected results.

6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea

LIFE Project - “Conservation of Little Bustard in Alentejo”

<http://life-sisao.spea.pt/pt/>

Purpose/Expectations/Outcome:

1. Identify the most important areas for target species (*Tetrax tetrax*).
2. Identify the best management practices for target species.
3. Raise awareness among relevant decision-makers and farmer communities.

LIFE04 NAT/IT/000172 ISOTOSCA – “Tuscan Islands: new actions towards sea birds and habitat”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=2631

Purpose/Expectations/Outcome:

3. 1. Control of shrubs and invasive plants in open priority habitat 3170.
4. 2. Action Plan was produced and approved for the protection of priority habitats.

5330 Thermo-Mediterranean and pre-steppe scrub

LIFE08 NAT/E/000077 CIRCUREVIEJA – “Decantation circuit of residual salts and ecological recovery of the Natural Park of Las Lagunas de la Mata and Torrevieja”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3574

Purpose/Expectations/Outcome:

1. Reduce residual salts discharged in the lake of Torrevieja, a priority habitat according to the Habitats Directive.
2. Aid the ecological recovery of the old decantation area – i.e. the proliferation of endemic species and extension of the Audouin’s seagull nesting area.
3. Improve environmental management in residual stockpiles of salt.
4. Spread environmental awareness.
5. Improved the brine decantation circuit; solved the environmental problem associated with inefficient decantation; led to an increase in the number of nesting sites for Audouin’s gull and other nesting birds over an area of 35ha that was previously constantly flooded. Moreover, this area can be colonised by the habitats 1510 (Mediterranean salt steppes), 1310 (*Salicornia* and other annuals colonising mud and sand) and 5330 (Thermo-Mediterranean and pre-desert scrub).

LIFE11 NAT/IT/000232 Leopoldia – “Ripristino degli habitat dunali nel paesaggio serricolo del golfo di Gela per la salvaguardia di *Leopoldia gussonei*”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4293

Purpose/Expectations/Outcome:

1. Re-establish and protect the sand dune habitats (2110, 2120, 2210, 2230, 2250) that are most suitable for the conservation and spread of the priority species *Muscari gussonei*.
2. Improve connectivity within the ecological network in the project area.
3. Improve dune and back-dune management to recover the morphology of the dune system.
4. Increase bird populations and nesting.
5. Establish the ecological/environmental conditions for the deposition of loggerhead turtle (*Caretta caretta*) eggs.
6. Decrease human pressure on dune habitats and increase low-impact agricultural management systems.
7. *Muscari gussonei* germplasm collection.
8. Establishment of an ex-situ nursery to grow *Muscari gussonei*.
9. Increasing the awareness of the local population about sand dune habitats and associated species conservation, including an increase in specific educational activities.

LIFE11 NAT/IT/000232 Dunas Albufera – “Model of restoration of dune habitats in 'L'Albufera de Valencia”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=1785

Purpose/Expectations/Outcome:

1. Regenerated the ecosystems of the 'Devesa', eliminating the adverse effects of infrastructure development and restoring the damaged areas.
2. Demolished some of the abandoned infrastructure, restored dune chains and reintroduced two threatened fish species.
3. Diverted some visitors to other recreational areas and launched an awareness-raising campaign aimed at visitors and the local population.
4. Habitat recovery was successful and the conservation status of the site improved.
5. Natural regeneration of the Natura 2000 site after the restoration work supported by LIFE raises optimism for the resilience of the ecosystem, which underwent a dramatic transformation in recent decades. It is reasonable to believe that the work has directly benefited habitat types lost after the destruction of the first dune fringe: 2210 (*Crucianellion maritimae* fixed beach dunes), 2220 (Dunes with *Euphorbia terracina*), 2230 (*Malcolmietalia* dune grasslands), 1410 (Mediterranean salt meadows), 1420 (Mediterranean and thermo-Atlantic halophilous scrubs, *Sarcocornetea fruticosi*) and 1430 (halo-nitrophilous scrubs, *pegano-salsoletea*). In the same way, the work could have a positive effect on habitat type 2260 (cisto- lavenduletalia dune sclerophyllous scrubs), altered as a result of the destruction of the first dune fringe.
6. Created 28 jobs (25 part-time and three full-time), all of them filled by the job centre.

7. Despite the high demonstration value of the project towards sustainable tourist development, holiday resorts remain an active threat in the area, and should be closely monitored.

Project partly financed by the European Agricultural Fund for Rural Development Axis 3 – Improving the Quality of Life in Rural Areas: “Natura 2000 management planning for Malta and Gozo”

<http://natura2000malta.com/>

Purpose/Expectations/Outcome:

1. Elaboration of management plans / legislative frameworks for all 34 terrestrial Natura 2000 sites in the Maltese islands.
2. Involvement of stakeholders (ranging from conservation experts to land owners, residents, businesses, local councils, community and environmental groups, etc.) in the management planning process to ensure that the management plans are appropriate to each site and can be successfully implemented; and as a key element in the gathering of data about each of the Natura 2000 sites.
3. Informing and education of the public and all stakeholders about the Maltese Natura 2000 sites.

6310 Dehesas with evergreen Quercus spp.

LIFE11 NAT/IT/000232 BioDehesa – “Dehesa ecosystems: development of policies and tools for biodiversity conservation and management”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4352

Purpose/Expectations/Outcome:

1. Promote sustainable, integrated management of dehesas by demonstrating and disseminating action plans.
2. Create a network of 40 pilot dehesas that will trial activities and management practices to enhance dehesa conservation and biodiversity. Test other related horizontal services that support the integrated management of dehesas, including an oak decline assessment service, a moisture deficiency diagnostic tool, nursery protocols and a geographic information system (GIS).
3. Develop a monitoring system and identify indicators.
4. Exchange of scientific and technical knowledge to finalise a model ‘Integrated Management Plan’ as a basic tool to provide solutions to the most serious management problems for dehesas. Participatory workshops to help the transfer of knowledge and best practice and disseminate results through a manual of good practice and the Internet.
5. Conservation actions are expected to lead to renewal of trees, soil remediation, rational pruning, re-vegetation, improved grazing and improved wildlife.
6. Increased understanding and knowledge of dehesa-related biodiversity.
7. An agreed Integrated Management Plan with well-defined indicators and monitoring systems and a manual of best practice in dehesa conservation, covering a range of conservation and related activities.

8. The preparation of new legal instruments to support dehesa conservation and an effective dissemination of information strategy targeting national, regional and European administrations.

LIFE07 NAT/E/000762 Campanarios de Azaba – “Biodiversity conservation in western Iberia”

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=3347

Purpose/Expectations/Outcome:

1. The enhancement of biodiversity in around 133,000ha of Mediterranean woodland ecosystems in the SCIs-SPAs Campo de Azaba, Campo de Argañán and Malcata (the first two in Spain, the latter in Portugal).
2. An estate of nearly 500 ha will be bought, creating a reserve area for suitable management practices to be introduced.
3. Restoration actions to improve the conservation status of relevant habitats will be undertaken, especially in the case of holm oak forests, river gallery forests and temporary Mediterranean ponds.
4. Biodiversity evaluation indicators and management protocols for habitat 6310 developed and transferable to other areas of open Mediterranean woodland.
5. Several public use infrastructures and a series of dissemination activities, as well as specific awareness-raising campaigns, will help to pass on the message to relevant stakeholders and the general public.

LIFE12 NAT/ES/000595 "Oeste Ibérico" – Land owners club for the conservation of western Spain

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=4636

Purpose/Expectations/Outcome:

1. Continuation of the LIFE project ‘Campanarios de Azaba’ (LIFE07 NAT/E/000762).
2. Improving the conservation status and population trends of the main habitats and species (mainly birds) of the western Iberian Peninsula in ten Natura 2000 sites.
3. Raise awareness at local, regional and national levels about the western Iberian territory as a transnational ecological unit of enormous value for the conservation of biodiversity in Europe.
4. Improve the conservation status of seven habitats listed in Annex I of the Habitats Directive (two of which are priority habitat types). These include freshwater habitats, forests of temperate Europe and Mediterranean deciduous forests, and dehesas.
5. Improve food resources for the Spanish imperial eagle, golden eagle and owl eagle.
6. Increase the populations of the black vulture, Egyptian vulture, Bonelli’s eagle, black stork and lesser kestrel.

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5 Annexes

5.1 Annex 1 Consulted experts

Coastal habitats

Dr Lydia Alvanou, Management Authority of Axios Delta, Greece; **Mr Olivier Argagnon**, National Mediterranean Botanical Conservatory of Porquerolles, France; **Ms Chrysoula Christia**, University of Patras - Department of Environmental and Natural Resources Management, Greece; **Dr Charalampos Dimitriadis**, National Marine Park of Zakynthos, Greece; **Dr Antonio Carmine Esposito**, Regional Government of Campania, Italy; **Dr Antonella Logiurato**, Regional Government of Basilicata, Italy; **Mr Napoleon Piakis-Chantzievangelou**, Management Body Nestos Delta-Vistonida-Ismarida, Greece; **Dr Sandro Strumia**, University of Naples II, Italy; **Ms Vasiliki Tsiaoussi**, Greek Biotope/Wetland Centre (EKBY), Greece; **Ms Stella Vareltzidou**, Management Authority of Axios Delta, Greece; **Mr Stephen Warr**, UK Government of Gibraltar, United Kingdom; **Dr Giovanni Zaccaria**, Regional Government of Apulia, Italy.

Forest habitats

Dr Estrella Alfaro-Saiz, University of León, Spain; **Dr Raquel Alonso-Redondo**, University of León, Spain; **Dr Spiros Dafis**, Greek Biotope/Wetland Centre (EKBY), Greece; **Dr Marta Eva García-González**, University of León, Spain; **Dr Petros Kakouros**, Greek Biotope/Wetland Centre (EKBY), Greece; **Mr Nikolaos Kyriazis**, Management Authority of Pindos National Park, Greece; **Ir Olga Papigioti**, Management Board of the Schinias Marathon National Park, Greece; **Dr Alexandros Sotiriou**, Rodopi Mountain Range National Park (RMRNP), Greece; **Ms Sylvia Zakkak**, National Park of Dadia - Lefkimi - Soufli Forest, Greece.

Freshwater and wetland habitats

Dr Lydia Alvanou, Management Authority of Axios Delta, Greece; **Dr Susanna D'Antoni**, Institute for Environmental Protection and Research, Italy; **Ms Chrysoula Christia**, University of Patras - Department of Environmental and Natural Resources Management, Greece; **Dr Pinelopi Delipetrou**, National and Kapodistrian University of Athens, Greece; **Mr Ioannis Fakriadis**, Evros Delta Management Authority, Greece; **Dr Gabriele de Filippo**, Institute for Fauna Management, Italy; **Ir Gonzalo Gonzalez-Jurado**, Regional Government of Andalucia, Spain; **Dr Petros Kakouros**, Greek Biotope/Wetland Centre (EKBY), Greece; **Mr Nikolaos Kyriazis**, Management Authority of Pindos National Park, Greece; **Dr Antonella Logiurato**, Regional Government of Basilicata, Italy; **Ms Christina Louka**, Prespa National Park Management Body, Greece.

Grassland habitats

Dr Estrella Alfaro-Saiz, University of León, Spain; **Dr Raquel Alonso-Redondo**, University of León, Spain; **Dr Marta Eva García-González**, University of León, Spain; **Mr Domingos Leitão**, Society for the Study of Birds, Portugal; **Dr Antonella Logiurato**, Regional Government of Basilicata, Italy; **Mr Carlos Sánchez Martínez**, Foundation for Nature and Man, Spain; **Dr Martina Šašić**, Croatian Natural History Museum, Croatia; **Dr Alexandros Sotiriou**, Rodopi Mountain Range National Park (RMRNP), Greece

5.2 Annex 2: Number of SCIs and area per habitat

Coastal habitats

Table 6 The number of SCIs and the habitat area (ha) within SCIs for each Member State in the Mediterranean biogeographical region

	CY	ES	FR	GR	HR	IT	MT	PT	SI	UK
1110 - Sandbanks which are slightly covered by sea water all the time										
No. of sites	2	35	29	44	0	59	3	9		
Habitat area (ha)	90	6031	48946	19321	0	15170	89	5133		
1120 - Posidonia beds (<i>Posidonium oceanicae</i>)										
No. of sites	5	77	30	73	0	170	5		1	
Habitat area (ha)	2238	74626	86994	60587	0	150711	5282		6	
1170 – Reefs										
No. of sites	5	18	23	72	0	137	7	5		1
Habitat area (ha)	1830	26241	23543	17358	0	21113	433	1321		576
1150 - Coastal lagoons										
No. of sites	1	46	28	35	0	83	4	8		
Habitat area (ha)	577	27005	48945	38865	0	32095	8	2159		
1310 - <i>Salicornia</i> and other annuals colonising mud and sand										
No. of sites	4	74	22	38	0	77	2	8		
Habitat area (ha)	241	5292	2646	4429	0	4627		3543		
1410 - Mediterranean salt meadows (<i>Juncetalia maritimi</i>)										
No. of sites	5	127	39	53	0	115	6	8		
Habitat area (ha)	19	14186	8962	8249	0	5643	6	4719		
1420 - Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)										
No. of sites	2	129	35	35	0	89	9	7		
Habitat area (ha)	358	24809	16428	18122	0	4039	6	7753		
2110 - Embryonic shifting dunes										
No. of sites	4	48	31	71	0	109	3	10		
Habitat area (ha)	40	2883	2828	3454	0	1493	0	3979		

	CY	ES	FR	GR	HR	IT	MT	PT	SI	UK
2230 - <i>Malcolmietalia</i> dune grasslands										
No. of sites	1	27	27	7	0	98	0	8		1
Habitat area (ha)	0	3121	1099	45	0	2969	0	4101		40
2250 - Coastal dunes with <i>Juniperus</i> spp.										
No. of sites	1	26	20	16	0	91	0	8		
Habitat area (ha)	0	4917	2546	1050	0	5597	0	4874		

Forest habitats

Table 7 The number of SCIs and the minimum habitat area (ha) within SCIs for each Member State in the Mediterranean biogeographical region

	CY	ES	FR	GR	HR	IT	MT	PT	UK	
9260 <i>Castanea sativa</i> woods										
Nr. of sites	0	65	29	25	0	190	0	11	0	
Habitat area (ha)	0	44416	17290	17889	0	74368	0	6168	0	
9320 <i>Olea</i> and <i>Ceratonia</i> forests										
Nr. of sites	15	72	14	60	0	59	6	3	1	
Habitat area (ha)	5468	25469	3380	49893	0	11671	27	3582	60	
9330 <i>Quercus suber</i> forests										
Nr. of sites	0	84	26	0	0	78	0	32	0	
Habitat area (ha)	0	172693	16960	0	0	23719	0	19211	0	
9340 <i>Quercus ilex</i> and <i>Quercus rotundifolia</i> forests										
Nr. of sites	0	472	100	44	0	432	4	27	0	
Habitat area (ha)	0	563538	92131	61816	0	176350	66	31036	0	
9540 Mediterranean pine forests with endemic Mesogean pines										
Nr. of sites	23	133	37	71	0	105	2	1	0	
Habitat area (ha)	39555	249319	15944	112395	0	29283	18	0	0	

Freshwater and wetland habitats

Table 8 The number of SCIs and the minimum habitat area (ha) within SCIs for each Member State in the Mediterranean biogeographical region

	CY	ES	FR	GR	HR	IT	MT	PT
3170 Mediterranean temporary ponds								
Nr. of sites	2	138	56	34	0	108	9	29
Habitat area (ha)	0	29 268	5513	1481	0	2609	2	21323
3290 Intermittently flowing Mediterranean rivers of the <i>Paspalo-Agrostidion</i>								
Nr. of sites	7	24	19	87		88		24
Habitat area (ha)	4	724	1570	9854		2695		12356
92A0 <i>Salix alba</i> and <i>Populus alba</i> galleries								
Nr. of sites	6	391	89	40	?	263	2	36
Habitat area (ha)	28	76 528	21 133	4012	?	28520	4	13930
92D0 Riparian galleries and thickets (<i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i>)								
Nr. of sites	20	325	39	73	0	134	8	18
Habitat area (ha)	639	54 896	3 419	9 199	0	4443	14	13776

Grassland habitats

Table 9 The number of SCIs and the minimum habitat area (ha) within SCIs for each Member State in the Mediterranean biogeographical region

	CY	ES	FR	GR	HR	IT	MT	PT
6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (important orchid sites)								
Nr. of sites	0	115	98	0	0	352	0	12
Habitat area (ha)	0	54178	37842	0	0	155783	0	10837
6220 Pseudo-steppe with grasses and annuals of the <i>Thero-Brachypodietea</i>								
Nr. of sites	21	455	78	34	0	560	5	29
Habitat area (ha)	1528	408022	35473	13513	0	164421	105	47447
5330 Thermo-Mediterranean and pre-desert scrub								
Nr. of sites	16	356	13	36	0	387	13	28
Habitat area (ha)	828	353631	2727	8420	0	98964	351	42618
6310 Dehesas with evergreen <i>Quercus</i> spp								
Nr. of sites	0	131	3	0	0	25	0	27
Habitat area (ha)	0	554501	892	0	0	10866	0	122604

5.3 Annex 3: Range, habitat area and conservation status of selected habitats

Range (in km²) is defined as ‘the outer limits of the overall area in which a habitat type or species is found at present. It can be considered as an envelope within which areas actually occupied occur. It allows assessment of the extent and the changes in the habitat type or species distribution and is calculated based on the map of the actual distribution using a standardised algorithm.

Area (in km²) currently occupied by the habitat type within the range in the biogeographical or marine region concerned.

Conservation status: the result of an evaluation of the status of a species or habitat type at the scale of a biogeographical or marine region using the assessment matrix based on 4 parameters: range, area, structure & function, & future prospects for the habitats.

Legend

U2	Unfavourable–Bad
U2-	Bad and deteriorating
U2+	Bad but improving
U1	Unfavourable–Inadequate
U1-	Inadequate and deteriorating
U1+	Inadequate but improving
FV	Favourable
XX	Unknown

Coastal habitats

Table 10 The range, habitat area and conservation status of coastal habitats in the Mediterranean biogeographical region reported by Member States for Article 17 of the Habitats Directive

Sublittoral

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1110 - Sandbanks which are slightly covered by sea water all the time	CY	MED	199	164.6	U1	FV
	EL	MED	N/A	N/A	XX	XX
	ES	MED	21869	7888.93	XX	U1
	FR	MED	10400	1200	U2	U1
	IT	MED	22100	220.07	U1	U1
	MT	MED	45	38	XX	FV
	SI	MED	288	1	U1	FV

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1120 - <i>Posidonia</i> beds (<i>Posidonium oceanicae</i>)	CY	MED	281	~130	U1+	FV
	EL	MED	N/A	N/A	U1+	U1+
	ES	MED	N/A	N/A	XX	U1
	FR	MED	12700	980	U1	U1
	IT	MED	38400	5282	U1	U1
	MT	MED	185	179	FV	FV

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
	SI	MED	382	0.08	U1	FV

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1170 - Reefs	CY	MED	104	104	U1+	FV
	EL	MED	N/A	N/A	U1	U1
	ES	MED	38171	17324.05	N/A	XX
	FR	MED	9100	769	U1	FV
	IT	MED	36600	336	FV	FV
	MT	MED	170	170	XX	FV
	SI	MED	160	0.54	FV	XX
UK	MED	4	1.20	U1-	U1	

Littoral

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1150 - Coastal lagoons	EL	MED	N/A	N/A	U2	U2
	ES	MED	11689	84	XX	U1
	FR	MED	5600	793	U2	U2
	IT	MED	20800	728.45	N/A	FV
	MT	MED	7	7	U1-	U1
	PT	MED	6100	N/A	U2	U2

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1310 - <i>Salicornia</i> and other annuals colonising mud and sand	CY	MED	20	4	FV	FV
	EL	MED	40.13	40.13	U2	U2
	ES	MED	56763	75	XX	XX
	FR	MED	5800	26.40	U1	U2
	IT	MED	17700	61.05	U1	U1
	MT	MED	6	6	U2	U1
	PT	MED	13200	N/A	U1	U1

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1410 - Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	CY	MED	26	2	U1+	FV
	EL	MED	77.80	77.80	U2	U2
	ES	MED	101965	104	XX	XX
	FR	MED	8100	89.60	U1	U2
	IT	MED	19700	72.32	XX	U1
	MT	MED	10	9	U2	U1
	PT	MED	10900	N/A	FV	FV

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
1420 - Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)	CY	MED	32	6	U1+	FV
	EL	MED	170	170	U2	U2
	ES	MED	66808	265	XX	XX
	FR	MED	6400	164.20	U1	U2
	IT	MED	17000	52.11	XX	U1
	MT	MED	44	35	U1	FV
	PT	MED	12400	N/A	U1	U1

Dunes

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
Embryonic shifting dunes	CY	MED	21	1	U1+	FV
	EL	MED	24.4	24.4	U1	U1
	ES	MED	5508	7.38	XX	U2
	FR	MED	7500	28.2	U2	U2
	IT	MED	34200	74.13	U2	U2
	MT	MED	7	6	U2	U1
	PT	MED	12600	N/A	U1	U1

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
2230 - <i>Malcolmietalia</i> dune grasslands	CY	MED	2	0.1	U1+	FV
	EL	MED	0.1	0.1	U1	U1
	ES	MED	15626	77.41	XX	U1
	FR	MED	4800	10.9	U2	U2
	IT	MED	30200	61.09	XX	U1
	PT	MED	14100	N/A	U1	U1
	UK	MED	0.5	0.25	U1+	U1

Habitat	MS	Region	Range (km ²)	Area (km ²)	Conservation status	Conservation status
			2007-12	2007-12	2001-06	2007-12
2250 - Coastal dunes with <i>Juniperus</i> spp.	CY	MED	6.4	0.3	U1+	FV
	EL	MED	12	12	U1	U1
	ES	MED	6197	47	XX	U1
	FR	MED	5100	25.4	U1	U2
	IT	MED	21900	68.81	U1	U2
	PT	MED	8500	N/A	U1	U1

Forest habitats

Table 11 The conservation status and trends of the habitat types, based on the Article 17 reporting from the Member States to the European Commission covering the period 2001-2006 and 2007-2012

Habitat	MS	Reg	Range (km ²)	Area (km ²)	Overall assessment	
			2007-2012	2007-2012	CS 2001-2006	CS 2007-2012
9260 - <i>Castanea sativa</i> woods	EL	MED	3300	3300	U1	U1
9260 - <i>Castanea sativa</i> woods	ES	MED	43834	257	XX	U2
9260 - <i>Castanea sativa</i> woods	FR	MED	25600	250	U2	U2
9260 - <i>Castanea sativa</i> woods	IT	MED	97600	5051.25	FV	U1
9260 - <i>Castanea sativa</i> woods	PT	MED	22000	N/A	XX	XX
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	CY	MED	2257	107.77	XX	FV
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	EL	MED	605	605	U1	U1
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	ES	MED	23901	835	U1	U1
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	FR	MED	6400	33.80	U1	U1
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	IT	MED	26600	753.29	FV	U1
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	MT	MED	24	24	XX	FV
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	PT	MED	4200	N/A	U1	U1
9320 - <i>Olea</i> and <i>Ceratonia</i> forests	UK	MED	3	2.25	FV	FV
9330 - <i>Quercus suber</i> forests	ES	MED	98212	3744	XX	XX
9330 - <i>Quercus suber</i> forests	FR	MED	9500	436	U1	U1

9330 - Quercus suber forests	IT	MED	41800	2385.52	FV	U1
9330 - Quercus suber forests	PT	MED	48000	N/A	U1	U1
9340 - Quercus ilex and Quercus rotundifolia forests	EL	MED	5000	5000	FV	FV
9340 - Quercus ilex and Quercus rotundifolia forests	ES	MED	412252	29010	XX	U1
9340 - Quercus ilex and Quercus rotundifolia forests	FR	MED	129700	1790	FV	FV
9340 - Quercus ilex and Quercus rotundifolia forests	IT	MED	133700	6998.57	FV	U1
9340 - Quercus ilex and Quercus rotundifolia forests	MT	MED	10	10	U2	U1
9340 - Quercus ilex and Quercus rotundifolia forests	PT	MED	51500	N/A	U1	U1
9540 - Mediterranean pine forests with endemic Mesogean pines	CY	MED	3806	1291.30	FV	FV
9540 - Mediterranean pine forests with endemic Mesogean pines	EL	MED	5680	5680	U1	U1
9540 - Mediterranean pine forests with endemic Mesogean pines	ES	MED	163910	9365	XX	FV
9540 - Mediterranean pine forests with endemic Mesogean pines	FR	MED	14300	173	U2	U2
9540 - Mediterranean pine forests with endemic Mesogean pines	IT	MED	25000	391.89	FV	U1
9540 - Mediterranean pine forests with endemic Mesogean pines	MT	MED	6	6	U1	U1

Freshwater and wetland habitats

Table 12 The range, habitat area and conservation status of selected freshwater habitats in the Mediterranean biogeographical region as reported by Member States according to Article 17 of the Habitats Directive

Member State	Range (km ²)	Area (km ²)	Overall assessment	
	2007-2012	2007-2012	CS 2001-2006	CS 2007-2012
3170 Mediterranean temporary ponds				
CY	15.50	0.03	U1	FV
GR	1.02	1.02	FV	FV
ES	74897.00	560.00	XX	FV
FR	15900.00	55.00	U2	U2
IT	64300.00	26.83	FV	U1
MT	107.00	85.00	U1	U1
PT	29700.00	N/A	U1	U2
3290 Intermittently flowing Mediterranean rivers of the Paspalo-Agrostidion				
CY	19.00	0.15	U1	FV
GR	20.00	20.00	FV	FV
ES	18021.00	9.00	XX	U1
FR	15100.00	15.70	U2	U1

Member State	Range (km ²)	Area (km ²)	Overall assessment	
	2007-2012	2007-2012	CS 2001-2006	CS 2007-2012
IT	37100.00	32.31	FV	FV
PT	35300.00	N/A	FV	FV
92A0 <i>Salix alba</i> and <i>Populus alba</i> galleries				
CY	13.26	0.30	U1	FV
GR	37.47	37.47	U1	U1
ES	396258.00	676.00	XX	U2
FR	72700.00	1100.00	U2	U2
IT	120400.00	751.88	FV	U2
MT	9.00	9.00	U2	U2
PT	63100.00	N/A	FV	U1
92D0 Riparian galleries and thickets (<i>Nerio-Tamaricetea</i> and <i>Securinegion tinctoriae</i>)				
CY	113.00	6.60	XX	FV
GR	100.30	100.30	FV	FV
ES	262334.00	814.00	XX	U1
FR	11900.00	2.00	U2	U2
IT	52500.00	204.27	FV	U1
MT	20.00	20.00	U1	U1
PT	22900.00	N/A	U1	U1

Grassland habitats

Table 13 The range, habitat area and conservation status of selected grassland habitats in the Mediterranean biogeographical region as reported by Member States according to Article 17 of the Habitats Directive

Member State	Range (km ²)	Area (km ²)	Overall assessment	
	2007-2012	2007-2012	CS 2001-2006	CS 2007-2012
6210 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>) (*important orchid sites)				
ES	138809	883.55	XX	U2
FR	30800	378	U1	U2
IT	124500	4015.25	FV	U1
PT	15200	N/A	FV	FV
6220 - Pseudo-steppe with grasses and annuals of the <i>Thero-Brachypodietea</i>				
CY	302	53	XX	FV
EL	142.2	142.2	XX	FV
ES	428851	33299.53	U1	U1
FR	39800	354.7	FV	U2
IT	168600	4346.36	FV	FV
MT	153	136	U1	FV

PT	29800	N/A	FV	FV
5330 - Thermo-Mediterranean and pre-steppe scrub				
CY	267	38	XX	FV
EL	63	63	U1	U1
ES	323975	13489.4	XX	U1
FR	3900	27.2	U1	U1
IT	124600	2483.27	FV	U1
MT	93	93	XX	FV
PT	80700	N/A	FV	FV
6310 - Dehesas with evergreen <i>Quercus</i> spp.				
ES	211877	16986.37	XX	U2
FR	0	N/A	XX	XX
IT	28100	1140.44	FV	U1
PT	58900	N/A	U1	U1