Conservation status of wetland habitat types and species
Draft contribution to the Water 2012 Report

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Key messages

- Although wetland conservation has been targeted since 1971 by the Ramsar Convention signed by all EU Member States and the Birds Directive (1979) and Habitats Directive (1992) are relatively old directives, the EU faces a big challenge to improve the current unfavourable status of wetland habitat types (see definition on page 15) as even 75% of assessments of the wetland habitat types and more than 60% of the wetland species targeted by the Habitats Directive were reported as unfavourable as part of the first EU wide conservation status assessment published in 2009 covering EU25 (conservation status information is not yet available from Bulgaria and Romania).

- There is also a challenge to improve the knowledge of the wetland habitat types as about 15% of the assessments for habitat types were considered unknown. For species the figure for unknowns is even slightly higher, about 20%. The biggest challenges are in the Mediterranean region where half of the habitat type assessments and 40% of species assessments were considered unknown. However, various initiatives to improve general knowledge on wetlands are on-going like through the Observatory of Mediterranean Wetlands and the Ramsar Convention.

- The results of the next conservation status reports for the period 2007-2012 will be known in late 2013 and there are expectations that the approaching WFD target to reach good ecological status in all waters by 2015 - if adequately implemented - could contribute to improve the generally low conservation status of the wetland habitat types and species.

- We will know more in 2014 about the status and trends of the European birds dependent on aquatic ecosystems when the new EU level birds reports of all EU Member States will be available.

Main diagrams

Figure 1. Assessments of conservation status of habitat types of European interest in wetland ecosystems (overall statistics). Source: ETC/BD 2008
Figure 2. Assessments of conservation status of species of European interest in wetland ecosystems (overall statistics). Source: ETC/BD 2008

Assessment
Background

This assessment covers ‘wetland ecosystems’ in a broad sense. Article 1(a) of the WFD clearly mentions the protection and enhancement of the status of aquatic ecosystems and with regard to their water needs also the protection of terrestrial ecosystems and wetlands directly depending on them (EC 2010 a)(see also the definitions under chapter Background).

Europe’s wetlands support a large diversity of plant and animal species and are also the source of a wide range of public goods and services, including tourism and the supply of fresh water. At the same time, however, wetlands are among the world’s most threatened ecosystems, with some 50% of all wetlands having disappeared in the last century (EC 2007, LIFE and Europe’s wetlands).

Despite their global recognition as important biodiversity reservoirs and as providers of multiple ecosystem services, wetlands continue to be destroyed and converted into other land use, also in Europe, as shown by the last Corine Land Cover (CLC) assessment 2006 (figure 3). The loss of wetlands has decreased down to 3% in the last 16 years, but Europe had already lost more than half of its wetlands before 1990. However, the figure 3 on change is probably underestimated given that CLC cannot take into account small and linear wetlands.

Figure 3. Land cover change in 1990-2006 (area change).
The Ramsar Convention – celebrating its 40th anniversary in 2011 – is the first international convention focused on the protection of some biodiversity components (1971) and is a key instrument to steer and enhance international cooperation for the protection of wetlands (see for example how the set of Ramsar Factsheets profiles the ‘ecosystem services’ provided by wetlands http://www.ramsar.org/cda/en/ramsar-pubs-info-ecosystem-services/main/ramsar/1-30-103%5E24258_4000_0__. All EU countries are contracting parties to this convention.

At the EU level the Habitats and Birds directives and the Water Framework Directive (WFD) are the key EU legislation ensuring the protection of Europe’s wetlands. The EU wide Natura 2000 network of protected sites (figure 4) has a major role together with the integration of wetlands into river basin management planning under the WFD in helping to guarantee their future conservation and sustainable use

(see provisional figure 8 on how the main European rivers are protected by Natura 2000 areas)

Figure 4. Coverage of wetland ecosystems by the Natura 2000 sites.

To include a map of N2000 with habitat types. To be done later
The aim of the WFD is to establish a framework for the protection of all surface waters and groundwater with the aim to reach good status in all waters as a rule by 2015. The WFD and the Habitats Directive together with the Birds Directive aim at ensuring healthy aquatic ecosystems while at the same time ensuring a balance between water/nature protection and the sustainable use of nature's natural resources (EC 2010 a).

What do we know about the conservation status of wetland habitat types and species today?

In order know whether the EU policy is reaching its targets, it is important to know how good or bad the species and habitat types of EU importance are doing. In compliance with the Article 17 of the Habitats Directive, the first EU wide conservation status assessment on species and habitat types listed in that Directive was published in 2009. The overall results of the conservation status at biogeographical level of all species and habitats targeted by the Habitats Directive for the period 2001-2006 indicated that only 17 % of the habitat assessments and only 17 % of the species assessments were favourable. This result as such is not surprising as these species and habitats were selected for the Directive as they were thought to be rare and threatened.

However, when looking at the results for wetland habitat types alone the situation is even worse, as only 9% of the assessments for the wetland habitat types and 14% of the wetland species were favourable (see figure 1 and 2). If we look at lakes and rivers only, the figure is slightly higher, namely 15% indicating that some other wetland types are doing worse.

This assessment covers in total 55 habitat types listed in the Annex I (about 25 % of all habitats) and 282 species of Annex II and IV of the Habitats Directive as wetland habitat types and species. This includes for example otter (Lutra lutra, see a case study below), bullhead (Cottus gobio), salmon (Salmo salar), freshwater pearl mussel (Margaritifera margaritifera) and habitat types like ‘Water courses of plain to montane levels with Ranunulion fluitantis and Callitricho-Batrachion vegetation’, ‘Natural eutrophic lakes with Magnopotamion or Hydrocharition type vegetation’ and active raised bogs.

There are differences between seven biogeographical regions, the best situation being in the Alpine region where 30 % of the assessments of wetland habitat types are favourable. However, for the species associated to wetlands it is the Boreal and Pannonian regions having the highest percentage of favourable assessments (about 30 %). On the contrary, the Atlantic region for wetland habitat types and Macaronesian region for species did not have any assessments showing favourable conservation status (see figure 5 and 6). Nevertheless, the figures in general are low and indicate needs to improve the situation across the EU.
The Habitats Directive has a target that natural habitats and species of European interest should be maintained or restored at favourable conservation status, but it does not give a timetable when this target should be reached. However, the results from the 2001-2006 conservation status reports have now been taken into account in the EU Biodiversity Strategy to 2020. This strategy includes a subtarget to improve the conservation status of habitats and
species by 2020 together with a “restoration subtarget” to restore at least 15% of degraded ecosystems which is relevant to wetland ecosystems as well.

The EU network of protected areas, Natura 2000 network, has a crucial role in delivering the favourable conservation target of the Directive and the WFD has a clear link to ‘water-dependent Natura 2000 sites’ requesting them to be part of a register of protected areas (WFD Art 6). But it is important to know that the target to reach favourable conservation target under the Habitats Directive is not only limited in habitat types and species occurring in the Natura 2000 sites, but also in the wider countryside. This is why the WFD covering all surface waters and groundwater (not only within Natura 2000 sites) can potentially significantly support – if adequately implemented - in reaching the target for wetland species and habitat types.

The next reports on the conservation status are due in June 2013 (covering the period of 2007-2012 and including also Bulgaria and Romania for the first time). Ideally –although not possible to measure – the measures under WFD could contribute to the improved conservation status of water related habitat types and species.

Despite the crucial importance of wetlands for several bird species, no updated information is available at the EU level on the conservation status of bird species. However, new information on status and trends of wild birds will be available in 2013 as part of the reporting by the Member States under Article 12 of the Birds Directive (partly combined with the preparation of the third edition of Birds in Europe by Birdlife). Recent information at global level is however available from a global waterbirds’ assessment published by the Wetlands International (State of the World's Waterbirds 2010).

This report concludes that the rate of decline of waterbird populations has slightly decreased over the last three decades. However, 47% of the waterbird populations are still declining and only 16% are increasing at global level, the general conservation status of waterbird populations being most favourable in North America, Europe and Oceania i.e. in regions with relatively strong conservation policies. Concerning Europe the status of resident and short-distance migrant waterbirds is improving, but long distance migrants appear to be vulnerable (Wetlands International 2010).

**Pressures and threats for wetland habitat types and species**

Loss and degradation of wetlands is caused mainly by drainage for agriculture, infrastructure development, afforestation, blocking and extraction of the water inflow and over-exploitation of groundwater resources (EC 2007). In addition, pollution from agriculture and industrial sources can increase the levels of nutrients, pesticides or heavy metals, seriously affecting ecological processes of wetland (EC 2007), although in general water quality of lakes and rivers has been improved during recent decades as a result of the EU legislation (EEA 2009).

The impacts of climate change are likely to be complex. Climate change impacts are only beginning to emerge e.g. harmful algal blooms, shifted ranges of freshwater species to higher
Altitudes and latitudes and changes in fish spawning (EEA 2009) and degraded ecosystems have a reduced capacity to respond to future changes (EC Biodiversity Strategy 2011).

Many alien species have been recorded from freshwater ecosystems in Pan-Europe including about 300 freshwater invertebrates and more than 130 fish (see increasing trend in figure 7). Due to the expansion of trade and mobility and increasing environmental disturbances, threats from non-indigenous species (which in some circumstances may become invasive) are increasing at an accelerated speed (EC 2011).

Figure 7 Cumulative number of alien species established in freshwater environment in 11 countries

![Graph showing cumulative number of alien species](image)

- The cumulative number of alien species introduced in European freshwater ecosystems has been constantly increasing since the 1900s.
- However, this increase is slowing down for freshwater species (EEA, 2009).

Source: EEA/SEBI2010; NOBANIS; SEBI indicators, 2010 — SEBI indicator 10.

Information reported by the Member States as part of the 2001-2006 conservation status reporting confirms that the biocenotic evolution\(^2\), modifications in hydrographic functioning, drainage and pollution keep remaining the most frequently reported pressures to the wetland habitat types (figure 8).

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1 Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia, Sweden.
2 Biocenotic evolution means in this context the following accumulation of organic material, eutrophication, acidification and invasion by a species.
Although climate change was not included as such in the list of possible threats and pressures for the conservation status report, the Member States were asked to give major reasons for any reported trends under the parameters range, area and population. Climate change was mentioned for 50% of bogs, mires and fens suggesting that wetlands in general being influenced by climate change more than any other group of habitats. For freshwater habitats the figure was only 5% (ETC/BD 2008).

Of the major groups of species, amphibians react most strongly to climate change. This may be because they are strongly associated with wetland habitat types affected by climate change. It is also possible that the shifts in climate may have an impact on the success of breeding (EEA 2010)

Figure 8. The ten most frequently reported pressures for wetland habitat types by EU25 member states (conservation status reporting of 2001-2006). ETC/BD 2008
Case study – Eurasian Otter (*Lutra lutra*): an emblematic freshwater species

The major threats to freshwater mammals are modification or destruction of their habitat, pollution, trapping and hunting (Veron *et al.*, 2008). The presence of the Eurasian Otter (*Lutra lutra*) serves as a relatively good indicator of unpolluted natural freshwater ecosystems in a good ecological status (Bedford, 2009). The Eurasian Otter is found in European rivers, lakes and marshes as well as coastal waters. Once widespread, inland water populations in particular decreased dramatically during the last century in countries such as France (EEA, 2005a). There are now signs of recovery in several countries, including Denmark, Sweden and the United Kingdom. Nevertheless, otters are still absent or sparse in many countries (EEA, 2005a; ETC/BD, 2009).

Many sites where the otter occurs are included in the EU Natura 2000 network of protected areas across 27 EU countries. However, as shown in Map 1, the otter is still absent from large areas of Europe, suggesting that conditions for the species are still inadequate (see for example figure 5 for conservation status of lakes and rivers). The area of freshwater habitats protected by the Natura 2000 network has increased almost twofold over the past decade in these countries and this will hopefully have a positive effect on otter distribution and abundance in the future (ETC/BD, 2009).

The conservation status reports of the period 2001-2006 show that the overall assessments (see map 2) are still ‘unfavourable - inadequate’ in Alpine, Atlantic and Continental regions and even ‘unfavourable - bad’ in Boreal. However situation is favourable in a number of countries with stable or increasing trends and good future prospects. In Pannonian region assessment is ‘favourable’ already. According to IUCN it is assessed as ‘nearly threatened’ due to historical declines in populations and the fact that if conservation actions for the species were stopped or reduced, the species would very quickly move back into a threatened category (ETC/BD, 2009).

Map 1. Sites of Community Importance (SCI) designated for the Eurasian Otter (*Lutra lutra*) in the EU-27 and its current distribution in EU-25 Member States according to the Article 17 EU Habitats Directive Reporting in 2008
The Mediterranean Wetlands Observatory (MWO) is a MedWet/Tour du Valat initiative to monitor and assess Mediterranean wetlands since 2004. A lot of information is currently being collected in Mediterranean wetlands to feed indicators in line with the CBD requirements.

A 2011 assessment of conservation status of Mediterranean Ramsar sites underlines the importance that the protection status should be accompanied by concrete management measures to have faster growing bird populations. See http://www.medwetlands-obs.org/en/

The Danube is the longest river in the EU (2850 km) flowing through or acting as borders of ten countries (six of them being EU countries). Since 1992 more than 30 EU co-funded LIFE projects have restored the natural river and floodplain dynamics of the Danube and its tributaries with the objective of improving the conservation status of its species and habitat types. A common measure of these projects was to reconnect the floodplain to the main river by removing stone barriers and recreating the gentle mud and shingle shelves that allow the river to flood naturally, but at the same time maintaining the navigability of the river (EC 2010 b).
Example on one invasive alien species

Louisiana red swamp crayfish (Procambarus clarkii) originates from north-eastern Mexico and the southern United States but today it can be found on every continent except for Australia and Antarctica. It was introduced in Spain in 1973 by two crayfish farmers in the aim to develop a new economic resource for one of the poorest areas in Spain. The promoters of the introduction thought that this new species would not have any negative impacts on the ecosystems because of absence of indigenous species. Thirty eight years later, the Louisiana red swamp crayfish can now be found in Germany, Austria, Belgium, Spain, France, Italy, the Netherlands, Portugal, the UK, and Switzerland.

The Louisiana red swamp crayfish is a species with a high potential to be invasive due to the following characteristics:

- varying sexual maturity,
- high fertility rate,
- rapid juvenile development,
- omnivorous diet,
- protective behaviour of their young,
- great capacity to adapt to environmental stress and varying environmental conditions,
- can be used for various human activities (e.g., bait for fishing, cooking).

The presence of this species has had ecological, health and socio-economic impacts. In a recent classification of 27 species introduced into Europe by aquaculture, this species is considered to be the one that has had the most impact.
To take an example, in Spain it has been identified as the cause of declining aquatic plant populations in different lakes such as El Portil (Huelva, Spain), and Chozas (León, Spain), and also for the disappearance of water snails (Lymnaea peregra and L. stagnalis) in the Doñana National Park (Huelva and Seville, Spain), and the drop in some populations of amphibians in southern Portugal (Alentejo and Algarve).

Source: Tour du Valat, 2011

Optional Figure 8. This is a graph prepared by DG ENV. It can not be used as such as the calculation behind is not correct. In addition the lila line should be deleted. Is EEA interested in having this graph?

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**Background information**

**Definitions**

**Wetland ecosystems of this assessment**

As the conservation status data was used as a basis of this analysis, it was necessary to identify which habitat types and species under the Habitat Directive fall under the meaning of WFD. The WFD and the guidance document on the wetlands under the WFD provided by the EC do not define ‘wetlands’, but guidance is given on their relevance to the achievement of the Directive’s environmental objectives.

The term ‘wetland ecosystems’ in this assessment covers the “inland surface waters, transitional waters, coastal waters and groundwater” of the Art 1 of the WFD, but also habitat types and species where the maintenance or improvement of the status of water is an important factor in their protection (‘ecosystems directly depending on water’). Thus this assessment covers broader group than just surface water bodies where WFD sets independent ecological objectives.
Habitat types listed in Annex I to the Habitats Directive and considered as 'wetland ecosystems' are: several salt meadows and salt marshes, several riverine habitats with vegetated banks, humid meadows, raised bogs and mires and fens, bog or alluvial forests, lakes and rivers and also coastal lagoons and estuaries. Species dependent on these habitat types are taken into account. This means that 55 habitat types listed in the Annex I and 282 species of Annex II and IV of the Habitats Directive are selected in this analysis. Bird species are not covered as the available conservation status data does not cover birds.

The WFD clearly mentions the protection and enhancement of the status of aquatic ecosystems and with regard to their water needs also the protection of terrestrial ecosystems and wetlands directly depending on them (EC, 2010a). WFD identifies the protection, restoration and enhancement of the water needs of wetlands as part of its purpose at Article 1(a):

*The purpose of this Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which:

(a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems.*

The WFD does not set independent ecological objectives for wetlands other than where those wetlands, or parts of them, are surface water bodies (e.g. lakes, rivers, stretch of coastal waters). The WFD does however: (a) set groundwater objectives that include obligations towards these ecosystems; and (b) identify the use of wetland functions as a possible means of achieving the Directive's objectives (EC, 2003).

**Favourable conservation status**

Article 1(e) and 1(i) of the Habitats Directive 92/43/EEC defines that

‘conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.

The conservation status of a natural habitat will be taken as ‘favourable’ when:

— its natural range and areas it covers within that range are stable or increasing, and

— the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and

— the conservation status of its typical species is favourable as defined in (i)’

“The conservation status [of a species] will be taken as ‘favourable’ when:

— population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and

— the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

— there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis'
Article 2 of the Habitat Directive defines the target of the species and habitat types of Community interest by saying ‘that measures shall be designated to maintain and restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest’. However it does not give the timeline to reach the favourable conservation status. The EU Biodiversity Strategy to 2020 sets midterm targets for nature conservation in its Target 1: ‘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.

Article 3(1) defines that the Natura 2000 network should enable the habitat types and species listed in the Annexes of the Directive to be maintained or restored at favourable conservation status. This means that the sites of the Natura 2000 network are expected to make a major contribution so that in overall the habitat types and species are at favourable conservation status.

Ramsar convention and wetlands (example of wetland definition)

The Ramsar Convention uses a broad definition of the types of wetlands. It includes lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, but also human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

Methodology notes

Conservation status data of 2001-2006

Article 17 (conservation status) data of 2001-2006 has been used for the graphs. It covers EU25 (not Bulgaria and Romania). Article 17 reporting uses three classes of Conservation Status: - Favourable (FV), Unfavourable-Inadequate (U1) and Unfavourable-Bad (U2). 'Favourable Conservation Status' is defined in the Directive and effectively describes the situation where the habitat or species can be expected to prosper without any change to existing management or policies. The unfavourable category has been split into two classes to allow improvements or deterioration to be reported: ‘Unfavourable-Inadequate’ for situations where a change in management or policy is required to return the habitat type or species to favourable status but there is no danger of extinction in the foreseeable future and ‘Unfavourable-Bad’ is for habitats or species in serious danger of becoming extinct (at least regionally). There is also an ‘Unknown’ class which can be used where there is insufficient information available to allow an assessment. For graphical representation, each class is colour coded, green for Favourable, amber for Unfavourable-Inadequate’, red for Unfavourable-Bad and grey for unknown.

The first exercise to assess the conservation status within EU Member States also revealed problems in quality of the reported data between Member States and species groups and better quality of data is expected for the period of 2007-2012 after work has been done to harmonise the reporting elements.
Bird species are not covered in the Article 17 reports as the birds are covered by the Birds Directive and its reporting system has not included detailed information on status of bird species. However, harmonising process between nature directives is on-going and largely similar reporting than Article 17 reporting will take place in the end of 2013.

References

- EC, 2011. Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions ‘Our life insurance, our natural capital; an EU Biodiversity Strategy to 2020 (COM(2011) 244 final of 3 May 2011)
- EC, 2010 b. LIFE building up Europe’s green infrastructure