NATURA 2000 AND ITS IMPLICATIONS FOR THE PROTECTION OF PLANT SYNTAXA IN GERMANY – WITH A CASE STUDY ON GRASSLANDS

JÖRG PETERMANN[1], AXEL SSYMANK[2]

[1]*National Agricultural Research Foundation/Forest Research Institute, GR-57006 Vassilika, Thessaloniki, Greece*
e-mail: joerg.petermann@fri.gr

[2]*Federal Agency for Nature Conservation, Konstantinstraße 110, D-53179 Bonn, Germany,*
e-mail: Ssymanka@bfn.de

ABSTRACT – The site selection for the Natura 2000 network of protected sites under the EU-Habitats Directive is accomplished for Germany. An analysis of its implications for the protection of plant syntaxa is carried out based on the status of threat on alliance level (national red data book of syntaxa), on the relative area of habitats within Natura 2000 sites, and on association level. Gaps in the protection of plant syntaxa by the Habtats Directive are summarized for every plant formation. While the site boundaries are fixed, the work of protection and management is at its starting point. Practical assessment methods and procedures have to be set up and site management plans will be necessary in many cases. At national and EU level a system of reporting is currently worked out for the 6 year standard reporting on the Conservation status of habitats and species. Examples of these tasks will be given in a case study on the conservation of grassland vegetation in Germany. 18 Grassland habitats are covered by the Habitats Directive in Germany adding up to nearly 230.000 ha within the Natura 2000 sites.

KEY WORDS – Threatened plant syntaxa, Grasslands, Habitat types, Management plans, Natura 2000, Reporting obligations

INTRODUCTION: NATURA 2000 IN GERMANY

Natura 2000 is the European network of protected sites combining sites for the Birds Directive (79/409/EEC, Council of the European Communities 1979) and the Habitats Directive (92/43/EEC, Council of the European Communities 1992) for the protection of habitats and all other plant and animal species of Community Importance into one coherent network. The German contribution to this network started

in 1996 and was a long and challenging way both scientifically and politically to achieve in 2006 a network of 13,5 % of the terrestrial area with:

- 4,617 SCI's (sites for the Habitats Directive), covering 3.3 Mio ha (9.3% of the terrestrial surface) plus an additional 2 Mio ha marine area
- 558 SPA's (sites for the Birds Directive), covering 3.0 Mio ha (8.4% of the terrestrial surface) plus an additional 1.2 Mio ha marine area

The Annexes of the Habitats Directive list altogether 91 habitat types (Annex I) and 135 species (Annex II) for which a site protection in Natura 2000 is necessary in Germany. The total area covered by these habitat types in the proposed Sites (SCI) of the Habitats Directive is 2.56 Mio ha, that is equivalent to an average percentage of 48% of habitat-area within terrestrial sites and 60% in marine sites. An overview on the different habitat areas included in Natura 2000 is given in Fig. 1:

For further statistical details see Raths et al. (2006), the CD-Rom presenting the whole German Natura 2000 system (Balzer and Ssymank, 2005) and information on the website of the German Federal Agency for Nature Conservation under http://www.bfn.de/0316_gebiete.html.

As the Natura 2000 system is now completely installed for the Habitats Directive in Germany, it is appropriate to carry out some more in depth analysis on the protection level achieved through this new regime and how this is supporting the protection of endangered vegetation types. Therefore we present an analysis of the situation at the level of plant alliances and plant associations, based on the German national red data book of Synataxa (Rennwald, 2000). This is a contribution to setting priorities in the conservation of plant syntaxa and more generally in national nature protection.

Natura 2000 has just been installed and all the necessary tasks to maintain, manage and implement this protection in the sites is just beginning. Thus we use a case study on grasslands to illustrate both the achieved protection level and the future activities needed to maintain these habitats in a "favourable conservation status",

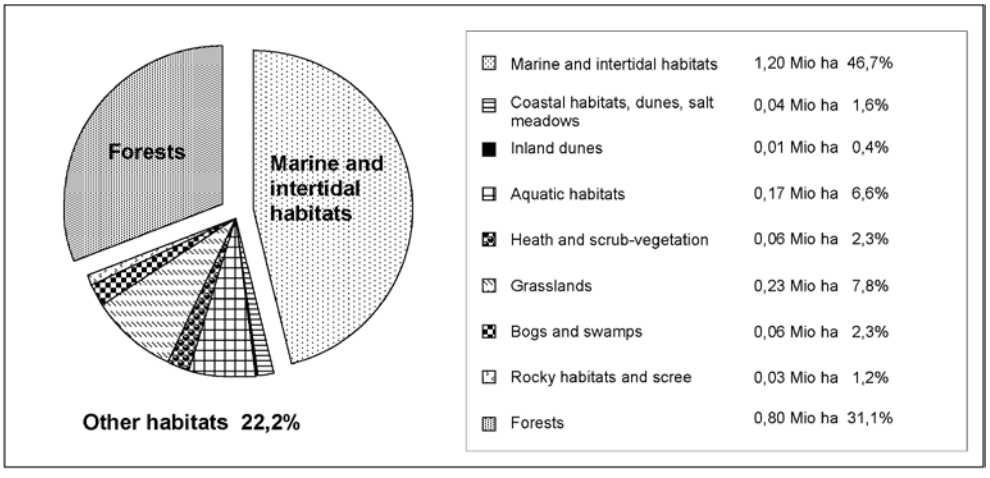

FIGURE 1 - Habitat areas included in Natura 2000 in Germany

because this is the overall objective of the European Nature Conservation formulated in the Habitats Directive.

Results and Discussion

An analysis of threat on alliance level (incl. National Red Data Book of Syntaxa)

In Germany the data situation is rather good concerning at least two major concepts: the threat of biotopes with a first Red Data Book of Biotopes at National level in 1994 (Riecken *et al*., 1994) and a second edition which has been published recently (Riecken *et al*., 2006). This first concept is based on typification of biotopes as basic ecological and practical units in nature conservation integrating aspects of both vegetation and fauna. The second concept is the scientifically well-known syntaxonomical system with a Red list of Plant Syntaxa also at national level from Rennwald (2000). Focussing on the latter, a total of 49 % of all plant syntaxa in Germany have been classified under a threat-status (see Fig. 2), with an additional 4 % in the category "rare" (geographically extremely restricted and thus potentially endangered). Annex I habitats protected under the EU-Habitats Directive (92/43/EEC) must fulfil according to Art. 1c of the directive the criteria that they are threatened by extinction in their natural range, that they have a restricted occurrence (naturally or as a result of decrease) or being typical for one of the biogeographic regions.

However data on the level of threat and Red Data Books of Syntaxa or Biotopes/ Habitats do only exist in a few member States of the European Union in contrast to red data books for species which exist for many species groups. The following overview thus only can fill data gaps on the situation in Germany and contribute to the knowledge, which syntaxa or habitats should receive special attention for nature

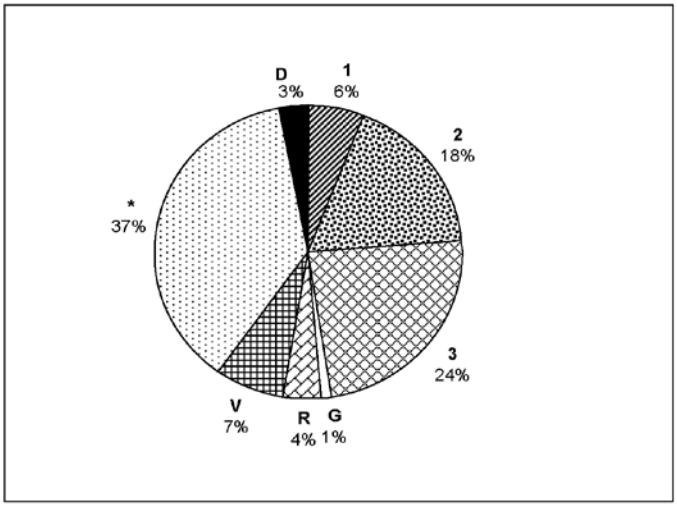

Figure 2 - Threat categories of plant syntaxa according to the national Red data Book (Rennwald, 2000). Threat categories are defined as: 0 extinct, 1 threatened by extinction, 2 highly endangered, 3 endangered, G endangered, but degree of threat unknown, R extremely rare, V in decline, * not threatened and D data deficient.

conservation even if not (yet) listed on Annex I. Out of 153 alliances in Germany 93 are fully covered by Annex I habitats (61 %), another 12% are partly covered (some associations or lower syntaxa), and approximately one third (27 %) of the alliances are not covered at all. Going into detail at the level of plant associations and comparable units, Rennwald (2000) lists 807 different units. Analysing these by threat categories it can be well shown that Annex I in principle does reflect the status of threat also at national level in Germany (Fig.3). About 70 to 80 % of all endangered syntaxa are covered by Annex I of the Habitats Directive. This is true both at the level of all 807 identified syntaxonomical units as well as on the level of considering well described and acknowledged associations only (698 associations).

Relative area within Natura 2000

A very important issue for the implementation of the Habitats Directive is the question: How big is the proportion of a habitat type within the protected sites network Natura 2000 and how much is left outside these areas? The reason is simple: only within Natura 2000 management is directly possible, however the Directive is aiming at a favourable conservation status of the habitats at national or biogeographical level i.e. including all occurrences. For the legally binding 6-yearly national reports is important to know how this conservation status develops and whether it remains stable or "on the favourable side". Analysing this question is important as we can assume that syntaxa with most of their occurrences within Natura 2000 sites are at least legally well protected and that their conservation mainly depends on proper control, management and enforcement of the Habitats Directive. The percentage of habitats considered by the EU and experts as being sufficient within Natura 2000 varied at lot and was in principal discussed at the biogeographical seminars with Member States. Apart from the specific needs of each habitat type, the general rules were to have a minimum coverage well above 20% and a sufficient representation

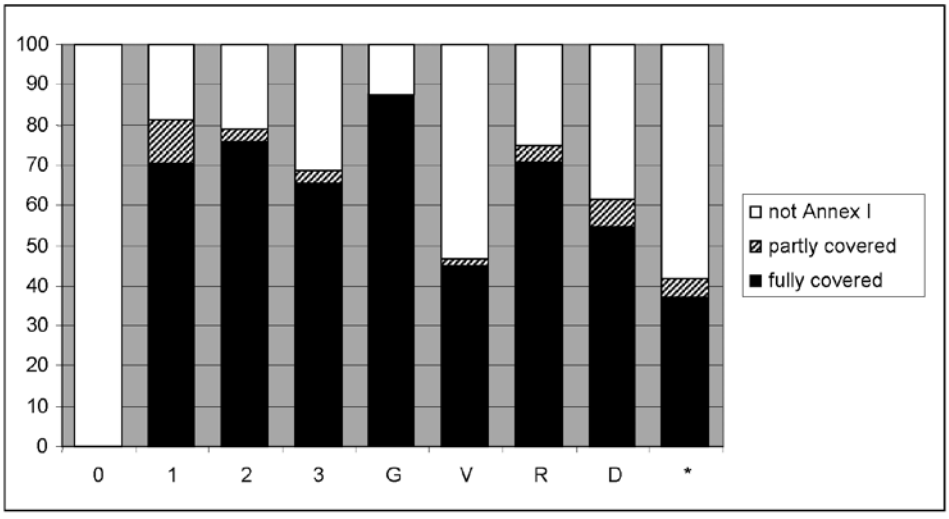

FIGURE 3 - Coverage of Annex I Habitats Directive of the 698 plant associations, categorized after the threat categories of the national red data book of plant syntaxa

with more than 60% coverage, except for priority or very rare habitats. The outcome of the biogeographic seminars for Germany was for all three regions (alpine, atlantic and continental) quite similar and a rough classification can be made (Fig. 4).

Widespread habitats are usually covered by Natura 2000 (Sites of Community Interest) with 40-60% like for example wet tall herb communities (code 6430, mainly the *Filipendulion*-alliance) or the beech forests having the largest percentage in the potential natural vegetation (e.g. *Luzulo-Fagion*). Rarer or more threatened habitats usually where accepted with 60-80% coverage e.g. lowland hay meadows (6510, mainly the *Arrhenatherion* alliance) or the heathland. For 43 habitat types, like for example the priority habitat active raised bogs, the coverage is now even over 80 %. The lowest accepted coverage where the *Carpinion*-forests (9160, 9170) as a large percentage of the actually existing stands are secondary vegetation on potential beech forest vegetation due to historical land-use or forestry.

Gaps in protection of plant syntaxa by the Habitats Directive

Looking at all threatened plant syntaxa in detail it is possible to identify major gaps in the EU-protection regime of the Habitats Directive at national level. It can be assumed in principle that these syntaxa are possible candidates for future amendments of Annex I, if they are in a similar poor condition or threatened also in other Member States. But without having the need to wait or even ask for such an option, it is quite clear that these syntaxa and the associated "habitats"/ biotopes need to be of course in the focus of nature conservation activities at national and Länder level as well. The responsibility for safeguarding the biodiversity within Member states and to maintain the natural heritage under national law is sufficient to set priorities at national level, irrespective of the EU-regime of the Habitats Directive. At the same time this can also contribute to enhance the coherence of the Natura 2000 network as these syntaxa

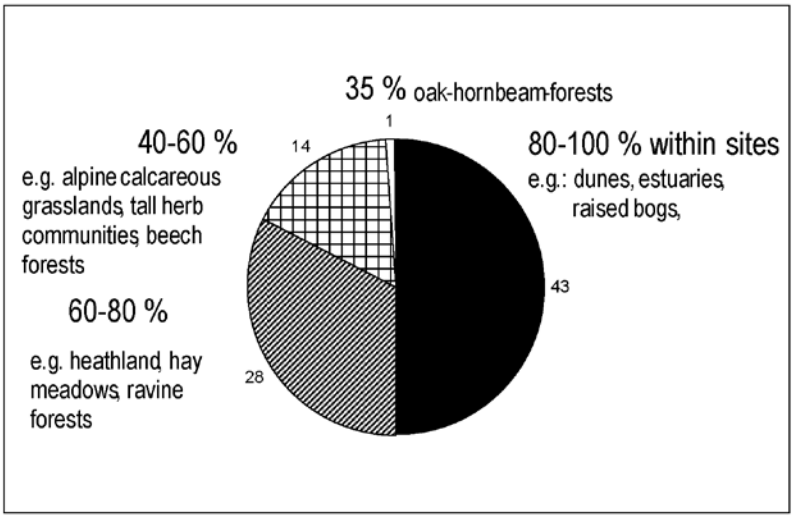

Figure 4 - Percentage of the total area of each Annex I habitat type covered within Natura 2000 Sites

are often functionally linked to habitats already listed on Annex I, actions taken here may at least partially be regarded as fulfilling Art. 10 of the Habitats Directive. An analysis carried out at the level of plant associations cannot be fully presented in a short paper, but a summary by plant formations gives a good overview:

TABLE 1 - Results of analysis which plant syntaxa are covered by Annex I habitats and thus legally protected within Natura 2000 sites in Germany. The column remarks on gaps is listing the syntaxa not covered by Annex I habitats.

Formation	General coverage by Annex I	Remarks on gaps
1. Aquatic vegetation	Alliances almost fully covered	Not covered: *Nitellion flexilis* *Nitellion syncarpo-tenuissimae*
2. Scree and chasmophytic (rock) vegetation	Alliances almost fully covered	Only alliance not covered: *Cymbalario-Asplenion* (not in the focus of nature conservation, not specifically threatened)
3. Pioneer vegetation rich in therophytes (excluding coastal vegetation)	To a large extent not covered (10 out of 15 alliances not covered) partly covered only vegetation linked to river banks (*Chenopodion rubri*, *Bidention* pp.)	Vegetation of arable fields, vineyards etc. missing e.g. *Caucalidion platycarpi* also highly threatened syntaxa not listed
4. Eutraphent reed and sedge beds	Almost not covered	Almost not covered: *Phragmition* *Magnocaricion* *Glycerio-Sparganion* (all 3 alliances to a minor part covered in estuaries and eutrophic lakes)
5. Vegetation of springs and bogs	Alliances almost fully covered; alkaline or base-rich types completely included	Not covered: acid spring vegetation (*Cardamino-Montion*) acid bog systems (*Caricion nigrae*)
6. Coastal vegetation (dunes, beaches etc.)	Alliances almost fully covered: e.g. Thero-Salicornion strictae	Only one alliance not covered: *Agropyro-Rumicion*
7. Grassland	Alliances partly covered: all alliances of dry grassland included	Not covered: *Calthion* *Cynosurion cristati* *Poion alpinae* *Potentillion anserinae* (partly covered in conjunction with *Asteretea tripolii*-vegetation)
8. Nitrophytic, ruderal and seam communities	Only partly covered (about 40%)	Missing: very nitrophytic vegetation e.g. *Arction lappae*, *Rumicion alpini* (not in the focus of nature conservation) but also: all seam communities of mesic to dry conditions like *Geranion sanguinei*, *Trifolion medii* (many associations highly endangered)
9. Dwarf shrub vegetation and *Nardus* grasslands	All alliances fully covered	
10. Shrubs and pre-forest vegetation	Only to a minor part covered: accompanying rivers e.g. *Salicion albae*, *Salicion eleagno-daphnoides*	Not covered: all other xeric to wet shrub vegetation, except *Buxus sempervirens* scrub and subcontinental scrub of the *Prunion fruticosae* (recent addition to annex I)
11. Forests	Most alliances fully covered	Partly covered: *Erico-Pinion*, *Dicrano-Pinion*, *Quercion roboris* (on rock not covered e.g. *Luzulo-Quercetum*) not covered 2 alliances: *Alnion glutinosae* – swamp forests and *Quercion pubescentis-petraeae*

Case study grasslands

Grasslands form an essential part of Annex I of the Habitats Directive. Most of the grassland habitat types that are listed in Annex I and the Interpretation Manual of European Union Habitats (European Commission 2003) (see Table 2) belong to "Natural And Seminatural Grassland Formations" (Natura Code starting with "6") but grassland habitat types can be found among "Coastal and Halophytic Habitats" (Natura Code starting with "1") and "Coastal Sand Dunes and Inland Dunes" (Natura Code starting with "2") as well.

Overall there are 40 grassland habitat types (16 priority types) within the European Union, of which 18 (5 priority) occur in Germany. Their total area of about 230.000 ha equals nearly 8 % of all habitat types included in German Natura 2000 Sites (Fig. 1). Two new grassland habitat types (*62C0 "Ponto-Sarmatic Steppes" and 62D0 "Oro-Moesian acidophilous grasslands") proposed by Bulgaria and Romania have recently been added in the course of the accession process (Council of the European Communities 2006).

More than one third of the area of all German Annex I grasslands within Natura 2000 sites belongs to the lowland hay meadows which are represented mostly by the different subassociations, variants and synonymous associations of the *Arrhenatheretum elatioris* (see Dierschke 1997). Another third of the area is shared by four habitat types each of which covering between 20.000 and about 30.000 ha : 1330 „Atlantic salt meadows" (Classes *Asteretea tripolii* and *Saginetea maritimae*), 6170 „Alpine and subalpine calcareous grasslands" (most associations of the *Seslerietea variae*), 6210 „Semi-natural dry grasslands and scrubland facies on calcareous substrates" (Class *Festuca-Brometea* except the *Festucetalia valesiacae*) and 6430 „Hydrophilous tall herb fringe communities" (Alliances *Filipendulion, Aegopodion podagrariae, Galio-Alliarion* and *Senecion fluviatilis* each with some restrictions and the *Adenostylion alliariae*).

All other grassland habitat types have much smaller shares in the overall percentage (Fig. 5).

Reporting

According to Article 17 of the Habitats Directive "… Every six years… Member States shall draw up a report on the implementation of measures taken under this Directive…". This report shall include the evaluation of conservation status and impact on habitat types and species of the directive (inside and outside the Natura 2000 sites). In Germany the federal states ("Länder") are responsible for nature protection and thus collect the data for the report (except the coastal waters of the Exclusive Economic Zone, where the Federal Government is responsible). A German national report will be compiled with data from the Länder by the Federal Agency for Nature Conservation in the first half of 2007. After consulting the Länder the German Ministry for the Environment will submit this report to the European Union until the end of June 2007. A composite report containing data of all Member States will be prepared by the European Commission by mid 2009.

TABLE 2 - Grasslands of Annex I of the Habitats Directive (92/43/EEC). Bold: habitat types occurring in Germany

Code	Name
1320	**Spartina swards (Spartinion maritimae)**
1330	**Atlantic salt meadows (Glauco-Puccinellietalia maritimae)**
1340*	**Inland salt meadows**
1410	Mediterranean salt meadows (Juncetalia maritimi)
1530*	Pannonic salt steppes and salt marshes
1630*	Boreal baltic coastal meadows
2330	**Inland dunes with open Corynephorus and Agrostis**
2340*	Pannonic inland dunes
5130	**Juniperus communis formations on heaths or calcareous grasslands**
6110*	**Rupicolous calcareous or basophilic grasslands of the Alysso-Sedion albi**
6120*	**Xeric sand calcareous grasslands**
6130	**Calaminarian grasslands of the Violetalia calaminariae**
6140	Siliceous Pyrenean Festuca eskia grasslands
6150	**Siliceous alpine and boreal grasslands**
6160	Oro-Iberian Festuca indigesta grasslands
6170	**Alpine and subalpine calcareous grasslands**
6180	Macaronesian mesophile grasslands
6190	Rupicolous pannonic grasslands (Stipo-Festucetalia pallentis)
6210	**Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)**
6220*	Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea
6230*	**Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)**
6240*	**Sub-Pannonic steppic grasslands**
6250*	Pannonic loess steppic grasslands
6260*	Pannonic sand steppes
6270*	Fennoscandian lowland species-rich dry to mesic grasslands
6280*	Nordic alvar and precambrian calcareous flatrocks
62A0	Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)
62B0*	Serpentinophilous grassland of Cyprus
62C0*	Ponto-Sarmatic steppes
62D0	Oro-Moesian acidophilous grasslands
6310	Dehesas with evergreen Quercus spp.
6410	**Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)**
6420	Mediterranean tall humid grasslands of the Molinio-Holoschoenion
6430	**Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels**
6440	**Alluvial meadows of river valleys of the Cnidion dubii**
6450	Northern boreal alluvial meadows
6460	Peat grasslands of Troodos
6510	**Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)**
6520	**Mountain hay meadows**
6530*	Fennoscandian wooded meadows

The Habitats Committee had adopted a reporting format in 2005 (European Commission, 2005) but it was agreed that further guidance was necessary for the completion of the forms and the clarification of some terms. Thus a Guidance Document on "Assessment, Monitoring and Reporting under Article 17 of the Habitats Directive" as assistance for the member states in compiling the national report has been published as "Final Draft" by the European Commission in October 2006. It had been adopted before by the Habitats Committee and contains the reporting forms and examples from the member states for the delineation of the actual range and the assessment of the favourable conservation status of habitat types and species of the directive.

In cooperation with the Federal Agency for Nature Conservation the responsible agencies of the Länder draw up recommendations for monitoring and assessing the conservation status of species and habitat types of the annexes. A focal point of these German working groups is the elaboration of frames of assessment for the evaluation of the favourable conservation status of habitat types and species.

Within the scope of this work frames of assessment for all German grassland types mentioned in Tab. 2 have been drawn up and are available on the website of the Federal Agency for Nature Conservation (http://www.bfn.de/0316_monitoring.html) except 1320 and 1330, which are still under coordination of the appropriate working group. Table 3 gives an example of an assessment frame for mountain hay meadows (habitat type 6520):

The categorisation of the favourable conservation status in "A – excellent", "B – good" or "C – average or reduced" results from the assessment of three parameters:

- Completeness of typical structures. Favourable: a herb-rich natural structure with complete variation, and dominating low grasses

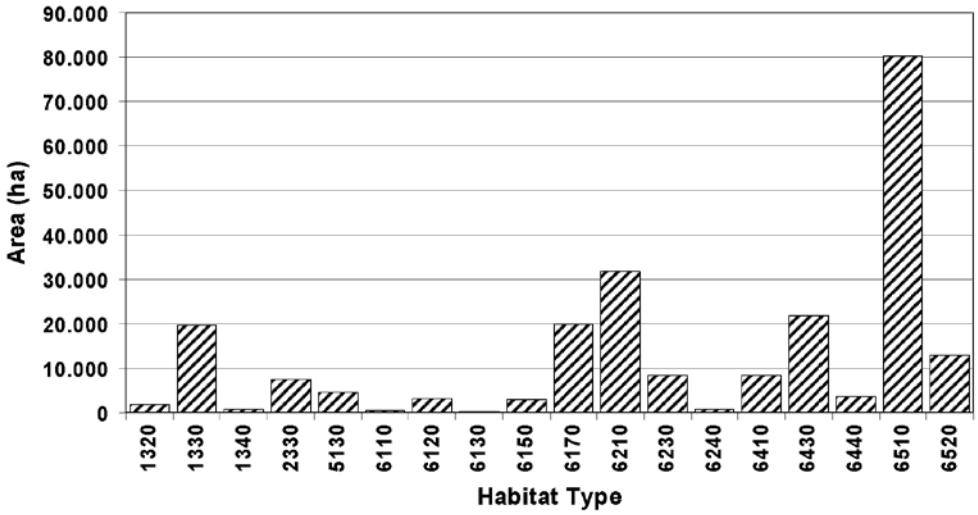

FIGURE 5. Area covered by grassland habitat types within German SCI's. for Habitat Types see Tab.2.

- Completeness of typical species inventory. Favourable: all or most of the species typical for the region are present. The list of species has to be specifically adapted on Länder level.
- Negative impacts/restoration possibilities. Favourable: no impacts visible

Detailed recommendations for assessing the conservation status of Natura 2000 grassland habitat types and further explanations as well as rules for the compilation of aggregate values are given by Doerpinghaus *et al*. (2003).
The specifications of the European Commission for the assessment of habitat types as laid down in the above mentioned guidance document had been drawn up when most of the German assessment frames had already been elaborated. Although the so called „traffic light" system of the EU for monitoring and reporting consists of three assessment classes too („green – favourable", „amber – unfavourable/inadequate" and „red – unfavourable/bad") there are different assessment levels (biogeographical/ site level) and parameters. Therefore rules for the transformation from site level assessment to biogeographical assessment have been developed but are for lack of space not further mentioned here.

TABLE 3 - Frame of assessment for mountain hay meadows (6520).

Parameter	**Conservation status**		
	A – excellent	**B –good**	**C – average or reduced**
Completeness of typical structures	low grasses dominating, herb-rich cover of herbs: base-rich (alkaline): > 40% base-poor (acidic): > 30% natural structure and variation complete	low grasses frequent, herbs-reduced cover of herbs: base-rich: > 30-40% base-poor: > 15-30% natural structure and variation reduced	high grasses or tall herbs dominating, species-poor: cover of herbs: base-rich: < 30% base-poor: < 15% homogenous structure and variation missing
Completeness of typical species inventory	**typical species**: *Astrantia major, Crepis mollis, Carum carvi, Campanula rotundifolia, Centaurea nigra, Centaurea nemoralis, Chaerophyllum hirsutum, Crocus albiflorus, Euphrasia rostkoviana, Festuca nigrescens, Geranium sylvaticum, Lathyrus linifolius, Leontodon hispidus, Luzula multiflora, Meum athamanticum, Phyteuma nigrum, Phyteuma spicatum, Poa chaixii, Polygonum bistorta, Ranunculus nemorosus, Trifolium badium, Trifolium aureum, Trisetum flavescens .....,* regional specific adaptations on Länder level		
	typical species ≥ 15, at least 6 frequently occurring indicators for nutrient poor soils	typical species 8-14 at least 3 frequently occurring indicators for nutrient poor soils	typical species < 8, indicators for nutrient poor soils rarely present
Negative impacts /restoration possibilities	not visible	untypical species groups present in low density, for example indicators for eutrophication, ruderalization, pasture weeds (≤ 5%)	untypical species groups present in higher density, for example indicators for eutrophication, ruderalization, pasture weeds (> 5%)
-- underlined values have to be specifically adapted by the Länder --			

Recommendations for monitoring (art. 11)	
Parameter	**Recommendation**
outside SCI's	statistical sampling
Fauna	facultative, has to be regionally adapted/ designed

Management

Management of Natura 2000 sites, as mentioned in Article 6(1) of the Habitats Directive, involves not only management plans but also statutory, administrative or contractual measures that secure a favourable conservation status of habitat types and species of the Annexes. The phrase "if need be" in the text of the directive refers to management plans only and even if a member state considers a management plan not necessary it will have to take the other measures (European Commission, 2000). Nevertheless management plans are a core instrument in the conservation of SAC's. According to Ellwanger *et al*. (2006) they are recommended for most of the Natura 2000 sites in Germany and from a professional perspective required in many different cases. One of these are Natura 2000 sites with habitat types and/or species that depend directly on the utilisation and management of there natural resources. This applies to nearly all grasslands listed in Annex I of the Habitats Directive (Table 2).

In Germany there are no standard measures yet on federal (national) level. Some Länder initially developed overall concepts with standardised measures while others started immediately with the elaboration of test or draft management plans. Others again focus on the inventory of habitat types and species within the sites and thus the elaboration of management plans is still at a starting point (Ellwanger *et al*., 2006).

Ihl *et al*. (2006) give some general principles for management measures for lowland and mountain hay meadows (6510, 6520) in Saxony. They underline that global phrases for management measures like "extensification of grasslands" are not useful and should be accompanied by more detailed recommendations on frequency of cutting, grazing after cutting or fertilisation. According to what type of grassland is object of the measure (e.g. rich or poor in nutrients) detailed advice for the amount of nitrogen fertilisation or the deployment of slurry is given. While these general principles are applicable for all areas of a habitat type within a site even more specific measures may have to be elaborated for certain areas.

In Saxony-Anhalt prototypes of management plans were elaborated for four different SCI's in 2001 and 2002 (Röper *et al*., 2006). Subject to one of them are inland salt meadows (1340) in the site "Sülzetal bei Sülldorf" about 12 km SW of Magdeburg. Due to positive experiences made in an area close by, the management concept plans as conservation measure mainly alternating grazing with cattle in a stocking rate of 1,4 – 1,8 per ha. The massive spread of reedbeds of *Phragmites communis* endangers salt meadows especially in areas with low salinity. Suitable measures to push back the reedbeds are grazing and mowing but due to a lack in practical experience on when and how to do it different dates of mowing and varying grazing regimes were tested in different parts of the SCI. The kind of usage that proves most appropriate as a result of monitoring in the forthcoming years has to be continued for management of the site.

Conflicts between habitats may arise in instances where habitats of Annex I form an ecological succession, which is quite often the case for grasslands as mostly secondary habitats. Most of the semi-natural dry grasslands of the *Festuco-Brometea* (habitat type 6210) in Germany will in the long run develop to beech forests of the

Cephalanthero-Fagetum (habitat type 9510) if not managed and natural succession takes place. Such a process may be unintended or even arranged if for example woodland habitat types are given priority (see European Commission, 2006 or Röper *et al*., 2006).

Ellwanger *et al*. (2006) however make clear that the conservation of habitat types (and habitats of the species respectively) announced in the Standard Data Form is binding if they are significant and that there may only be few exceptions e.g. if the conservation of some small remnants of a habitat type is out of all proportion regarding the efforts of conservation, the habitat type is not significant and there is no chance for further development. This point of view is underpinned by European jurisdiction, clarifying that succession is no excuse for failures in the conservation of grasslands (Case C6/04, judgement 20th Oct.2005 Commission /UK).

Riassunto

La selezione dei siti delle aree protette per il progetto Natura 2000 è stata completata per la Germania in base alle Direttive EU. Nel lavoro si presenta un'analisi delle implicazioni per la protezione dei syntaxa basato sullo stato di sensibilità dell'alleanza (lista rossa nazionale dei syntaxa), sull'area relativa degli habitats all'interno dei siti Natura 2000 e sulla sensibilità dell'associazione. Carenze nella protezione dei syntaxa vegetali secondo le Direttive Habitat sono evidenziate per ogni formazione vegetale. Sebbene la delimitazione dei siti sia già stata realizzata, il lavoro di protezione e management risulta ancora agli inizi. Metodi pratici di stima devono essere ancora sviluppati e piani manageriali sono ancora necessari per molti siti. Un sistema di rapporto è stato sviluppato a livello nazionale e di EU per i 6 anni standard di rilevamento sullo stato di conservazione degli habitats e delle specie. Questi problemi saranno illustrati con un esempio di studi sulla conservazione dei pascoli in Germania. 18 habitats a pascolo della Germania ricadono nelle Direttive Habitat, per un totale di circa 230.000 ha all'interno dei siti Natura 2000.

References

Balzer S. and Ssymank A. (ed.), 2005 - *Natura 2000 in Deutschland*. – Naturschutz und Biologische Vielfalt **14**. CD-ROM with Booklet.

Council of the European Communities, 1979 - *Council directive 79/409/EEC of 2 April 1979 on the conservation of wild birds*. Official Journal of the European Communities. Series L **103**: 1-18.

Council of the European Communities, 1992 - *Council directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora*. Official Journal of the European Communities. Series L **206**: 7-50.

Council of the European Communities, 2006 - *Council directive 2006/105/EC of 20 November 2006 adapting Directives 73/239/EEC, 74/557/EEC and 2002/83/EC in the field of environment by rea-*

son of the accession of Bulgaria and Romania. Official Journal of the European Communities. Series L **363**: 368-408.

Dierschke H., 1997 - Molinio-Arrhenatheretea (E 1). Kulturgrasland und verwandte Vegetationstypen. Teil 1: Arrhenatheretalia. Wiesen und Weiden frischer Standorte. Synopsis der Pflanzengesellschaften Deutschlands **3:** 74 pp.

Doerpinghaus A., Verbücheln G., Schröder E., Westhus W., Mast R. and Neukirchen M., 2003 – *Empfehlungen zur Bewertung des Erhaltungszustands der FFH-Lebensraumtpyen: Grünland*. – Natur und Landschaft, **78 (8):** 337-342

Ellwanger G. and Schröder E. (eds.), 2006 - Management von Natura 2000-Gebieten. Erfahrungen aus Deutschland und ausgewählten anderen Mitgliedsstaaten der Europäischen Union. Naturschutz und Biologische Vielfalt **26**: 306 pp.

Ellwanger G., Schröder E. and Ssymank A., 2006 – *Erfahrungen mit der Managementplanung in Natura 2000-Gebieten in Deutschland*. In: Ellwanger G. and Schröder E. (eds.), - Management von Natura 2000-Gebieten. Erfahrungen aus Deutschland und ausgewählten anderen Mitgliedsstaaten der Europäischen Union. Naturschutz und Biologische Vielfalt. **26**: 9-26

European Commission, 2000 – Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Office for Official Publications of the European Communities, Luxembourg, 69 pp. (http://ec.europa.eu/environment/nature/nature_conservation/eu_nature_legislation/specific_articles/art6/pdf/art6_en.pdf)

European Commission, 2006 - Assessment, monitoring and reporting under Article 17 of the Habitats Directive: Explanatory Notes & Guidelines. Final draft October 2006. Brussels, 64 pp. (http://www.bfn.de/fileadmin/MDB/documents/themen/natura2000/ec_guidance_2006_art17.pdf)

European Commission DG Environment, 2003 - Interpretation Manual of European Union Habitats - EUR25 April 2003. Brussels, 126 pp. (http://ec.europa.eu/environment/nature/nature_conservation/eu_enlargement/2004/pdf/habitats_im_en.pdf)

European Commission DG Environment, 2005 - Assessment, monitoring and reporting of conservation status – Preparing the 2001-2007 report under Article 17 of the Habitats Directive (DocHab-04-03/03 rev.3) April 2005. Brussels. (http://forum.europa.eu.int/Public/irc/env/monnat/library?l=/reporting_framework&vm=detailed&sb=Title)

European Topic Centre on Biodiversity, 2006 - Assessment, monitoring and reporting under Article 17 of the Habitats Directive: Explanatory Notes and Guidelines. FINAL DRAFT October 2006, Paris. (http://forum.europa.eu.int/Public/irc/env/monnat/library?l=/guidlines_reporting/notesguidelines_2/_EN_1.0_&a=d)

Ihl A., Malt S. and Warnke-Grüttner R., 2006 – *Managementpläne im Freistaat Sachsen - Organisation und erste Erfahrungen*. In: Ellwanger G. and Schröder E. (eds.), - Management von Natura 2000-Gebieten. Erfahrungen aus Deutschland und ausgewählten anderen Mitgliedsstaaten der Europäischen Union. Natursch. Biol. Vielf. **26**: 125-140.

Raths U., Balzer S., Ersfeld M. and Euler U., 2006 - *Deutsche Natura-2000-Gebiete in Zahlen*. - Natur und Landschaft, **81 (2)**: 68-80.

Rennwald E. (ed.), 2000 - Verzeichnis und Rote Liste der Pflanzengesellschaften Deutschlands. Schriftenreihe für Vegetationskunde, **82**: 820 pp. and CD-ROM.

RIECKEN U., RIES U. AND SSYMANK A., 1994 - Rote Liste der gefährdeten Biotoptypen der Bundesrepublik Deutschland. Schriftenreihe für Landschaftspflege und Naturschutz, **41**: 184 pp.

RIECKEN U., FINCK P., RATHS U., SCHRÖDER E. AND SSYMANK A., 2006 - Rote Liste der gefährdeten BIOTOPTYPEN DEUTSCHLANDS. SECOND EDITION 2006. – Naturschutz und Biologische Vielfalt. **34**: 318 pp.

RÖPER C., DARMER G., FREIHOF K., MEYER F., PATZAK U., REICHHOFF L., SCHREINER C. AND SY T., 2006 – *Managementplanung in Sachsen-Anhalt*. In: ELLWANGER G. and SCHRÖDER E. (eds.), - Management von Natura 2000-Gebieten. Erfahrungen aus Deutschland und ausgewählten anderen Mitgliedsstaaten der Europäischen Union. Naturschutz und Biologische Vielfalt. **26**: 141-160.