

8 February 2010

European Commission  
DG Energy and Transport  
B – 1049 Brussels  
Belgium

Email: TREN-biodiverse-grasslands-biofuels@ec.europa.eu

Dear Sir/Madam

**EU consultation on definition of highly biodiverse grasslands under Directive 2009/28/EC  
on the promotion of the use of energy from renewable sources**

Thank you for the opportunity to offer comments on the Commission's initial proposals on how to implement the provisions on highly biodiverse grasslands set out in Directive 2009/28, Article 17.3. We regard this as an important topic raising issues of both principle and practice and with longer term significance for the establishment of sustainable supply chains for bioenergy feedstock and, potentially other commodities.

Our responses to the questions posed by the Commission in the Consultation Document are set out in the annex to this letter. New approaches will be required to provide adequate protection for grasslands under the terms of the Directive and clarity surrounding objectives, definitions and procedures will be critical to achieve the desired outcomes. To support the implementation of the provisions related to highly biodiverse grasslands under Directive 2009/28, IEEP has developed two working papers examining in detail the challenges associated with defining key terms (Working Paper 1) and the development of a model for operationalising the Directive's requirements (Working Paper 2). These papers were prepared with funding from WWF and examine in detail many of the questions posed in the Commission's Consultation Document. They were developed in consultation with a number of leading experts, key environmental and industry stakeholders. The two working papers are attached offering more detailed analysis in support of the responses made.

We hope that the information provided will be of use to the Commission during the development of a system to operationalise the sustainability requirements set out in Directive 2009/28. IEEP feels that the approach developed within our papers would offer a basis for a robust and flexible implementation process that would achieve the biodiversity conservation objectives of the Directive, whilst avoiding imposing unnecessary burdens upon the emerging biofuels industry.

Directive 2009/28 clearly requires the protection of key habitats deemed of high biodiversity value. We would happy to discuss further our ideas regarding the implementation of this important Directive. For further information please contact Catherine Bowyer ([cbowyer@ieep.eu](mailto:cbowyer@ieep.eu)).

Best Wishes

David Baldock

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## Background

The Institute for European Environmental Policy (IEEP) is an independent and not for profit research institute dedicated to the analysis and development of policies affecting the environment in Europe and beyond. The Institute seeks both to raise awareness of European environmental policy and to advance policy-making along sustainable paths.

IEEP has for some time been supporting the development of a policy approach to the development of biofuels in Europe and systems for supporting sustainable biofuels. Since the launch of Directive 2009/28 analysis has extended to consider how this measure might be implemented in practice. Since October 2009, with support from WWF, IEEP has been looking more closely at approaches to deliver the highly biodiverse grasslands requirements under the Directive. This has been completed in contact or consultation with key research organisations eg the Oeko Institute, officials in several Member States and key stakeholders including NGOs, agricultural industry groups, nature conservation agencies and the renewable energy sector.

This is the foundation for the following responses to the Commission's questions and the two working papers:

**Working Paper 1** – Interpreting Grassland Requirements set out within the Directive on Renewable Energy (Directive 2009/28/EC), Institute for European Environmental Policy: London, 2009

**Working Paper 2** - Operationalising Criteria to Protect Highly Biodiverse Grasslands under the Renewable Energy Directive (2009/28/EC), Institute for European Environmental Policy: London, 2010.

This document presents the following:

- IEEP response to the Commission consultation
- Working Paper 1
- Working Paper 2

## 1) Do you have comments on the suggested operational definition of the two categories of grassland?

The suggested operational definitions of the two categories of grassland set out in the consultation document are:

- Non-natural grassland: an area whose condition as grassland is maintained [for at least 5 years] as a result of human intervention such as ploughing, sowing, mowing or livestock grazing.
- Natural grassland: grassland that has not been sown and is maintained as grassland by the influence of natural factors such as natural fires, grazing by wild animals, (periodic) drought or freezing temperatures.

Before discussing these two definitions it is first important to set out the **definition of grassland**; natural and non-natural grasslands should be considered as a subset of grassland. As such the grassland definition adopted will provide a basis for determining the other two terms.

The definition of grassland put forward in the Commission's Consultation Document is:

*'An area where a continuum of grasses or grass-like plants with few woody plants grows'*

Below we examine the definition of grassland set out in the Commission's consultation and put forward an alternative conception for this. We then review the on proposed definitions for natural and non-natural grasslands.

A more detailed analysis of the requirements of Directive 2009/28 and the definitions for grassland, and natural and non-natural grassland, can be found in Working Paper 1.

#### ▪ Defining grasslands

Article 17.3 of Directive 2009/28 gives no definition for the term grassland. However, recital 69 of the Directive provides guidance as to how grassland should be interpreted. This refers to the "...highly biodiverse nature of certain grasslands, both temperate and tropical, including highly biodiverse savannahs, steppes, scrublands and prairies". It must be noted that this recital references a wide spectrum of ecosystems in different climatic regions. Moreover Recital 69 also clearly sets out that Directive 2009/28 *'should not have the effect of encouraging the destruction of biodiverse lands'*.

The grassland definition proposed in the Consultation Document mimics, although is not identical to, the definition for grasslands as set out on the Convention for Biological Diversity's (CBD) website. This definition of grassland originates from the UNEP/CBD/SBSTTA/5/91, page 6, published on October 27, 1999, proposing the scope and description of major biomes in dry and sub-humid lands. However, importantly, this proposed definition was subsequently not adopted in the resulting SBSTTA Recommendation V/82, or in the ensuing COP 5 Decision V/233. Within CBD papers this definition is not consistently quoted. This definition has, therefore, not been formally agreed and was conceived as applicable only to a particular set of ecosystems.

Furthermore, parties to the CBD have been generally reluctant to agree on definitions given the national and regional differences in classification systems and nomenclature (CBD Secretariat, pers. comm.). In consequence, this definition cannot be considered the "*international standard*" needed for grasslands, as specified in recital 69 of the Directive.

Moreover, the coverage and wording of the proposed definition is considered to be problematic and not in line with the Directive's text. Recital 69 of Directive 2009/38 sets out clearly the ecosystems that should be included within the definition of grasslands; these are "highly biodiverse savannahs, steppes, scrublands and prairies". However, the proposed definition would explicitly exclude scrublands. This is not acceptable as scrublands are well known to host high values of biodiversity, e.g. in the Mediterranean region.

In addition, the definition proposed in the Consultation Document includes the imprecise term "*grass-like plants with few woody plants grows*". This term would need further definition and explanation and fails to offer the clarity needed to support a robust and user friendly EU system.

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<sup>1</sup> Document of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA). UNEP/CBD/SBSTTA/5/9 is available at <http://www.cbd.int/doc/meetings/sbstta/sbstta-05/official/sbstta-05-09-en.pdf>

<sup>2</sup> <http://www.cbd.int/recommendation/sbstta/?id=7025>

<sup>3</sup> <http://www.cbd.int/decision/cop/?id=7165>

***The limitations of the Commission’s proposed definition for grassland - i.e. its lack of adoption formally by the CBD, inconsistent use within CBD texts, limited coverage of key ecosystems referenced in the Directive and imprecise wording - mean we consider this unsuitable as a basis for interpreting and implementing Directive 2009/28, Article 17.3.c.***

In contrast to a CBD based approach, the definition of grassland developed by White et al. (2000) is widely accepted by the international grassland community<sup>4</sup>, and it is based on clear, well defined terms. This sets out that:

*Grasslands are “terrestrial ecosystems dominated by herbaceous and shrub vegetation and maintained by fire, grazing, drought and/or freezing temperatures”.*

By using the terms “herbaceous and shrub vegetation” this definition is broad enough to cover all grasslands in temperate and tropical zones including savannahs, steppes, scrublands and prairies. This would be in line with a precautionary approach and the spirit of the Directive, in terms of protecting biodiverse lands. Another advantage is that a sound data set exists built upon this definition.

It should be noted that White et al. (2000) applied their definition primarily to natural grasslands<sup>5</sup>, which is reflected in the limited number of actions listed as maintaining grasslands ie fire, grazing, drought and/or freezing temperatures. The general definition adopted for grassland under Directive 2009/28 should be based on the first phrase of the White definition. We propose that the following be adopted as the definition for grassland under Directive 2009/28: *Grasslands are terrestrial ecosystems dominated by herbaceous and shrub vegetation.*

When implementing this definition it must be recognised that the boundary between grasslands and forested areas is not necessarily distinct. Especially in the cases of savannas and agro-forestry systems (e.g., orchard meadows and olive groves) where tree cover can be up to 60%, but the land also sustains a continuous herbaceous layer that is almost independent from the trees above (see Hennenberg et al. 2009). This phenomenon needs to be reflected when setting up definitions, criteria and proofs.

***We believe that the work of White et al. (2000) offers the ‘best available scientific evidence’ and represents the most accepted ‘international standard’ for defining grasslands under Directive 2009/28. We recommend that the following definition for grassland be adopted.***

***‘Grasslands: Terrestrial ecosystems dominated by herbaceous and shrub vegetation’.***

#### ▪ **Defining natural and non-natural grasslands**

We consider that the definitions of natural and non-natural grassland put forward by the Commission should be amended. The proposed definitions for non-natural and natural grassland imply that any human intervention on a grassland leads to the classification of that grassland as non-natural. ***Natural grasslands can also, and often do, sustain human activity***

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<sup>4</sup> According to Gibson (2009) the definition of White and colleagues draws upon the most widely accepted description of grassland.

<sup>5</sup> Examination of the dataset of White et al. (2000) confirms that large shares of man-aged grassland (including semi-natural grassland) are lacking (see Hennenberg et al. 2009).

***and as a consequence the mere presence of human activity at a locality must not be used as the basis for determining whether grasslands should be deemed natural or non natural.***

We consider that the ***definition of natural grassland*** put forward by the Commission is inappropriate. The following issues must be resolved in order to deliver an acceptable definition:

- The definition for natural grassland proposed sets out in detail factors considered to maintain natural grassland ie 'natural fires, grazing by wild animals, (periodic) drought or freezing temperatures. This text is adapted from the definition in White et al. (2000). However, by using the phrasing "natural fires" and "grazing of wild animals" instead of "fire" and "grazing", many natural grasslands subject to limited human impacts will be excluded. This is not considered to be acceptable and might lead to the perverse situation where large areas of widely recognised natural ecosystems are deemed non natural grasslands.
- The proposed definition refers to the origin of natural grassland by excluding only one factor: grassland that has '*not been sown*'. However, there are many other human factors that cause the establishment of non-natural grassland, and this part of the definition should be specified in a more general way. In so doing a clear distinction between natural and non natural grasslands can be established reducing economic burden for operators.

***The following definition of natural grassland is proposed. This is intended to take account of the fact that many natural grasslands will be subject to some form of human intervention and that defining natural grassland as not sown represents too limited a scope.***

***Natural grassland: grassland that has not been created by significant human activities such as ploughing or sowing and is maintained as grassland mainly by the influence of natural factors such as fires, grazing, (periodic) drought or freezing temperatures.***

We consider that the ***definition of non-natural grassland***, put forward by the Commission should be amended. This should bring the definition for non-natural grassland into line with the proposed natural definition, above. Moreover, as per the 'natural definition', this should clarify both the origin and maintenance of non-natural grasslands.

***It is proposed that the following definition be adopted for non-natural grasslands:  
Non-natural grassland: grassland that has been created by significant human activities, through the loss of a natural habitat, and have been maintained as grassland [for at least [5] years] as a result of human intervention such as ploughing, sowing, mowing or grazing by livestock.***

We also suggest that the characterisation of non-natural grassland types outlined in Working Paper 1 offers a useful structure to help non-experts identify potential biodiversity impacts of expansion of biofuel production on non-natural grasslands. We propose 4 categories of non-natural grassland based on management practices and origin. This categorisation can be helpful in determining which types of grassland are likely to be of high biodiversity value.

1. **Grasslands that have been intentionally improved and are under intensive agricultural management.** These have generally been agriculturally improved, typically by ploughing, re-seeding, fertilisation, herbicide treatments, and in some cases other activities intended to increase productivity on the land such as extensive

drainage or irrigation. Such grasslands normally have low biodiversity value and low species richness (even when classified in the broadest sense). It should, however, be noted that despite this they may remain important habitats, for example as an over-wintering site for birds.

2. **Semi-natural grasslands** are usually used for extensive livestock grazing and/or hay production. They often need such grazing or other forms of disturbance to maintain their diversity of flora and dominance of the grass sward. They tend to hold a high proportion of native species of open habitats and are often species rich, and are therefore classed as highly biodiverse.
3. **Land that was formerly in agricultural use for either arable or as grazed land and has since been abandoned.** The lack of agricultural activity may have led to a decline in biodiversity value or an increase depending upon environmental conditions, including the matrix of surrounding habitat and the type of agricultural activity undertaken previously. This category may also include land that is intentionally being restored to biodiverse grassland. These lands may be of low biodiversity value now but over time, provided appropriate management is in place, should be expected to become more biodiverse and develop the characteristics of semi-natural grassland.
4. **Land that is now grassland but has been recently deforested** where the forest system has yet to, or is unable to, regenerate. This may have been farmed, be still in use or abandoned due to poor soils etc. These lands may be of low biodiversity value now and into the future, or may offer biodiversity potential in terms of future reforestation and regeneration.

**2) Do you agree that it is not possible to define highly biodiverse grasslands in a way that would permit their identification through remote sensing data/satellite photographs?**

*Yes. We agree that in most cases highly biodiverse grassland, both natural and non-natural, cannot be distinguished from non-highly biodiverse grassland by remote sensing data and satellite photographs.*<sup>6</sup> Directive 2009/28 sets out particular criteria to judge if natural and non-natural grasslands are considered highly biodiverse. In particular, these will require establishing the species composition of a given grassland. **An assessment of composition cannot be derived from remote sensing alone.**

It should, however, be noted that some datasets do exist that could be used to identify areas that have the potential to hold highly biodiverse grassland, in particular natural grasslands, but the final assessment of whether a site is deemed highly biodiverse grassland requires further analysis on the ground .

**3) Are you aware of, or would you suggest, possible ways of identifying (ranges) of highly biodiverse grasslands, other than through on-site assessments?**

As already stated in response to Question 2, information on the biodiversity status of grassland requires field data or comparable information (e.g., information on habitat types or the distribution of species of high conservation importance). If these data do not already exist then some form of on-site assessment is required.

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<sup>6</sup> With the given technology and best combination of data and expert interpretation, it is possible to distinguish between, e.g., arable land and grassland or forest and grassland, but in the case of savannahs with a high percentage of tree cover, it is not possible to derive the information if under the trees herbaceous vegetation typical of savannahs could be found. Identification of the biodiversity status of grassland via remote sensing alone is not possible (compare RSS 2009).

There is, however, a possible role for the use of maps and other data in identifying areas that have the potential to hold highly biodiverse grasslands, in particular highly biodiverse natural grasslands – as these are often the result of a set of determinable natural parameters. It is therefore important to develop an approach to defining the types and quality of data and maps that can be accepted in terms of demonstrating compliance with Directive 2009/28. A clear approach to the accepted use of maps and key data, as well as the verification procedure required to guarantee quality is needed to support the effective implementation of the Directive. ***We believe clear criteria on the use of maps and data sets should be developed covering the preparation of these materials, data gathering and their approved uses when supporting compliance.***

While a global map or consistent global data set on highly biodiverse grassland does not exist, for a number of countries and regions data and maps indicating areas approximating to highly biodiverse grasslands have already been developed – an initial list of useful data sources is been provided in Hennenberg et al 2009b. Moreover, in terms of mapping natural grasslands, the dataset of White et al. (2000) offers a useful basis for identifying areas where natural grasslands would be expected to occur.

***To achieve the apparent overall environmental aim of Directive 2009/28, it is important to interpret the definitions of ‘highly biodiverse grassland’ in a broader sense.*** This is necessary to avoid unintended detrimental impacts on biodiversity, and ensure relevance both inside and outside the EU. ***We, therefore, consider that the following types of grasslands should fall under the definition of ‘highly biodiverse’ irrespective of their vegetation composition:***

- Grasslands that are species-rich with respect to any taxa group (e.g. including invertebrates, reptiles, birds and mammals); and
- Grasslands that support significant populations of animals, rare or otherwise threatened species or species assemblages, the loss of which would reduce national, regional or global scale biodiversity protected.

**4) Which approach of the three possible approaches 1, 2 and 3 do you prefer? Please motivate your response and the implications in terms of economic burden, and efficiency.**

Set out below is our detailed analysis of the possible approaches put forward within the Commission’s consultation document. In summary:

***We consider that approaches 1 and 2 fail to implement the legally binding requirements set out in Directive 2009/28, Article 17.3.c, which clearly specifies the need to protect highly biodiverse grasslands, both natural and non-natural. This is a requirement that is additional to criteria to address protected areas and forests (set out in Article 17.3.b and 17.3.a). We therefore support approach 3, but consider that the assessment system put forward in Working Paper 2 can offer a balanced approach to implementation that is in accordance with the precautionary principle and is not unfairly onerous for the producer of feedstocks.***

- ***Approach 1*** is completely reliant on protection of highly biodiverse grassland through existing nature protection areas (statutorily protected sites), primary wooded lands and

peatlands, all of which are recognised in the sustainability criteria of Article 17 of the Directive. This is considered insufficient as the Directive clearly sets out highly biodiverse grasslands as an additional category of land to be protected. This approach is not considered consistent with the legally binding requirements set out in Article 17 of Directive 2009/28 and would fail to adequately protect grasslands of biodiversity value.

- **Approach 2:** We believe this approach is contradictory to the overall ambition of Directive 2009/29 Art 17 to protect lands of high biodiversity value, of which highly biodiverse grasslands is a subset. It is also inconsistent with the legally binding requirements set out under Directive 2009/28, Article 17.3.c. The wording of the Directive implies no prioritisation or hierarchy between the protection of highly biodiverse natural grasslands and highly biodiverse non-natural grasslands; both are deemed of equal importance to protect.

There is no legitimate, scientific rationale for offering a preference for protecting only natural grasslands. This needs special emphasis given that semi-natural grasslands (many known worldwide to be of biodiversity importance) would, based on the definitions in Directive 2009/28, fall into the non-natural categorisation.

**Approach 3 – This is our preferred consultation option. Approach 3 is the only option put forward by the Commission considered to comply with Directive 2009/28. However, we believe that it is possible to apply a more discriminatory approach to assessment that would not necessarily require an on-site, expert assessment at all localities reducing the burden placed upon producers of biofuel feedstocks.**

We believe that it is possible to develop a structured approach to implementation helping to reduce the economic burden of on-site verification. Within Working Paper 2 (section 4.1) we put forward a three level assessment process that can be used systematically to determine the biodiversity status of grasslands. The three level assessment process would operate as follows:

**Level 1 aims to exclude from further assessment grasslands that are obviously intensively managed, not species-rich or of any other known biodiversity importance.** This assessment would be undertaken by the proponent/farmer/developer, with a transparent verification system established by a national competent authority (for example involving checks of a proportion of assessments). It would entail a simple screening of the land based on clear guidelines (see Annex I).

If it is not possible to identify, and provide sufficient proof, that a grassland is suitable for conversion to biofuel feedstock production from a Level 1 assessment, then the analysis of the land in question progresses to Level 2 (assuming the proponent still wishes to proceed with the development of land for biofuel feedstocks). **Under Level 2 a simple site survey is required to establish if the site is potentially suitable for biofuel production.** This would be carried out by an independent accredited assessor, although as set out in Annex I of our Working Paper this should not involve onerous cost to the proponent since the assessment would be constrained in terms of duration and level of effort. At this stage a site might be identified as a.) suitable or b.) unsuitable for biofuel feedstock production in line with Directive 2009/28/EC, or c.) the status of the land remains uncertain.

**If it has still not been possible to determine the status of the land's suitability under Directive 2009/28/EC, and the proponent still wishes to take this forward, they should**

**progress to Level 3.** This encompasses a detailed assessment based on good practice standards for **Ecological Impact Assessment** completed by an independent specialist. This assessment should provide a judgement and include proofs to demonstrate that the grassland is not of biodiversity value. **If after all three assessment levels are complete significant doubt remains over its biodiversity value, biofuel feedstock production on that land should not be considered to qualify under Directive 2009/28/EC Article 17.**

**Proof**, based on level 1, 2 or 3, demonstrating that land does not contain grassland of high biodiversity value would need to be provided to demonstrate compliance before biofuel feedstocks could be processed. **A record of this proof and the assessment process undertaken would need to be presented to the processor, forming the first stage of a traceable chain of custody** allowing EU Member States to identify the compliance of biofuels entering the EU with Directive 2009/28/EC.

**5) Do you have comments on the suggested criteria for assessment of highly biodiverse grassland, including:**

- **Quantifiable indicators for the suggested operationalising approach, their reliability, precision and feasibility;**
- **The existence and status of possible suitable lists of species;**
- **The range of areas that would be currently covered by such lists?**

Firstly, it should be noted that from the wording of the consultation we are **unclear if the proposal is for one of the three criteria** proposed as a basis for requiring on site assessment or all three.

Secondly, **Directive 2009/28, Article 17.3.c already provides two sets of criteria to be used as identifying whether natural and non-natural grasslands are highly biodiverse.** Under the Directive:

- natural grasslands must maintain their “ecological characteristics and processes” as well as a “natural species composition”. Therefore, proof is necessary to demonstrate significant change in the natural system.
- non-natural grassland must be ‘*species rich and not degraded*’.

The criteria put forward in the consultation document must, therefore, be evaluated to identify whether they enable assessment of the different ‘valued’ characteristics of natural and non-natural grasslands set out in Directive 2009/28.

- **Criterion (a)** – This requires an assessment to be made of ‘the large variety of different species’, this **can be used as a measure of species richness and as such can be used to identify species-rich non-natural grasslands. This can not, however, be used to assess compliance with the natural grassland requirements** because for this it must be demonstrated that “*natural species composition*” is maintained and not species richness.
- The consultation document states that it could be appropriate to extend this criterion by also ‘*including (natural) grasslands that do not contain a large variety of different or the same species, but are important as a habitat to a limited number of species that contribute to high biodiversity, and for which the site presents the physical and biological factors essential to their life and reproduction*’. However, this **extension would still not provide a measure of “natural species composition” or “ecological characteristics and processes”** as demanded by the definition of natural grassland included Directive

2009/28. This is not, therefore, considered to provide a basis for assessing natural grasslands under Directive 2009/28.

- **Criterion (b)** – The wording specified in the Commission’s consultation document appears to require an assessment of the genetic diversity present (this requires clarification) ie a large variety of the same species. If this is the case ***we consider this criterion would cause an unacceptable economic burden*** as assessments of intra species diversity are complex, with limited knowledge in terms of the variety within grassland species world wide.
- **Criterion (c)** – This criterion relates to the assessment and protection of single important species. ***This is considered to be an important criterion that is not currently covered by the existing criteria set out in Directive 2009/28. We would welcome the application of this criterion.*** The additional economic burden associated with conducting such an assessment is considered to be rather low so long as reliable lists of species of importance are available or developed.

***The three criteria proposed in the Consultation Document only cover one of the four criteria specified for determining highly biodiverse grasslands under Directive 2009/28, i.e. “species-richness”. Moreover, this criterion only applies to the identification of non-natural grassland under the Directive.*** The other three criteria set out in the Directive are not addressed, i.e., “degradation” (non-natural grassland), “natural species composition” (natural grassland) and “ecological characteristics and processes”:

- ***Degradation*** - It is important to define the meaning of the term “degraded” since short-term degradation is a frequent element of grassland management, for example following a period of under- or over-grazing or temporary abandonment, and can be followed by a full recovery of ecological condition. We propose the following definition: “degradation in the context of non-natural grasslands should be understood to be a near permanent loss of ecological value”.<sup>7</sup>
- ***Natural species composition*** - This is the natural assemblage of species occurring in a region. For grasslands identified as ‘natural’ under the Directive it is very likely that the grassland maintains a natural species composition, hence is considered as highly biodiverse under the Directive. Thus, strong evidence is needed, in line with the precautionary principle, to demonstrate the loss of natural species composition. Thresholds for such disturbances should be elaborated further based on regional conditions.
- ***Ecological characteristics and processes*** are also likely maintained on identified natural grasslands. Again, significant evidence of its disturbance is needed to reject the status of high biodiversity for a site.

**Further criterion – Commission’s proposed approach to the use of indicator species** - The Consultation Document proposes: that “Key indicator species or quantified indices could be used to define no-go areas.” It is considered that this statement is a step in the right direction, and would be of relevance in supporting criteria a and c. However, we consider that this statement should be rephrased as follows:

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<sup>7</sup> For detailed analysis of degradation as applicable to Directive 2009/28 see IEEP/WWF Working Paper 1 on interpreting Directive 2009/28

***'Lists of characteristic species and a list of plant habitat types and biotopes could be used to help identify potential highly biodiverse grasslands'.***

The Consultation Document goes on to suggest a basis for such lists *'on national, regional and global lists of endangered or vulnerable species and on lists of species of special importance to regional or global biodiversity.'* Given the need to demonstrate natural species composition (natural grasslands) and species richness (non-natural grasslands, this interpretation is considered inadequate.

***The Commission's elaboration of information sources and lists is considered to be based on Article 17.3 (b), despite the requirement for the protection of highly biodiverse grasslands clearly being additional under Directive 2009/28. We consider such a basis for assessment would be strongly misleading*** because adequate indicator species are often not necessarily endangered or vulnerable.

The lists used as the basis for assessment should not be restricted to species, but also set out specific plant habitat types and biotopes where appropriate. In some regions the latter lists can help to increase the efficiency of on-site assessments and may strongly reduce economic burden.

**6) Is there a better suited alternative approach or can one be developed? Please bear in mind the end result has to be able to distinguish "go" and "no-go" on legally sound and objective bases.**

***Yes, we suggest employing the approach outlined in Working Paper 2 under Section 4*** (and described under Question 4), which aims avoid the need for expensive on-site assessments of grasslands that are obviously not natural, species rich or of any other known biodiversity importance. We consider that this approach is compatible with the decision tree developed by Hennenberg et al 2009. While Hennenberg offers a logic for questioning compliance, in line with Directive 2009/28, the potential 3 level assessment in Working Paper 2 offers a basis for determining whether requirements are met and developing proof of compliance.

A further useful tool, also set out in Working Paper 2, is the potential use of indicative ***maps identifying areas sensitive to biofuel development***. These maps could be developed based on remote sensing data and other data sources (such as science-based lists of sites of known biodiversity importance) to identify areas of grassland (and potentially other habitats) deemed sensitive to biofuel development. In several Member States indicative or sensitivity maps are used to support stakeholders, developers and decision makers when making land use based decisions<sup>8</sup>. While not legally binding these can highlight areas deemed of concern and could be developed as part of a participative process with NGOs, Member States and Third Countries. The aim of this would be to support the assessment process and to help guide developers away from the areas of greatest concern.

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<sup>8</sup> This is further investigated within IEEP's work on the siting of onshore wind turbines in Europe, see [http://www.ieep.eu/publications/press/positive\\_planning\\_for\\_onshore\\_wind.pdf](http://www.ieep.eu/publications/press/positive_planning_for_onshore_wind.pdf)

**WORKING PAPER 1**  
**INTERPRETING GRASSLAND REQUIREMENTS SET OUT WITHIN THE DIRECTIVE ON**  
**RENEWABLE ENERGY (DIRECTIVE 2009/28/EC)**  
**JANUARY 2010**

This paper was commissioned by WWF European Policy Office from the Institute for European Environmental Policy (IEEP). It aims to provide a basis for discussion, clarification and interpretation of the criteria for the protection of highly biodiverse grasslands set out in Article 17 of Directive 2009/28/EC on renewable energy. In so doing we hope to offer a basis for the development of an effective and practical system to implement these criteria.

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## 1 INTRODUCTION

The Renewable Energy Directive attempts to limit the negative consequences of expanded European demand for bioliquids and biofuels by proposing a series of sustainability criteria, set out under Article 17. Under the Directive biofuels and bioliquids must fulfil the Article 17 criteria to be: taken into account when complying with national targets set under the Directive; or eligible for financial support.

Paragraph 3 of Article 17 states that biofuels and bioliquids '*shall not be made from raw material obtained from land with high biodiversity value*'. It then goes on to qualify this statement by clarifying that for the purposes of the Directive this means land 'that had one of the following statuses in or after January 2008, whether or not the land continues to have that status':

- a) Primary forest and other wooded land
- b) Areas designated for nature protection
- c) *Highly biodiverse grasslands that is:*
  - (i) *natural, namely grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes; or*
  - (ii) *non-natural, namely grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.*

Point c has been the source of debate among experts, policy makers and environmental NGOs with uncertainty over its coverage and how the definitions could be operationalised. The European Commission is tasked (by article 17,3 second subparagraph) with establishing '*criteria and geographic ranges to determine which grassland shall be covered by point (C)*' these are then to be approved under the comitology procedure with scrutiny<sup>9</sup>. This analysis is intended to support this interpretive process and ultimately support implementation.

## 2 THE CONTEXT – THE REPRESENTATION OF GRASSLANDS IN DIRECTIVE 2009/28

Within Directive 2009/28 references to the importance of grasslands are made at three different levels; within the Directive's recitals (paragraph 69), in Article 17 paragraph 3 and Article 17 paragraph 3 point c. The interconnectivity of these clauses is of importance when interpreting their meaning. Based on analysis of these three elements of the Directive's text – see Annex – **the overarching**

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<sup>9</sup> Regulatory committees with scrutiny: these must allow the Council and the European Parliament to carry out a check prior to the adoption of measures of general scope designed to amend non-essential elements of a basic instrument adopted by co-decision. In the event of opposition on the part of one of these institutions, the Commission may not adopt the proposed measure, although it may submit an amended proposal or a new proposal.  
[http://europa.eu/scadplus/glossary/comitology\\_en.htm](http://europa.eu/scadplus/glossary/comitology_en.htm)

**objective can be identified as to ‘avoid the destruction of biodiverse lands’ (including certain grasslands) through the expansion of biofuels and bioliquid production (set out in the Directive’s Recitals).**

Analysis of Article 17 paragraph 3 reveals that ‘highly biodiverse grassland’ is the core term of importance during interpretation of the Directive’s application to grasslands. The cross-referencing within Paragraph 3 means that for the purposes of the Directive **highly biodiverse grassland is one of the types of land that qualifies as of ‘high biodiversity value’.**

Within Article 17, 3, c it is clarified that highly biodiverse grassland can be natural or non-natural. However, different characteristics are used within the Directive to determine whether certain natural and non natural grasslands should be classified highly biodiverse. The definition of ‘natural highly biodiverse’ grasslands requires the maintenance of ‘natural species composition and ecological characteristics and processes’, importantly making no explicit reference to species richness. ‘Non-natural highly biodiverse’ grassland is specified as needing to be ‘species-rich and not degraded’.

The wording of the Directive implies **no hierarchy between highly biodiverse natural and non-natural grasslands, these are deemed as equally important to protect.** While the distinction between the two grassland types is useful in aiding identification of grasslands to be protected and the evidence base required<sup>10</sup>, the lack of hierarchy means the primary objective is simply protecting highly biodiverse grasslands. Logically, therefore, if a grassland can be identified as likely to be highly biodiverse it should be avoided for the purposes of biofuel and bioliquid production. It is not necessarily important to distinguish precisely whether grassland is deemed natural or non-natural.

Despite the above clarifications important questions of interpretation remain outstanding. The remainder of this paper is, therefore, focused upon the following questions:

- What defines grassland?
- Are highly biodiverse grasslands and high biodiversity value comparable?
- How should natural and non-natural grassland be defined and interpreted, given the Directive’s text, at an ecological level?
- How can the ‘valued’ characteristics of natural and non-natural grassland i.e. natural species composition and ecological characteristics and processes, and species-rich and not degraded respectively, be defined?

When considering the following analysis it should always be borne in mind that the Directive’s wording is the product of a political process and not a formal scientific one. As a consequence part of the challenge is identifying what is meant by the Directive and reinterpreting this in light of the ecological realities.

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<sup>10</sup> See section 6 for discussion over the distinction between natural versus non-natural grasslands and the differing characteristics valued under these two classifications based on the text of Directive 2009/28/EC.

### 3 DEFINING GRASSLAND

To comply with the Directives' aim of protecting highly biodiverse grasslands - including "highly biodiverse savannahs, steppes, scrublands and prairies" (Preliminary Recital 69) - it is important to ensure that **a broad definition of grasslands** is used, which includes biotopes that can have a high proportion of species or habitats other than grass (such as shrubs, trees, mosses, other plants), and bare soil or exposed rock. Many habitats of importance are likely to be intermediate or transitional (between forest and steppe, wetlands and grasslands, and desert and grasslands) or consist of complex mosaics of different micro habitats.

The meaning of "Grassland" for the purposes of the Directive should be clarified using a scientific but sufficiently broad definition. This is of importance given that the Directive covers both natural and non-natural grasslands, with the latter being anthropogenically formed and maintained. This would be in line with a **precautionary approach** and the spirit of the Directive, in terms of protecting biodiverse lands.

A large number of definitions of grasslands exist, but according to Gibson (2009)<sup>11</sup> the most widely accepted among scientists and ecologists is that of White et al (2000)<sup>12</sup>. According to White grassland comprises "**terrestrial ecosystems dominated by herbaceous and shrub vegetation and maintained by fire, grazing, drought and/or freezing temperatures.**" Although not explicitly stated in the definition, ecosystems dominated by cereals and other crop cultivars are excluded. White's definition is also the basis of an extensive data set on the distribution of grasslands. This definition, however, does not cover holistically non-natural grasslands. To translate White into a definition appropriate to the coverage of Directive 2009/28/EC there are a number of possible approaches:

1. to extend the maintenance categories within the definition adding 'and other forms of human intervention';
2. to extend the category to explicitly cover the other main form of human intervention that maintains grassland ie cutting/mowing; or
3. to simply shorten the definition and remove the maintenance categories completely leaving this as a primarily ecological definition ie that grassland is 'a terrestrial ecosystem dominated by herbaceous and shrub vegetation'.

The three definition approaches set out above are all considered sufficiently broad to ensure that: both natural and non-natural grasslands are covered; that grasslands with high levels of shrub cover would be included; and that habitats with low levels of total vegetation cover are captured.

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<sup>11</sup> Gibson, D.J. (2009) Grasses and grassland ecology Oxford University Press, Oxford.

<sup>12</sup> White, R.P., Murray, S., & Rohweder, M. (2000). Pilot analysis of global ecosystems. Grassland ecosystems. World Resources Institute, Washington, D.C.

Within Directive 2009/28/EC, Article 17.3, second sub paragraph it is stated that the ‘*Commission should establish appropriate criteria and geographical ranges to define such highly biodiverse grasslands in accordance with the **best available scientific evidence** and relevant international standard*’. It is considered that **White’s definition offers the best available scientific basis for a definition of grasslands. It is proposed that options 3, above, offer the simplest mechanisms for amendment of the White definition, extending the coverage clear way, appropriate to the Directive.**

Internationally under the auspices of the Convention of Biological Diversity (CBD) there is a definition for grassland ecosystems set out under the Dry and Sub Humid Land Biodiversity Programme of work. This states that ‘grassland ecosystems may be loosely defined as areas dominated by grasses (members of the family Gramineae excluding bamboos) or grass-like plants with few woody plants’<sup>13</sup>. This was repeated, in a slightly different form within the Decision adopted at the 9<sup>th</sup> Conference of Parties to the Convention in May 2008.

It is considered that, while this CBD definition might be useful there are many uncertainties that would need to be clarified were this to be adopted to interpret Directive 2009/28/EC. These would include ‘what are grass-like plants’ and what is considered to exceed ‘few woody plants’? Moreover, the emphasis on this being a ‘loose’ definition and the apparent conception of this definition to perform a specific purpose under the dry land programme means that further detailed assessment would be required to ensure appropriateness, in line with the breadth of coverage under the Directive. It should, however, be noted that any approach adopted within the EU should not contradict the aims of the CBD.

#### **4 HIGHLY BIODIVERSE VERSUS HIGH BIODIVERSITY VALUE**

Under Article 17.3 of Directive 2009/28/EC the biodiversity related criteria aim to avoid ‘land with high biodiversity value’ and specifically ‘highly biodiverse grasslands’. According to the Convention on Biological Diversity (CBD) ‘biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems’<sup>14</sup>.

It is therefore important to note that the overarching biodiversity aims of Directive 2009/28 are broader than those outlined in the clauses defining ‘highly biodiverse’ grasslands, which only refer to natural grasslands and ‘species-rich’ non-natural grassland. In other words, natural grasslands and non-natural species-rich grasslands are a subset of highly biodiverse grasslands. In particular, the term species richness is usually used with respect to plant species richness (and normally only higher plants, i.e. excluding mosses and liverworts etc).

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<sup>13</sup> <http://www.cbd.int/drylands/definitions.shtml>

<sup>14</sup> <http://www.cbd.int/convention/articles.shtml?a=cbd-02>

The term ‘highly biodiverse’ should not be interpreted as simply species richness. Moreover, were species richness and highly biodiverse to be strictly interpreted, some grasslands of high biodiversity value might not be captured under the definitions of natural grassland or species-rich-grassland offered in Article 17. These could include natural or non-natural grasslands that provide important habitats for threatened species (but are not formally contained in protected areas), that support high populations of animals (e.g. breeding or wintering birds) or that are scarce examples of semi-natural habitats that are typically species poor (e.g. some grasslands on low fertility soils). For example, according to Gibson (2009) grassland/savannah/scrub is the main biotope in 23 of 217 Endemic Bird Areas, identified by BirdLife International<sup>15</sup>, of which three have the highest rank for biological importance (Peruvian High Andes, central Chile, and southern Patagonia). Similarly, thirty-five of 136 terrestrial ecoregions identified as of outstanding diversity and priorities for conservation, in the WWF-US Global Programme, are grassland.

Thus, **to achieve the overall environmental aim of the Directive, it is important to interpret the definitions of ‘highly biodiverse grassland’ in a broad sense, to avoid unintended detrimental impacts on biodiversity.** This is in accordance with the approach adopted by the multi-stakeholder Roundtable on Sustainable Biofuels, which according to the secretariat of the Convention on Biological Diversity<sup>16</sup> proposed the following principle (amongst others): ‘biofuel production shall avoid negative impacts on biodiversity, ecosystems, and areas of High Conservation Value’.

In order to deliver this the following interpretations are recommended:

- **The requirement for grasslands to maintain their natural species composition and ecological characteristics and processes to qualify as natural should not be based solely on the composition of the vegetation.** In particular, natural grasslands that support significant populations of animals (e.g. savannahs of east Africa) or threatened species should be protected, irrespective of their vegetation composition. This is because the importance of many natural grasslands for biodiversity is often primarily related to their associated fauna, rather than their flora.
- There is no such thing as an objective standard above which grasslands can be considered highly biodiverse. The features of grasslands will vary, depending on the natural characteristics of the biological system, as well as other factors such as latitude and temperature. Any approach to classification will have to take account of this variability. **Any assessment of grassland characteristics (including species composition) should be appropriate to the biogeographic region in which the given grassland exists** i.e. regionalise standards will need to be developed, it will not be possible to have a ‘one size fits all’ approach to the identification of grasslands of value.

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<sup>15</sup> Stattersfield, A.J., Crosby, M.J., Long, A., & Wege, D. (1998) Endemic birds areas of the world: priorities for biodiversity conservation BirdLife International, Cambridge

<sup>16</sup> CBD (2009). Consideration of ways and means to promote the positive and minimize the negative impacts of the production and use of biofuels on biodiversity. Regional workshop on ways and means to promote the sustainable production and use of biofuels. 28-30 September 2009, São Paulo, Brazil. CBD Secretariat, Montreal

- The consideration of **species richness in non-natural grasslands should not be restricted to plants**. Thus, species-rich non-natural grasslands should include grasslands that are species-rich with respect to any taxa group (e.g. plants, invertebrates, reptiles, birds and mammals).
- **Consideration of species richness should not be solely based on small-scale assessments**, e.g. species per m<sup>2</sup>. Larger scale species diversity patterns are equally important. Thus grasslands should also be protected if they hold rare or otherwise threatened species or species assemblages, the loss of which would reduce national, regional or global scale biodiversity.

## 5 NATURAL AND NON-NATURAL GRASSLANDS

There are two reasons why it is useful to distinguish between natural and non-natural grasslands:

- That **different requirements** in terms of quality and characteristics are applied to these **two sub categories by Article 17**;
- That the differing characteristics of these two habitat types and their origin mean that **different data sets are required** to identify them.

### - Making the Distinction

Under the Directive natural and non-natural grasslands are distinguished by the fact that the former would remain grassland in the absence of human intervention, while the latter would cease to be grassland in the absence of human intervention. Firstly, it is vital to note that just because human activity is taking place in an area does not automatically classify grassland as non-natural. The vast majority of natural grasslands globally are used for some form of agriculture, primarily extensive grazing of livestock. **The mere presence of farming activities at some level cannot, therefore, be used as a basis to distinguish between natural and non-natural grasslands.**

When considering human intervention it is vital to consider the counterfactual. There are areas of naturally occurring grasslands that were historically maintained by grazing wild herbivores. However, these species and their ecological functions have been largely replaced by domestic livestock. Such grasslands were, therefore, naturally generated but are now maintained by human activities. When interpreting the Directive, such areas should be classed as natural grasslands, unless they have been modified extensively for example by fertiliser use, ploughing, reseeding or herbicides. Therefore the presence of human intervention, in isolation, cannot be used as a mechanism to distinguish natural and non-natural lands consistently.

When determining natural grassland, one mechanism would be to identify whether the system was created by human intervention. For example, in Europe most grasslands are primarily non-natural; grasslands created by more recent waves of deforestation in the tropics would also be classified as non-natural. Meanwhile the major grassland ecosystems of savannah, steppe, tundra, prairie etc would be natural.

In conclusions **the mere presence of human activity on an area of grassland should not be used as a proxy for determining whether the grassland is natural or non-natural**. When determining whether grasslands qualify as “natural” one mechanism would be to identify if they were created by human activity, rather than seeking to establish if they would remain as such in the event of the loss of human activity.

#### - **Natural versus Non-Natural Grasslands – The Data Needs**

The ecology and distribution of most natural ecosystems is relatively well understood and their potential occurrence can be predicted and mapped with reasonable confidence. In contrast, the occurrence and biodiversity value of non-natural grasslands is much less predictable as they encompass an array of very differently created and managed grasslands with highly varied current and potential biodiversity value. The difference in the two types of systems results in different data needs, applicability of mapping approaches and availability of information.

There are a variety of global maps and datasets (White, 2000) that can be used to identify areas that have the potential to hold natural grasslands. More detailed national or sub national maps also occur. The potential for areas to hold natural grasslands can also be modelled. For example, a recent modelling study has mapped the expected locations of habitats protected under the Habitats Directive across the EU<sup>17</sup>.

Remote sensing information (i.e. from aerial photographs and satellites) may also be used to verify that areas within the mapped extent of natural grasslands are indeed grasslands (rather than cultivated crops or forest etc). It may also be possible to establish land uses over the previous 10 or more years for many areas. One particular challenge remains, however; the establishment of land use as of January 2008 as specified in the Directive. The presence of a base date in the past, while integral to the Directive represents a particular challenge for provision of proofs to meet the criteria.

There are no global datasets that include the location of non-natural grasslands (although there may be regional and local mapping exercises). Furthermore, very little information is available for most countries on the location of non-natural grasslands of high biodiversity value. Although some information may be available for particularly important sites (e.g. Important Plant Areas<sup>18</sup>, or Important Bird Areas<sup>19</sup> etc) such information is likely to be incomplete and use a variety of biotope classifications. For example, within the UK maps exist of grassland habitats of high biodiversity value (as listed in the UK Biodiversity Action Plan<sup>20</sup>) for Wales;

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<sup>17</sup> Múcher, C.A., Hennekens, S.M., Bunce, R.G.H., Schaminée, J.H.J., & Schaepman, M.E. (2009) Modelling the spatial distribution of Natura 2000 habitats across Europe. *Landscape and Urban Planning*, 92, 148-159

<sup>18</sup> <http://www.plantlife.org.uk/international/plantlife-ipas-about.htm>

<sup>19</sup> <http://www.birdlife.org/action/science/sites/>

<sup>20</sup> <http://www.ukbap.org.uk/>

some data are old (dating from the 1980s) therefore, many of the mapped grasslands are likely to no longer exist. Only incomplete data exist on the location of UKBAP grasslands in England and Scotland.

**In conclusion, natural grassland systems will likely result from determinable natural processes, and have been mapped. There is, however, no consistent biological process that leads to the generation of non-natural grassland systems of high biodiversity value - and their distribution cannot therefore be readily predicted and mapped.**

## **6 UNDERSTANDING NON-NATURAL GRASSLANDS**

Under the Directive the clause regarding non-natural grasslands is more complex to interpret than for natural grasslands. This is partly due to the wide array of potential non-natural grassland types. Further confusion is added by the incorporation into the definition of highly biodiverse non-natural grasslands the requirement that they be 'species-rich and not degraded'. Both issues are examined below.

### **- Defining non-natural grasslands**

Non-natural grasslands will have been created through the loss of another natural habitat, as a consequence of human intervention such as deforestation. While some areas of non-natural grassland may be extensive others, such as pasturelands of importance for biodiversity in much of Europe, will be located within a mix of other land use systems.

We have initially identified several groups of non-natural grasslands based on management practices and the origin of the grassland. **It is felt that expanding the use-based classification of non-natural grasslands would aid non expert identification of potential biodiversity impacts of expansion in biofuel production.** Different non-natural grassland types will have substantially different biodiversity value.

- 5. Grasslands that have been intentionally improved and are under intensive agricultural management.** These have generally been agriculturally improved, typically by ploughing, re-seeding, fertilisation, herbicide treatments, and in some cases other activities intended to increase productivity on the land such as extensive drainage or irrigation. Such grasslands normally have low biodiversity value and low species richness (even when classified in the broadest sense). It should, however, be noted that despite this they may remain important habitats, for example as an over-wintering site for birdlife.
- 6. Semi-natural grasslands** are usually used for extensive livestock grazing and/or hay production. They often need such grazing or other forms of disturbance to maintain their diversity of flora and dominance of the grass sward. They tend to hold a high proportion of native species of open habitats and are often species rich, and are therefore classed as highly biodiverse.

7. **Land that was formerly in agricultural use for either arable or as grazed land and has since been abandoned.** The lack of agricultural activity may have led to a decline in biodiversity value or an increase depending upon environmental conditions, including the matrix of surrounding habitat and the type of agricultural activity undertaken previously. This category may also include land that is intentionally being restored to biodiverse grassland. These lands may be of low biodiversity value now but over time, provided appropriate management is in place, should be expected to become more biodiverse and develop the characteristics of semi-natural grassland.
8. **Land that is now grassland but has been recently deforested** where the forest system has yet to, or is unable to, regenerate. This may have been farmed, be still in use or abandoned due to poor soils etc. These lands may be of low biodiversity value now and into the future, or may offer biodiversity potential in terms of future reforestation and regeneration.

**The process and level of detail needed in any assessment to determine whether a non-natural grassland is highly biodiverse will vary according to the type of grassland that exists on a site. Generally, however, species richness declines as a result of grassland improvement, in an agricultural sense.** If grassland has been ploughed up, reseeded, fertilised etc it is likely to have low species richness. This can, therefore, be used as a first tier to determine which lands are most likely to be appropriate for biofuel feedstock production.

- **Understanding the quality of Non-Natural Grasslands: the Concept of Degradation**

Within the definition of non-natural grasslands in Directive 2009/28 it is required that these are 'not degraded'. The meaning of this clause is unclear and potentially difficult to assess particularly given the specific wording that non-natural grasslands be "species-rich and not degraded". Based on the Directive text there is a lack of clarity as to whether degradation refers to broad concepts of environmental degradation (e.g. as a result of pollution or over-grazing) or more specific agricultural degradation (e.g. as a result of soil loss, salinisation, over-grazing or agricultural abandonment). Although these overlap to some extent, environmental impacts will vary according to circumstances.

**Under most circumstances degradation (as a consequence of intensive grazing, cultivation and associated soil damage/loss) will reduce species richness;** although there may be some limited examples to the contrary. In practice it is, therefore, unlikely that many situations will occur where grasslands are species-rich and significantly degraded.

The greatest difficulty arises in cases such as overgrazing, where degradation is part of a continuum with diversity being progressively lost. Some species-rich grasslands may be found to be subject to short-term degradation as a consequence of inappropriate grazing regimes, but the ecological condition of many will recover once the pressure is removed, assuming the original species composition and underlying soil conditions remain intact. Therefore, limited losses of species

richness associated with overgrazing in particular should not trigger the loss of a non-natural grassland’s protection under the Directive.

**Degradation in the context of non-natural grasslands, therefore, should be understood to be a near permanent loss of ecological value.** If a loose interpretation of degradation is accepted there is a danger that it becomes a major loophole for those who wish to weaken the Directive’s impact on grassland conservation.

When determining the quality of grassland long-term indicators of sward condition and in, particular, species composition and richness should be used rather than indicators of immediate condition/degradation. In other words, over-grazed or otherwise degraded grasslands should not be used for biofuel production if they are of high biodiversity value or are likely to regain high biodiversity value with more appropriate farmland management. Degradation is part of a continuum and this should be recognised within the Directive’s application.

## 7 ANNEX - INTERPRETING DIRECTIVE 2009/28, GRASSLAND REFERENCES, THEIR IMPORTANCE AND INTERDEPENDENCE

Section Reference	Directive Text	Interpretation
Preliminary Recitals – No. 69	The increasing worldwide demand for biofuels and bioliquids, and the incentives for their use provided for in this Directive, should not have the effect of encouraging the destruction of biodiverse lands. Those finite resources, recognised in various international instruments to be of value to all mankind, should be preserved. Consumers in the Community would, in addition, find it morally unacceptable that their increased use of biofuels and bioliquids could have the effect of destroying biodiverse lands. For these reasons, it is necessary to provide sustainability criteria ensuring that biofuels and bioliquids can qualify for the incentives only when it can be guaranteed that they do not originate in biodiverse areas or, in the case of areas designated for nature protection purposes or for the protection of rare, threatened or endangered ecosystems or species, the relevant competent authority demonstrates that the production of the raw material does not interfere with those purposes.....Having regard, furthermore, to the <b>highly biodiverse nature of certain grasslands, both temperate and tropical, including highly biodiverse savannahs, steppes, scrublands and prairies, biofuels made from raw materials originating in such lands should not qualify for the incentives provided for by this Directive.</b> The Commission should establish appropriate criteria and geographical ranges to define such highly biodiverse grasslands in accordance with the best available scientific evidence and relevant international standards.	Recitals are of relevance providing context to the clauses in the Directive especially in the context of a legal challenge or ECJ review. Two key aspects to this: - sustainability criteria are intended to avoid destruction of biodiverse lands as a consequence of increased demand for biofuels and bioliquids; biodiverse lands should be preserved - That in this context it is highly biodiverse grasslands that are of importance, but that these could be temperate and tropical.
Article 17, Para 3	Biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 <b>shall not be made from raw material obtained from land with high biodiversity value</b> , namely land that had one of the	That the intention is to protect land with high biodiversity value, but for the purposes of the Directive the

	<p>following statuses in or after January 2008, whether or not the land continues to have that status.....</p>	<p>areas of value are determined by the lower order categories in the context of grassland point C. That the time horizon of January 2008 is key and any assessment of site characteristics needs to take this into account.</p>
<p>Article 17, Para 3, point C</p>	<p>(c) <b>highly biodiverse grassland</b> that is: (i) natural, namely grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes; or (ii) non-natural, namely grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.</p>	<p>One of the types of land considered of high biodiversity value under the Directive is highly biodiverse grassland. The use of the phrase ‘that is’ in i or ii means that highly biodiverse grassland can be either natural or non-natural. However, based on the definition for natural grasslands (point i) this does not specifically need to equate to species richness, but maintain the natural species composition and ecological characteristics and processes. For non-natural grasslands these are specified as species-rich and not degraded. There is no hierarchy of importance between point i and ii implied by the wording.</p>

**WORKING PAPER 2**  
**OPERATIONALISING CRITERIA TO PROTECT HIGHLY BIODIVERSE GRASSLANDS**  
**UNDER THE RENEWABLE ENERGY DIRECTIVE (2009/28/EC)**

**FEBRUARY 2010**

This paper sets out an approach to the implementation of Article 17.3.c of European Community Directive 2009/28/EC aimed at fulfilling the requirements for the protection of highly biodiverse grassland from negative impacts of biofuels production. It was prepared by the Institute for European Environmental Policy (IEEP), in consultation with experts from across Europe, for WWF. The approach is intended to be both effective and practical, offering a legally sound and robust basis for decision making regarding the origins and grassland impacts of biofuel feedstocks used to meet the targets set in Directive 2009/28/EC. It is vital that the EU approach adopted is acceptable to biodiversity experts, industry, Member States and Third Countries.

Constructing a fair proportionate and reliable screening process may not be easy but is vital if there is to be any confidence that biofuel feedstocks are not damaging biodiversity.

This paper builds on the analysis conducted within IEEP Working Paper 1 (WP1), which provides an interpretation of and commentary on the detailed requirements on grassland set out in Directive 2009/28/EC. The two papers should be read in conjunction.

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## 1 INTRODUCTION

### 1.1 Context

Article 17.3 of Directive 2009/28/EC, sets out sustainability criteria that biofuels and bioliquids must meet in order: to count towards the achievement of the Directive's targets for the use of renewable energy and renewable transport fuels; or to be eligible for financial support. Article 17.3 states that biofuels and bioliquids shall not be made from raw materials (known as feedstocks) obtained from land considered to have high biodiversity value in or after January 2008. One of the land types protected under this clause is 'highly biodiverse grassland' (Article 17.3.c). There is a need, therefore, to ensure that a reporting system is in place so that biofuels used in Europe can be verified as not having been sourced from such lands. This is necessary in order to demonstrate compliance with the Directive.

This paper (in conjunction with Working Paper 1) explains some of the issues and concerns, relating to the implementation of the grassland requirements set out in the Directive 2009/28/EC. It goes on to present an assessment system as a basis for the protection of highly biodiverse grasslands in line with the Directive's requirements and examines how this might be implemented. While conclusions may be applicable more broadly to the development of biofuel sustainability criteria, this paper focuses exclusively upon grassland. This is due to the imminent comitology process through which Member States and the Commission will establish '*criteria and geographic ranges to determine which grasslands*' are to be protected under the Directive. It is anticipated that this should form part of a broader assessment process designed to implement all the sustainability requirements set out in Directive 2009/28/EC.

### 1.2 Locating the Grassland Requirements within the broader assessments of biofuel sustainability

Within Article 17.3 of the renewable energy Directive environmental criteria are set out that perform in essence two separate requirements:

1. Setting a minimum level of greenhouse gas saving associated with any biofuels that receive financial incentives or contribute to meeting the EU's 10 per cent target for renewables by 2020.
2. Identifying sensitive land types that should be avoided when meeting the EU's expanded biofuel and bioliquid demands and, therefore, limiting the negative consequences of land use change for biodiversity and carbon storage capacity.

The process for assessing compliance with the sustainability criteria set out in the Directive can in essence be broken down into three steps:

1. Ensuring that feedstocks grown can deliver fuels compliant with the requirement for biofuels that deliver a minimum greenhouse gas saving of 35 per cent (50 per cent by 2017) relative to fossil fuels.

2. Identifying land use as of January 2008 – the base date set within Directive 2009/28/EC, Article 17 beyond which land use change should be assessed.
3. Identifying the extent of direct land use change associated with biofuel feedstock production and minimising the conversion of sensitive land, that is land of high biodiversity value or holding significant carbon stocks.

***It is important to clearly locate the requirement to protect highly biodiverse grasslands within the context of this wider assessment process for biofuels.*** In order to ‘pass’ criteria in Article 17.3.c on the avoidance of highly biodiverse grasslands it is necessary to perform an assessment that addresses both points 2 and 3 above. It is the specification of such an assessment process that is the focus of this paper.

### **1.3 Limitations and the Need for Precaution**

It should be noted that the analysis and assessment process set out in this paper are based purely on delivering a system in line with Directive 2009/28. As such there are some limitations to coverage associated with the content of the Directive. ***The limitations set out below underline the importance of adopting a precautionary approach to the conversion of grasslands for biofuel feedstock production. A robust system for assessment is essential in order to deliver this.***

In addition to their potential biodiversity value, permanent grasslands also represent a significant, terrestrial carbon store<sup>21</sup>. The conversion of such grasslands to arable production (for biofuel feedstocks or otherwise) would be anticipated to result in carbon losses<sup>22,23,24</sup>. However this paper does not discuss in detail the carbon storage role that grasslands fulfil. This is not because we do not recognise this important role, nor believe that this is unimportant in terms of the location of biofuel feedstock production. Rather, the relevant Article of Directive 2009/28/EC (Article 17.4), does not explicitly recognise grasslands as one of the three types of land with ‘high carbon stock’.

In 2009 the FAO<sup>25</sup> highlighted the need to avoid conversion and degradation of grasslands, and also concluded that there is a vast untapped potential for carbon sequestration in grasslands - mainly through improved management practices and restoration of degraded land. While ***on the basis of the Directive there is no justification for the avoidance of biofuel production on grasslands purely to preserve carbon stocks, hence the importance of ensuring that grassland related***

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<sup>21</sup> Grasslands cover 70 percent of global agricultural areas, and are a major store of carbon - 71 percent of which is found below the soil surface (White, et al., 2000).

<sup>22</sup> Guo and Gifford (2002) found that conversion from grassland to cropland always led to a soil carbon loss, with up to 32 percent reduction in cropland soil carbon relative to pasture systems. The rate of reduction was directly related to the number of years of cropping (FAO, 2004).

<sup>23</sup> Guo, L. and Gifford, R. 2002. Soil carbon stocks and land use change: a meta analysis. *Global Change Biol.* 8: 345–360.

<sup>24</sup> FAO. 2004. Carbon sequestration in dryland soils. *World Soils Resources Reports* 102, Rome.

<sup>25</sup> FAO, 2009, Review of evidence on drylands pastoral systems and climate change Implications and opportunities for mitigation and adaptation. Land and water discussion paper, Rome.

***biodiversity criteria are properly implemented.***

In addition to the lack of consideration of carbon storage generated by grasslands, there are other significant limitations to assessments based on Directive 2009/28/EC that should be noted. The approach proposed is only capable, at present, of limiting the negative consequences for highly biodiverse grasslands by minimising the impact of direct land use change associated with biofuel feedstock production. Any significant increase in biofuel feedstock production, stemming from the implementation of Directive 2009/28/EC or other drivers, that leads to a net additional demand for arable land will put pressure on other land uses and thereby indirectly impact on biodiversity. Moreover, the consequences of land use change associated with other forms of agricultural production would remain unchecked. ***The type of assessment outlined here will not protect biodiverse lands from exploitation but will simply act to limit the direct land use change impacts associated with Europe's expanded biofuel demand.***

## **2 BIOFUEL DEVELOPMENT PATHS**

Before considering a possible process for implementing the criteria on highly biodiverse grassland set out in Directive 2009/28/EC, it is first important to examine the characteristics of the supply chains that might be used to produce feedstocks, their current state and the implications arising from the potential for different production routes for land use change and importantly grasslands. This is necessary in order to identify the different needs and requirements any assessment system must be able to effectively deal with.

If there is an expanded area of biofuel feedstock production, as required in response to EU legislation, this can be achieved through one of two land management options:

- Option 1 is to cultivate non-agricultural land or for the first time land that is subject to a very low intensity of agricultural activity. This, however, poses substantial risks for biodiversity and carbon stocks associated with land conversion.
- Option 2 involves biofuel production on land that is already under conventional agricultural use, whether that be arable or more intensive grassland. This would appear to be a less environmentally damaging option, but may still lead to indirect land use change, negative carbon balances and biodiversity impacts associated with the intensification of agricultural production or the displacement of food production into other previously non cultivated areas.

A more detailed review shows that there are a number of different production routes (see figure 1, below) from which biofuel feedstocks, used to meet EU requirement, could be sourced, now or in future. Supplies could come from:

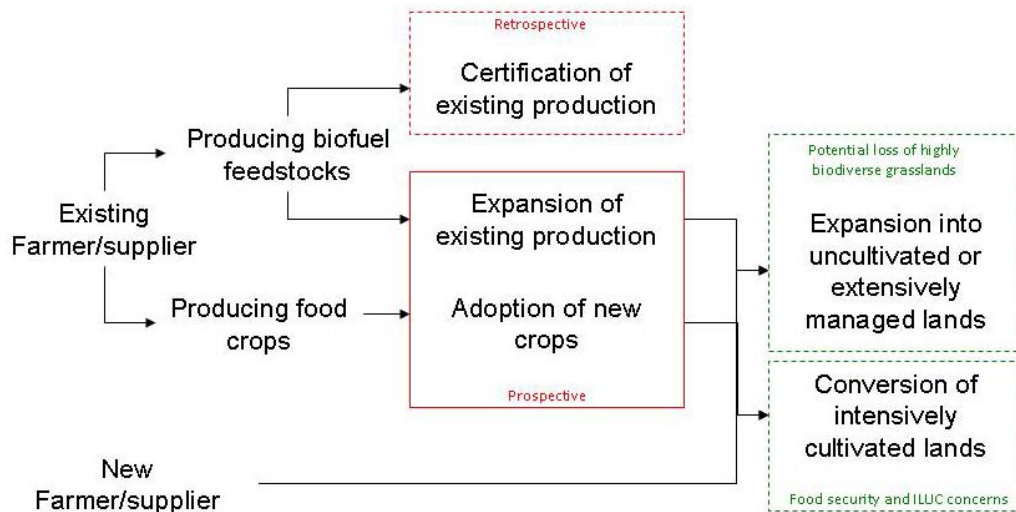
1. existing biofuel producers inside or outside Europe;
2. existing farmers who maintain their crop position but change the market to which they supply – that is palm oil or rape oil producers switch to supply the biofuel market but continue to farm the same area for crop production;

3. existing farmers who switch their cropping regime to cultivate a potential biofuel feedstock but farm an area of land already in arable production;
4. existing farmers who expand the area of land devoted to arable production in order to supply biofuel feedstocks;
5. existing farmers or biofuel producers who intensify production to allow production of more crops on a given area of land;
6. existing farmers expanding the total area of intensively cropped land, extending it into previously uncultivated or low intensity production areas;
7. new entrants to the market place, taking up new land or intensify production in less productive areas.

Within the list of 7 potential options 4, 6 and 7 are anticipated to pose a potential threat in terms of the direct conversion of grassland to arable land. However, the other options, excluding 1, may lead to impacts upon grasslands, were a net increase in demand for arable land to result. Moreover, some of the options will require retrospective proof of land use change before January 2008, while for others it will be possible to use a system of prospective assessment coupled with proofs demonstrating land use in 2008. **Any system must, therefore, be able to: deal with the variety of different supplier types; and generate both prospective and retrospective assessments of compliance.** It must also have the capacity to deal with the full range of different actors and the consequent challenges with respect to reporting and monitoring.

Producers of biofuel feedstocks (captured under any of the 7 categories above) can consist of medium to large scale plantations including large scale mono cropped farmland; mixed use and small scale production occurring both independently or as part of a collective; or a mix of the above. **When considering environmental criteria it will be necessary to consider all the different producer types, the support and infrastructure needed to enable their participation in any scheme.**

**Figure 1 – Sources of supply for biofuel feedstocks and the consequences for certification systems and land use impacts.**



### 3 IDENTIFYING THE COMPLIANCE OF BIOFUELS WITH ARTICLE 17.3.C ON THE AVOIDANCE OF HIGHLY BIODIVERSE GRASSLANDS

#### 3.1 Principles and assumptions

In order to develop an assessment system to take account of highly biodiverse grasslands, in line with Directive 2009/28/EC, it is necessary to clearly set out assumptions and core principles. The following are a list of principles upon which the authors consider ANY system for delivering the grassland criteria in Directive 2009/28/EC should build.

##### **General**

- **Embodying the Precautionary Principle** - The Lisbon Treaty, Article 191 specifies that EU policy on the environment “shall be based on the precautionary principle”, that is there is an institutional preference in support of a precautionary approach to environmental change. It is fundamental that the principle of precaution be applied to the development of grasslands, given the irreversibility of damage to grasslands from ploughing and reseeded for crop based production with potential significant impacts upon biodiversity and carbon stocks. In the event of uncertainty over the biodiverse status of a grassland, development should not be pursued.
- **Burden of proof** - The onus must be placed upon the operator to prove that a grassland is not highly biodiverse. Based on the Directive text the objective of Article 17.3 is to protect lands of high biodiversity value, hence in situations where status is uncertain the emphasis must be to prove that land is not biodiverse. The inappropriate application of the burden of proof could undermine the Directive’s objectives for the protection of highly biodiverse lands and lead to a system that requires administrative effort but delivers limited or no environmental benefit.

### ***Protecting biodiverse grasslands***

- **Recognising the Directive's aim** - That the overall ambition of Directive 2009/29 /EC Art 17 is to protect land of high biodiversity value of which highly biodiverse grasslands are one subset
- **Taking account of other rules on biodiversity protection** - Decisions on the appropriate location for biofuels feedstock production should take into account international, national and local biodiversity conservation obligations and policies, including national biodiversity strategies and action plans (NBSAPs) developed in accordance with the Convention on Biological Diversity.
- **Protecting all grasslands of biodiversity value** - Within Directive 2009/28/EC there is no hierarchy distinguishing levels of protection between natural and non-natural grasslands. All grasslands that are deemed highly biodiverse should be protected irrespective of whether it is possible to easily differentiate between the two.

### ***Natural grassland<sup>26</sup>***

- **Human activity and defining natural grasslands** - That non natural grasslands are assumed to be those created by extensive human interventions that have dramatically changed the natural system, for example via deforestation. Despite not being created by human intervention many natural grasslands may be maintained by human activity, for example domestic livestock populations or mowing which have replaced the maintenance role previously provided by wild herbivore populations. In the majority of cases natural grasslands will be 'used' by humans in some way.
- **Looking beyond vegetation composition** - That natural grasslands are valued based on the maintenance of their natural assemblages, but this should take account of more than simply vegetation composition.
- **Taking account of natural variability** - That natural composition expected within a grassland will vary considerably depending upon the biological system and bio-geographic region.

### ***Assessing non natural grassland<sup>27</sup>***

- **Variable biodiversity value** - That there is a hierarchy of appropriateness in terms of conversion of non natural grasslands for feedstock production, not all non natural grasslands are of equal biodiversity value.
- **Assessing species richness** - The consideration of species richness in non-natural grasslands should not be restricted to plants. Thus species-rich non-natural grasslands should include grasslands that are species-rich with respect to any taxa group (for example plants, invertebrates, reptiles, birds and

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<sup>26</sup> Natural grasslands are defined in Directive 2009/28/EC as '*namely grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes*'

<sup>27</sup> Non natural grassland is defined in Directive 2009/28/EC as '*namely grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status*'.

mammals). Furthermore, consideration of species richness should not be solely based on small-scale assessments, for example species per m<sup>2</sup>. Larger scale species diversity patterns are equally important. Thus grasslands should also be protected if they hold rare or otherwise threatened species or species assemblages, the loss of which would reduce larger scale biodiversity.

- **Accounting for degradation** - That degradation of grassland should be shown to be beyond a certain threshold, given that this is part of a continuum. In particular care should be taken if establishing that degradation has been caused by overgrazing, as this can often be rapidly reversed once grazing pressure is reduced. When determining the quality of grassland long-term indicators of sward condition and, in particular, species composition and richness should be used rather than indicators of immediate condition/degradation.

#### ***The decision process***

- **Agreeing the dataset** - The best available data (for example on the location of natural grasslands or other areas of high biodiversity value) should be used for assessments and these should be agreed by national / regional competent environmental authorities.
- **Balancing comparability and regional flexibility** - Assessment and accreditation systems should be based on agreed generic principles and standards, but allow some flexibility to take into account local circumstances (for example the ecological characteristics, condition and functions of grassland types present, data availability and capacity for assessments).
- **Expert assessments** - Expert assessments should be carried out by appropriately trained, accredited and independent assessors, and overseen by an independent third-party certification body.
- **Non expert assessments** - Non expert assessments can be used in some instances, but to ensure effective application this needs to be supported by a transparent and publically reported validation system overseen by an independent third-party.

### **3.2 Developing an Information Base for Decision Making**

#### ***The resources available***

There are in essence four potential sources of data to support decisions regarding the use of grassland for biofuels. These are:

- Maps or remote sensing based on high level assessments of land use characteristics.
- On farm data, surveys and plans that might demonstrate the historic land use and cultivation of land – discussed in detail in section 5 and Annex I.
- Non expert assessment that might be used to distinguish key features – discussed in detail in section 5 and Annex I.
- Expert assessments prior to land conversion - – discussed in detail in section 5 and Annex I.

***All these sources can be usefully deployed to support the implementation of Directive 2009/28/EC, however, it is important to consider the uses for which***

**each is appropriate.** For example maps are a useful tool but should not be used as the only evidence base upon which biofuel feedstock production can be deemed in compliance with Directive 2009/28/EC. This is due to the uncertainties inherent in their development. Despite this, however, there are two priority issues for which maps should urgently be developed in order to support the implementation specifically of Article 17.3.c<sup>28</sup>. Doing this will offer a clearer evidence base, a fundamental part of the toolkit needed to inform developers and decision makers. The priorities identified are as follows.

- **The identification of natural grasslands** - as discussed in Working Paper 1, the development of natural grassland systems will likely have resulted from determinable natural processes and as such their potential range can be collated based on existing data and maps, for example, produced by White et al (2000)<sup>29</sup>. More detailed national or sub national maps may also exist or be developed and these could be approved and taken into account as part of the institutional process recommended above. Moreover, the potential for areas to hold natural grasslands can also be modelled, for example a recent modelling study mapped the expected locations of habitats protected under the Habitats Directive across the EU<sup>30</sup>.
- **Indicative maps identifying areas sensitive to biofuel development** – these maps could be developed based on remote sensing data and other data sources to identify areas of grassland (and other habitats) deemed sensitive to biofuel development. In several Member States indicative or sensitivity maps are used to support stakeholders, developers and decision makers. While not legally binding these can highlight areas deemed of concern and could be developed as part of a participative process with NGOs, Member States and Third Countries. Ideally this tool would best be developed at the international level by for example UNEP or the FAO to ensure third country trust in the process; however, initially this could be established by the EU.

It should be noted that IEEP's analysis has focused on the use of forms of data other than maps and remote sensing, as it is believed this is being assessed by others in more detail (for example work by Ecofys and IUCN for the European Commission, work by JRC and work by the Oeko Institute). ***One issue of particular importance to note is that there will be a need for some form of institutional arrangement to approve a minimum requirement of mapped or remote sensing data sets. This would need to be iterative given the evolution both in the data resources and the biofuels market place.***

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<sup>28</sup> It should be noted that there are potentially other important mapping based tools that could be used to support the implementation of Article 17 of the Directive, but which are not specific to the requirements placed on grasslands ie the scope of this work. Ideally a full toolkit of maps would include maps setting out all protected sites/areas and other important habitats based on data on habitats and species at risk. This would cover all habitats, including grasslands.

<sup>29</sup> White, R.P., Murray, S., & Rohweder, M. (2000). Pilot analysis of global ecosystems. Grassland ecosystems. World Resources Institute, Washington, D.C.

<sup>30</sup> Mûcher, C.A., Hennekens, S.M., Bunce, R.G.H., Schaminée, J.H.J., & Schaepman, M.E. (2009) Modelling the spatial distribution of Natura 2000 habitats across Europe. Landscape and Urban Planning, 92, 148-159.

### ***January 2008 – The challenge posed by retrospective assessment***

To prevent prospective destruction of habitats, and the circumventing of the environmental requirements in Directive 2009/28/EC, Article 17.3 specifies that land must not have been in one of the states deemed of high biodiversity value 'on or after January 2008'. This poses a particular challenge when implementing the Directive's requirements and the demonstration of compliance by producers. In theory, the wording of the Directive would require a producer supplying biofuel feedstocks for the European market to provide proof of the land use as of January 2008, demonstrating that said land is not considered of 'value' under the Directive.

In some instances this may be possible, for example: if the land has been consistently farmed for an extended period – although the ease with which the assessment can be made will depend on the nature of the farm records held; or where it can be demonstrated that land use has not significantly changed since 2008. This becomes increasingly challenging, however, when trying to demonstrate the lack of biodiversity value of land that has changed in its use since 2008, where land is initially converted for the cultivation of non biofuel crops and then adapted for biofuel crops or for which there are no records specifying use.

In essence the January 2008 base date means that an infield assessment of current condition is not sufficient to determine whether the land retrospectively complies with the Directive. As there was no global stock-take of grasslands in January 2008, it could be almost impossible to create a robust system for identifying the land use at this cut-off date - especially in future years - and one may have to rely on simple proxies that use the latest records and best available data, however imperfect these may be. Potential sources for information could be management plans, maps, research; local knowledge; national-level work on High Conservation Value Forest (HCVF) - especially where local forest and grasslands may overlap based on the definitions in Directive 2009/28/EC; government data sources, such as information on endangered species, rare forest types, protected animals and birds (which should be available in maps or reports); environmental NGOs.

***As part of any process the Commission should provide clear guidance as to the specific mechanisms for drawing conclusions regarding the state of land as of January 2008.*** This should specify the different circumstances under which this might apply and details of the proofs needed. Without effective implementation there will be a failure to address the very problem that the January 2008 base date was intended to avoid, that is that of prospective destruction of habitats prior to any application to supply biofuel feedstocks for EU consumption. This must take account of the major potential loophole of farmers converting grasslands for arable food production and then converting that food production to biofuel production.

## 4 DELIVERING AN ASSESSMENT PROCESS

Building on the principles and proofs discussed in section 4 the subsequent sections set out in detail the conceptual basis and practical decision steps envisaged within an assessment process. The proposed approach should provide a clear and robust system, but also offer the flexibility to take account of regional variations and the diversity of the market place.

This approach has been developed in consultation with grassland experts, environmental NGOs, agriculture specialists, national experts and industry representatives.

### 4.1 A potential assessment model

Set out below and in Figure 2 is a proposed model for a 3 level assessment process. Detailed proofs and decision steps under each level are presented in Annex I. ***It should be noted that all biofuels would not have to undergo all 3 levels of assessment.*** Biofuels would only need to progress through the process to the point at which the evidence base is sufficient to determine whether land is deemed either:

- highly biodiverse grassland, therefore unsuitable for biofuel development to meet the EU demand generated by Directive 2009/28/EC; or
- not of high biodiversity value and therefore biofuel production would comply with EU requirements for the protection of grassland.

There are a number of other requirements that biofuels entering the EU market place must comply with, based on Article 17. ***This three level assessment process for grassland is, therefore, envisaged as part of the wider approach to the assessment of biofuels to approve their environmental credentials*** in line with Directive 2009/28/EC. It is intended that the three levels will deliver a process that is robust but also not excessively onerous.

***Level 1*** aims to exclude from further assessment grasslands that are obviously intensively managed, not species-rich or of any other known biodiversity importance. This assessment would be undertaken by the proponent/farmer/developer, with a transparent verification system established by a national competent authority (for example involving checks of a proportion of assessments). It would entail a simple screening of the land based on clear guidelines (see Annex I).

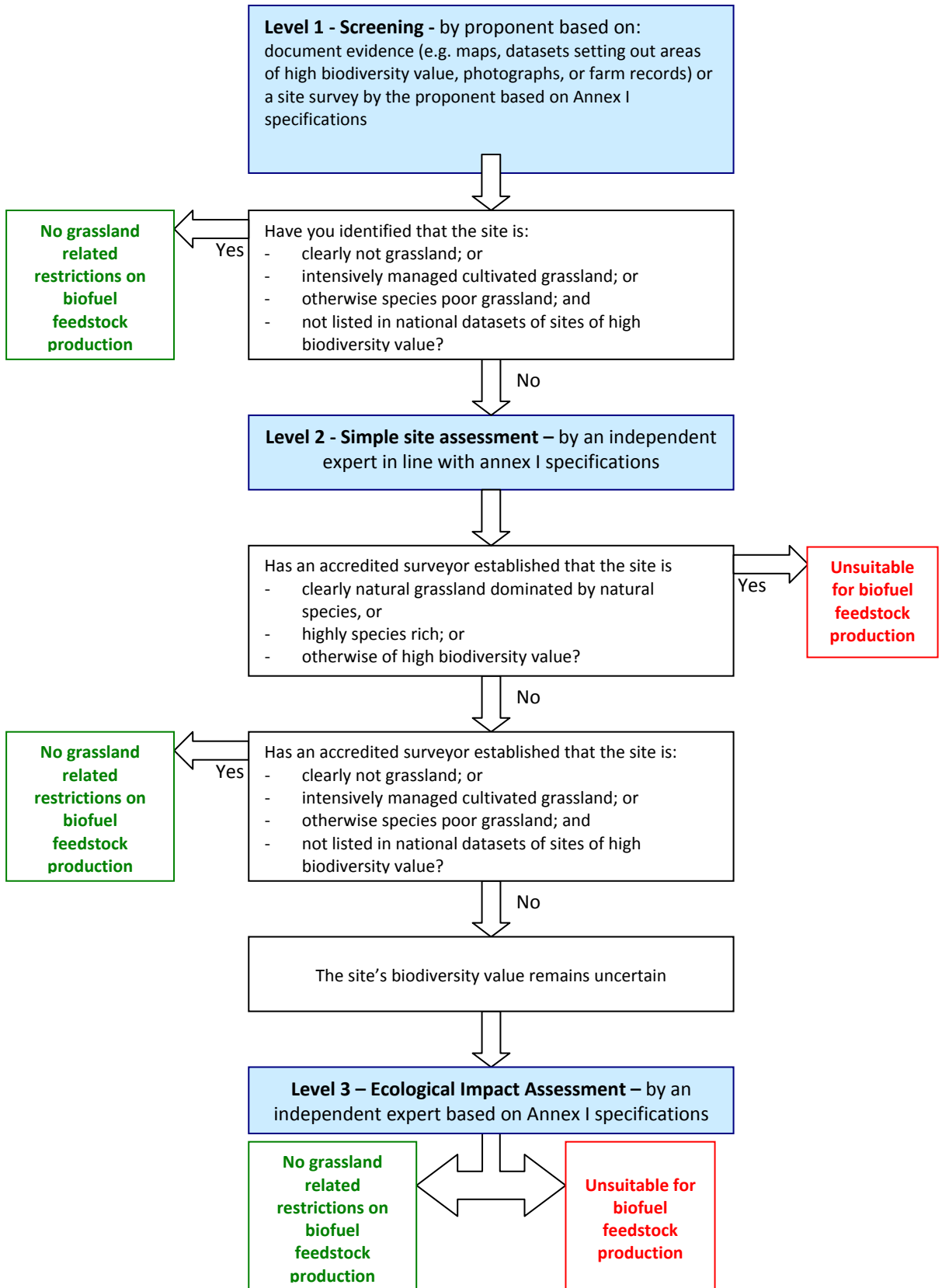
If it is not possible to identify, and provide sufficient proof, that a grassland is suitable for conversion to biofuel feedstock production from a Level 1 assessment, then the analysis of the land progresses to ***Level 2*** (assuming the proponent still wishes to proceed with the development of land for biofuel feedstocks). Under Level 2 a simple site survey is required to establish if the site is potentially suitable for biofuel production. This would be carried out by an independent accredited assessor, although as set out in Annex I this should not involve onerous cost to the

proponent with the assessment constrained in terms of duration and level of effort. At this stage a site might be identified as suitable or unsuitable for biofuel feedstock production in line with Directive 2009/28/EC, or the status of the land remains uncertain.

If it has still not been possible to determine the status of the land's suitability under Directive 2009/28/EC, and the proponent still wishes to take this forward, they should progress to **Level 3**. This encompasses a detailed assessment based on good practice standards for Ecological Impact Assessment completed by an independent specialist. This assessment should provide a judgement and include proofs to demonstrate that the grassland is not of biodiversity value. ***If after all three assessment levels are complete significant doubt remains over its biodiversity value, biofuel feedstock production on that land should not be considered to qualify under Directive 2009/28/EC Article 17.***

Proof, based on level 1, 2 or 3, demonstrating that land does not contain grassland of high biodiversity value would need to be provided to demonstrate compliance before biofuel feedstocks could be processed. A record of this proof and the assessment process undertaken would need to be presented to the processor, forming the first stage of a traceable chain of custody allowing EU Member States to identify the compliance of biofuels entering the EU with Directive 2009/28/EC. This process would need to be supported by institutions to support the assessment processes, review of records and undertake verification. This is necessary to ensure clarity, consistency of approach and avoid frustrating developers.

**Figure 2 – A three level decision structure - a basis for assessment**



#### 4.2 Identifying the status of a grassland – a quick guide to suitable, unsuitable and uncertain land

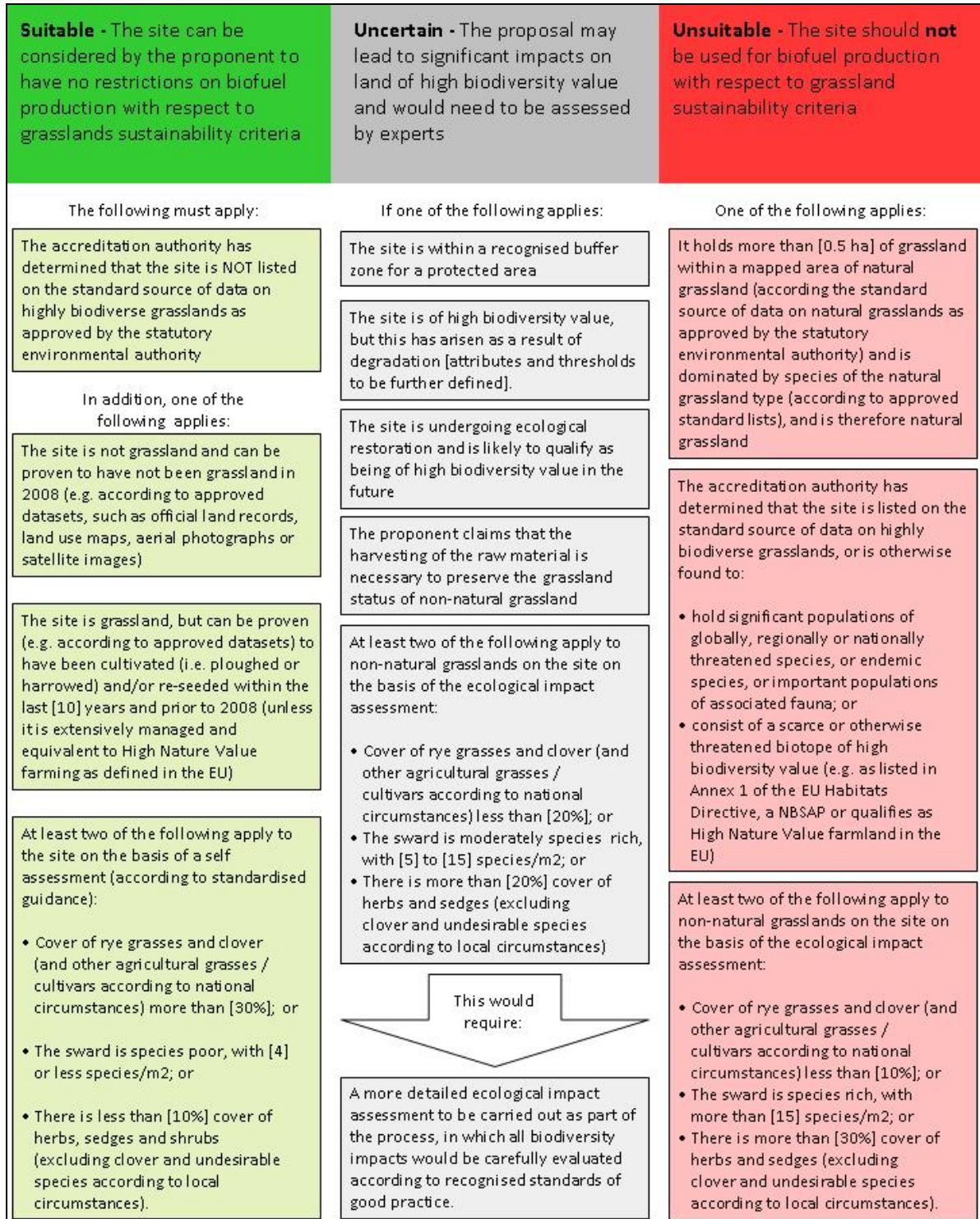
The three level decision process set out above offers a basis around which assessments of land suitability, in line with Directive 2009/28/EC, can be defined. While Figure 2 is conceptually very useful in terms of understanding the questions that need to be answered to establish suitability for biofuel production, ***it is felt necessary also to provide decision makers and developers with a quick guide to the types of sites that are consider suitable and unsuitable for development, and where there are ambiguities that need further investigation.***

Figure 3, below, brings together the detailed assessment requirements pertaining to the three levels (set out in detail in Annex I) within the intention of offering an illustration of how such a quick guide might look. This is intended to help users to distinguish simply between the characteristics of grasslands: ***suitable for biofuel production, classified green*** in Figure 3; ***unsuitable for biofuel production, classified red*** in Figure 3; and those which fall into an ***uncertain 'grey area'***. It is the intention that a Level 1 assessment, conducted by the proponent (that is the farmer or developer) should be able to distinguish the green and red areas set out in Figure 3. Meanwhile, assessment Levels 2 and 3 would be used to resolve whether land, which initially falls into the grey area, should be deemed suitable or unsuitable for biofuel feedstock production.

There is a need for tools, such as that set out in Figure 3, to be provided in guidance in order to aid developers and farmers in making site selection decisions. This approach could be expanded to include similar assessment questions for forests, carbon stock, wetlands, etc, to create an integrated assessment to deliver Article 17 to be used to generically establish the appropriateness of land based on all the criteria set out in Directive 2009/28/EC.

**Figure 3 – An illustration setting out how suitable (green), unsuitable (red) and uncertain (grey) land could be identified**

Please Note: all threshold numbers, quoted below in square brackets, are indicative only<sup>31</sup>.



<sup>31</sup> Actual threshold values should be determined at a national level by the statutory environmental authority, through a transparent science-based process in consultation with stakeholders. If this is not possible an alternative international process to develop criteria suitable to the whole variety of biogeographic regions should be developed.

## 5 SUPPORTING THE ASSESSMENT PROCESS

This paper has primarily focused on the development of an assessment process, its needs and operational requirements. This is intended offer an information source for the Commission consultation and to support the discussions anticipated under comitology. There are, however, some additional issues that must be taken into account of when implementing such an assessment system.

### 5.1 Institutions, reporting and traceability

For the requirements in Directive 2009/28/EC for the protection of highly biodiverse grasslands to be effectively implemented proof must be supplied at the farmer/producer level demonstrating that land is not considered to support highly biodiverse grasslands. This must take account of the 2008 base year the current land use. This first level of assessment is vital, however, there is a complex supply chain that takes the raw feedstock and converts this into a biofuel or bioliquid. While generating proofs at the crop production phase is key, ***it is essential to have a clear, transparent process to establish the traceability of fuels*** along this supply chain and ensure that only those feedstocks that can prove they were produced in a way that avoids highly biodiverse grasslands are processed into the fuels used to comply with the targets set out in Directive 2009/28/EC.

At present few of the institutional arrangements necessary to implement Directive 2009/28/EC are in place and these require development at the EU, national and international levels. This is of importance given that, while under development, the operational capacities of round tables intended to provide the market with 'sustainable biofuels' are currently limited. ***To implement the Directive's legally binding text there is a need to set up a system to demonstrate compliance for all potential biofuel feedstock commodities.***

To overcome this deficiency and effectively implement the approach set out in this working paper and within Directive 2009/28 Article 17, institutional arrangements must be clarified. A system that is clear and robust while at the same time limiting the burden placed upon individual farmers and producers of feedstock, needs to be developed. This should ideally represent a coordinated approach with institutions in place to approve verifiers, their methods and review performance.

These new institutional arrangements are needed to deliver the following:

- Establish the information base - bringing together data, maps and other sources of potential proof into a toolkit for decision makers and industry. This process should be led by competent environmental authorities, and be participatory. It should provide an information resource to minimise the burden of assessment upon individual actors.
- Establish a baseline and better understanding of biofuel imports and production in the EU – this would require reporting on the scale of imports, the

nature of the material imported and the country/region from which the biofuel feedstock originated.

- Ensure that the assessment process is clearly established and maintained – a body is need to develop agreed and transparent standards that are widely understood. Moreover accredited expert need to be made available to support farmers that is providing industry with a clear understanding of the actions needed to ensure compliance.
- Establish a chain of custody system to provide clear rules on the evidence or proofs of compliance that must be passed between actors – this should establish clarity over chain of custody requirements and the role of the different actors. Moreover, it should set out standard documentation formats to enable the role of verifiers or auditors.
- Independently verify that standards are being met, that is ensuring the robustness of the system and compliance with the Directive’s requirements.

### **5.2 Access for small scale and low intensity suppliers**

There is a concern that putting in place an assessment system for biofuel compliance will limit or exclude small-scale or less intensive producers from supplying the EU market. Support should be offered to small operators wishing to establish a “producer group entity” that takes responsibility for ensuring compliance of group members with the certification standards. Specific exemptions from certain certification requirements could also be offered to less intensive producers. It is considered that such arrangements should be incorporated into an assessment system aimed at implementing Directive 2009/28/EC.

It should, however, be noted that it is not considered appropriate that small producers should be exempted completely from the Directive’s requirements. This could pose a risk with potential negative consequences for biodiversity; the cumulative impact of a large number of small producers could be substantial.

### **5.3 Creating a flexible yet globally acceptable system**

To ensure acceptance by third countries and to take account of natural variability – spatially (for example across biogeographic regions) and temporally (for example annual/seasonal/longer time-scale variations), there should be a globally consistent framework within which flexibility is sufficient to take account of local conditions. This could, for example, consist of a process where by third countries develop their own threshold values for the different assessment levels set out in section 5. These would then be approved by an independent body at the EU or international level in consultation with experts.

Although some may wish to impose more restrictive criteria on non-EU sourced raw materials, when compared to European supplies, any such restrictions would be in violation of world trade rules. The underlying principles of the agreements of the World Trade Organization (WTO) are those of most-favoured-nation treatment and national treatment. That is, the EU can neither discriminate between trading partners nor can it treat imports less favourably than the same or similar

domestically-produced goods. Hence, the EU can, in theory, adopt regulations for third countries that are equivalent to existing EU regulation or adopt new regulation that applies to all raw materials regardless of origin<sup>32</sup>.

Given the important question of comparability, one question that must quickly be resolved is what documents or proofs should EU farmers use to demonstrate compliance with the assessment requirements. There are currently several existing EU requirements that may apply to grasslands: the monitoring of the conversion of permanent pastures; an Environmental Impact Assessment requirement for the conversion of permanent pasture land; EU nature protection requirements and protected sites; and cross compliance requirements (such as GAEC). These offer proof options for farmers - but guidance should be provided by the Commission as to how existing EU standards can be best utilised and, as a consequence, what comparable proof should be required for third country producers.

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<sup>32</sup> World trade rules do, however, have some scope for 'inconsistent' regulation and even the imposition of stricter requirements for raw materials from third countries: GATT Article XX (General exceptions) allows for an exception if the measure is deemed necessary for the conservation of exhaustible natural resources and such measures are made effective in conjunction with restrictions on domestic production or consumption.

The renewable energy Directive 2009/28/EC could be justified under the Article XX exception if it is agreed that clean air (with less than, for example, 400 ppm CO<sub>2</sub>) is an exhaustible natural resource. The prohibition on the use of raw materials from savannahs and other highly biodiverse grasslands could also, in theory, be justified under the Article XX exception. It may, however, be harder to defend restrictions on raw materials from non-natural grasslands and other grasslands where the biodiversity may be of local value but not threatened on a regional or national level. Likewise, restrictions applied to grasslands in third countries must be equally applied to similar grasslands within Europe.

## 6 ANNEX I –DETAILED LEVEL BASED ASSESSMENT

**Note: all threshold numbers quoted below in square brackets are indicative only. It is recommended that actual threshold values should be set at a national level by the statutory environmental authority, through a transparent science-based process in consultation with stakeholders.**

The following methodology, presented below, is an illustration of the approach that could be taken to assessing the suitability of all grassland areas (natural and non natural) for the production of biofuels. This sets out in detail the assessment questions and criteria that should be applied to assessment Levels 1, 2 and 3 set out in Figure 2 and section 5.1 above. The purpose of the different assessment levels and their application is explained in section 5.1 of this paper.

### ***Level 1: screening (by proponent)***

The site can be considered by the proponent to have no restrictions on biofuel production with respect to grassland sustainability criteria (and therefore no requirement for further survey) if:

- The site is not grassland and can be proven not to have been grassland in 2008 (for example according to approved datasets<sup>33</sup> such as official land records, land use maps, aerial photographs or satellite images); OR
- The site is grassland, but can be proven (for example according to approved datasets) to have been cultivated (that is ploughed or harrowed) and/or reseeded within the last [10] years and prior to 2008<sup>34</sup>; OR
- At least two of the following apply to the site on the basis of a self assessment<sup>35</sup> (according to standardised guidance):
  - Cover of rye grasses and clover (and other agricultural grasses / cultivars according to national circumstances) more than [30%]; or
  - The sward is species poor, with [4] or less species/m<sup>2</sup>; or
  - There is less than [10%] cover of herbs, sedges and shrubs (excluding clover and undesirable species according to local circumstances).

AND

- The accreditation authority has determined that the site is NOT listed on the standard source of data on highly biodiverse grasslands as approved by the statutory environmental authority<sup>36, 37</sup>.

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<sup>33</sup> I.e. the best available data as identified and approved by the competent environmental authority.

<sup>34</sup> Unless it is an extensively managed (with no or minimal use of fertilisers) and equivalent to High Nature Value farmland as defined in the EU.

<sup>35</sup> An agreed percentage of self assessment would be verified by an appropriate competent authority, with prosecutions made where appropriate.

ALL OTHER PROPOSALS MUST CARRY OUT A LEVEL 2 GRASSLAND SURVEY.

**Level 2: grassland survey**

A grassland survey is carried out by an independent accredited assessor to establish key ecological and management information, including the grassland/biotopes present (for example with respect to, plant species richness, dominant species present in the sward, overall cover of agricultural cultivars (for example rye-grasses and clover), cover of herbs and sedges, management systems in place and ecological condition (with respect to key attributes). The assessor would also check the location of the site against maps and other data sources indicating the location of natural grasslands, protected areas and other areas identified as being of high biodiversity value (for example Important Bird Areas).

The site should NOT be used for biofuel production with respect to grassland sustainability criteria if:

- It holds more than [0.5 ha] of grassland within a mapped area of natural grassland (according the standard source of data on natural grasslands as approved by the statutory environmental authority) and is dominated by species of the natural grassland type (according to approved standard lists), and is therefore natural grassland as described in the Directive; OR
- The site is listed on the standard source of data on highly biodiverse grasslands as approved by the statutory environmental authority, or is otherwise found by survey to:
  - hold significant populations of globally, regionally or nationally threatened species, or endemic species, or important populations of associated fauna;
  - consist of a scarce or otherwise threatened biotope of high biodiversity value (e.g. as listed in Annex 1 of the EU Habitats Directive, a NBSAP or qualifies as a High Nature Value farmland area in the EU); OR
- At least two of the following apply to non natural grasslands on the site on the basis of the expert assessment:
  - Cover of rye grasses and clover (and other agricultural grasses / cultivars according to national circumstances) less than [10%]; or
  - The sward is species rich, with more than [15] species/m<sup>2</sup>; or
  - There is more than [30%] cover of herbs and sedges (excluding clover and undesirable species according to local circumstances).

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<sup>36</sup> This should include protected areas (which are excluded from biofuel production according to Article 17.c.2 of the Directive) and sites that are not formally protected, but are nevertheless of high biodiversity value, such as Important Plant Areas, Important Bird Areas and, within the EU, areas of High Nature Value farmland (Cooper et al. 2007).

<sup>37</sup> Cooper, T., Arblaster, K., Baldock, D., Farmer, M., Beaufoy, G., Jones, G., Poux, X., McCracken, D., Bignal, E., Elbersen, B., Wascher, D., Angelstam, P., Roberge, J.-M., Pointereau, P., Seffer, J., & Galvanek, D. (2007). Final report for the study on HNV indicators for evaluation. Institute for European Environmental Policy, London

The proposal may lead to significant impacts on land of high biodiversity value that need to be assessed by a Level 3 ESIA if:

- The site is within a recognised buffer zone for the protected area; OR
- At least two of the following apply to non natural grasslands on the site on the basis of the expert assessment:
  - Cover of rye grasses and clover (and other agricultural grasses / cultivars according to national circumstances) less than [20%]; or
  - The sward is moderately species rich, with [5] to [15] species/m<sup>2</sup>; or
  - There is more than [20%] cover of herbs and sedges (excluding clover and undesirable species according to local circumstances).
- The site is of high biodiversity value, but this has arisen as a result of degradation [attributes and thresholds to be further defined].
- The site is undergoing ecological restoration and is likely to qualify as being highly biodiverse in future.

Otherwise, the site can be considered to have no restrictions on biofuel production with respect to grassland sustainability criteria.

### ***Level 3: Expert Assessment***

A more detailed expert assessment would be carried out as part of the ESIA process, in which all biodiversity impacts would be carefully evaluated according to recognised standards of good practice, for example CBD guidance on Ecological impact assessment (EIA) (CBD, 2006<sup>38</sup>).

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<sup>38</sup> CBD (2006) Global biodiversity outlook 2 Secretariat of the Convention on Biological Diversity, Montreal.