RENEWABLE ENERGY DIRECTIVE: OPERATIONALISING CRITERIA TO PROTECT HIGHLY BIODIVERSE GRASSLAND FROM EXPANDED BIOFUEL PRODUCTION

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EXECUTIVE SUMMARY

Introduction

This study aims to support the implementation of sustainability requirements specified in the EU Renewable Energy Directive (RED) for biofuels and bioliquids, whether from domestic or imported sources. The RED sets out a number of criteria intended to, among other things, protect valued land uses from conversion to feedstocks for biofuel and bioliquid production, including the protection of highly biodiverse grasslands. The latter are due to be further examined and defined as part of a comitology process at EU level. This study aims to aid this process by testing elements of an assessment approach (hereafter referred to as the IEEP approach) developed by the Institute for European Environmental Policy (IEEP) focused on operationalising the RED's requirements relating to the protection of highly biodiverse grasslands.

The IEEP approach consists of three main elements, which in combination are intended to provide a rigorous basis for implementing the RED's requirements for the protection of highly biodiverse grasslands. These are:

- a set of principles and guidelines upon which any assessment process should build;
- a three level approach to systematically and efficiently assess the appropriateness of land for biofuel development – the appropriate level to which an assessment progresses will depend on the level of uncertainty over a grassland's status; and
- detailed requirements and proofs that could be used as a basis for reaching decisions within the three assessment levels.

The objectives of this study were three fold:

a. to determine the efficacy and practicability of the IEEP approach through the use of three case examples;

b. to determine whether the approach could be adopted or incorporated into voluntary schemes for certifying the compliance of biofuels with the RED; and

c. to consider the transferability of the approach, developed for highly biodiverse grasslands, to the assessment of the land use based biofuel sustainability set out in the RED.

Conclusions

The analysis conducted within this study enabled the following conclusions to be drawn against the three research objectives.

The need for action to clarify the RED grassland requirements (based on three case examples, soy in Argentina, rapeseed in the UK and palm oil in Indonesia, and expert interviews) - The case study analysis and associated stakeholder discussions demonstrated the importance of the EU adopting an agreed, consistent and robust methodology for assessing grasslands in line with the RED. This analysis also demonstrated a lack of understanding of grassland issues, their biodiversity value and associated land-use change risks on the part of a wide variety of stakeholders. Relevant actors are waiting for more guidance from the EU on this issue before taking forward action. As a consequence of both the expectations of stakeholders and the lack of broader awareness of the issues impacting grasslands the methodology to be developed by the Commission is of great importance in securing

the Directive's objective of protecting highly biodiverse grasslands.

Based on the case studies and stakeholder discussions several specific issues in need of further investigation and consideration were identified

1. The High Conservation Value (HCV) areas approach, used as a basis for some assessments of biodiversity value, is poorly adapted for application to grasslands, in particular non-natural grasslands. Voluntary schemes relying exclusively on HCV to identify areas of biodiversity value are therefore considered not to be consistent with the IEEP approach nor the requirements of the RED.
2. There is limited understanding and/or awareness of the value of grasslands. This was particularly a concern in relation to non-natural grasslands (explicitly protected by the RED). Several stakeholders seemed unaware that, for example, pasturelands may be simultaneously in use and of biodiversity value. An approach to assessing grassland value that is based on site condition and cultivation practices (as adopted within the IEEP approach) is considered the best means to clarify the question of grassland value.
3. Commodity-based voluntary schemes for certifying biofuel feedstocks (ie that certify a given crop, or series of crops) are favoured by producers given that they are often unaware of the ultimate market for their product. This has implications for the nature of any system subsequently developed.

***Determining the efficacy and practicability of the IEEP approach (based on the three case examples and expert interviews)* –** The evaluation of the IEEP approach against key areas of concerns and principles did not identify any barriers to the application of the IEEP approach, nor did experts consulted feel that any elements were unworkable or inappropriate given the coverage of the Directive. It should be noted, however, that industry groups are keen that in complying with requirements producers receive adequate rewards for their effort to avoid unnecessary burden being placed upon them. Those consulted were generally unable to identify any major implementation issues and were supportive of IEEP's efforts to aid clarity in this area. The approach itself was seen as suitable for its intent and purpose. The adoption of the three level assessment approach was considered to offer flexibility and efficiency within a robust assessment framework.

Stakeholders were supportive of the detailed analysis being undertaken; several commented that they would like to see more such work looking generically at the implementation of the RED's sustainability requirements and offering increased clarity over the delivery of its requirements. Moreover, several voluntary schemes expressed the desire to integrate the IEEP approach into their working methods. However, while there was support for the IEEP approach, many stakeholders commented that they cannot take forward further efforts to investigate the question of grasslands, trial or implement requirements in the field until clear guidance emerges from the Commission.

The IEEP approach sets out a framework for assessment but its successful implementation would be facilitated by the adoption of clear and consistent guidance and ancillary support tools. These would ideally be taken forward by the Commission and include: bringing together the key information sources in the form of a tool kit for decision makers and industry; developing a consistent reporting system to enable the review of sourcing practices and compliance with the RED; and establishing a set of proofs and criteria to provide the evidence base for compliance.

Determining whether the IEEP approach could be adopted or incorporated into voluntary schemes

used to certify biofuel feedstocks (assessment covering the Roundtable for Sustainable Palm Oil and Roundtable for Responsible Soy at the international level and the Assured Combinable Crops Scheme (ACCS) or the Genesis Quality Assurance Scheme operational in England) – It is considered that the IEEP approach would potentially be compatible with both the international and national voluntary schemes assessed. Importantly, it should be noted that none of the schemes, at the time of review, explicitly referenced grasslands nor were they developed directly in response to the RED requirements (although efforts are underway to adapt them).

The effectiveness of the current schemes in addressing grassland requirements is essentially determined by the appropriate application of two key tools: the HCV concept, which is used as a basis for determining the coverage of biodiversity-related aspects under most international schemes; and EIA which is used as a basis for determining land-use decisions within some international schemes and the national UK schemes reviewed. In principle the HCV concept and EIA processes are compatible with the IEEP approach; indeed the final level of assessment within the IEEP approach could be encompassed into a broader EIA assessment. However, there are concerns over the adequacy of these tools as currently applied. In both cases it is the detailed standards and requirements specified that will determine their adequacy as a basis for assessment; hence compatibility with both the IEEP approach and the needs of the RED depends on the detail of how these tools are applied.

To ensure that the HCV is fit for purpose, in terms of assessing grassland habitats, the HCV types need to be expanded to include grasslands. In addition the basis of standards set under the HCV, in terms of capturing areas in need of conservation, would need to be altered. The current, forest derived standards are likely to be too specific and high level to capture many grasslands considered of high biodiversity value - especially non-natural grasslands. Finally, even in an amended form, HCV areas should be one type of proof that could utilised as part of a broader assessment framework to determine the biodiversity value of grasslands. Schemes that rely exclusively on the current HCV approach as a proof are considered not to be in line with the IEEP approach, nor fully compliant with the RED grassland requirements.

The adequacy of EIA coverage depends on the guidelines applied; specifically the thresholds used to trigger an EIA, the appropriate inclusion of grassland-related parameters within the scoping phase and clear decision criteria for determining whether development can be allowed to proceed.

Ideally an approach to grassland assessment, such as that developed by IEEP, would be specified at the EU level in guidance to ensure clarity and its consistent implementation across the multiplicity of certification schemes. It remains unclear whether the Commission plans to adopt detailed guidelines specifying approaches to assessment. While the later would be the ideal, in the absence of this it will be up to Member States, individual voluntary schemes or even verifiers themselves to determine a best practice approach.

Considering the transferability of the IEEP approach to other land uses specified for protection under the RED's sustainability criteria for biofuels and bioliquids – No major barrier to applying IEEP's approach across the RED's seven different land-use based criteria could be identified. It was considered that the principles (which offer a basis for adopting the IEEP approach of assessment) could be successfully applied to the other land uses. Moreover, the three-level assessment approach was considered adaptable to other land uses; although the detailed questions to be answered at

each level would need to be determined for each land use. During this assessment several differences were noted in the presentation of the different land-use based criteria within the RED. These differences would have to be taken into account during any process to extend the IEEP approach to other land uses. Importantly this would need to consider if the appropriateness of proofs, for helping demonstrate compliance, would alter.

Many stakeholders highlighted that they would appreciate materials setting out in detail best practice approaches to the implementation of all the land-use based criteria under the RED. This was felt to be lacking with too much open to interpretation by the individual verifier, voluntary scheme or Member State.

Recommendations

Building on the conclusions, the following recommendations for further action were identified. The adoption of the IEEP approach at the EU level would represent one mechanism for achieving these goals.

1. **Perceptions of grasslands –** There is a need for communication on the part of the Commission, supported by nature conservation groups and relevant Member State governments, to ensure that all actors understand grasslands and the factors that determine their biodiversity value. The latter should be based on an assessment of site conditions and the nature of cultivation practices to fully reflect the wide array of conditions under which grasslands can be of biodiversity value. It is of particular importance to effectively communicate the potential biodiversity value of grassland habitats and that non natural grasslands, while in use for example as pasture, could also be a priority.
2. **Ensuring an adequate basis for decision making, use of HCV and EIA -** To ensure minimum standards are achieved, guidance on the development and application of these tools should be adopted by the Commission. Moreover, the appropriateness of their application must be taken into account during the Commission's process of benchmarking voluntary schemes as in compliance with the RED requirements. It should be noted that it is not sufficient, in the case of grasslands, for a voluntary scheme to rely on current HCV assessments alone as a basis for determining biodiversity value for grasslands.
3. **Clarifying requirements -** The European Commission and Member States must rapidly reach agreement as to the requirements to be applied to grassland and ensure that the actions to be taken to implement these are clear and actively communicated to the voluntary schemes. At present the state of debate and action on this issue is insufficient to deliver effective and timely implementation.
4. **Consistency across the EU –** The European Commission should, in addition to legislative requirements anticipated as a result of the comitology process, bring forward detailed guidance on how operators and voluntary schemes should seek to comply with the criteria relating to highly biodiverse grasslands. This would increase certainty and aid implementation in this potentially complex field. Ideally, such materials would be part of a broader package of detailed guidance relating to the best practice application of all the land-use based criteria under the RED. Stakeholders, including representatives of industry and voluntary schemes, would welcome a broader, detailed set of guidance covering land-use issues.
5. **The importance of an information base for assessment –** Developing a publicly available data resource that allows the monitoring and analysis of feedstock sourcing and compliance of biofuels used in Europe under the RED should be a priority. As demonstrated by the benefits associated with the data published under the UK's Renewable Transport Fuel

Obligation, only with such a detailed data set will it be possible to effectively assess the implementation of the RED and the potential impacts. The Commission should put in place Member State reporting requirements to enable the development of both national and EU level assessments of sourcing and compliance. The details should be made publicly available in terms of the sources of biofuel feedstocks, the nature of the fuels in use and the schemes utilised in order to ensure compliance with the RED.

Proposed Paragraph for Defra Website

The EU's Renewable Energy Directive (RED) sets out a series of environmental sustainability criteria that any biofuel or bioliquid utilised on the EU market place must meet to count towards the 2020 targets set out in the Directive or be eligible for any kind of subsidy or support. Within these criteria the RED specifies a number of valued land-uses that must not be directly converted for the production of biofuel or bioliquid feedstocks, including highly biodiverse grasslands globally. This study reviews in detail mechanisms for implementing the criteria for the protection of highly biodiverse grasslands under the RED, specifically examining the proposed approach to assessment presented by the Institute for European Environmental Policy (IEEP).

The study has three specific objectives: to review the applicability and practicability of the IEEP approach based on three case examples on the production of biofuel feedstocks (the production of soy in Argentina, rapeseed in the UK and palm oil in Indonesia); to examine proposed voluntary schemes for certifying biofuels in line with the RED requirements, their coverage of grasslands and their compatibility with the IEEP approach; and to consider the possible expansion of the IEEP approach to the assessment of the other six protected land uses specified in the RED. Ultimately this work is intended to support the process for finalising the implementation of the requirements under RED, specifically the comitology process that will be utilised by the Commission to further define an approach to dealing with highly biodiverse grasslands.

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GLOSSARY OF KEY TERMS AND ACRONYMS

The following are the definitions of terms and acronyms as used in this Study.

- ACCS - Assured Combinable Crops Scheme
- Biofuel – Liquid produced from biomass and used as a transport fuel
- Biofuel feedstock – a crop or other biomass used to generate biofuels and bioliquids
- Bioliquids – Liquid produced from biomass and uses to generate electricity or heat
- Certifier – Within this study the certifier is considered to be the expert who undertakes onsite assessments on compliance
- Comitology – A process whereby measures are developed, in support of legislative acts. Powers are delegated within the legislation to the European Commission (in collaboration with the Member States and European Parliament) who determines the measure through a series of committees made up of Member State representatives.
- HCV – High Conservation Value – HCV areas are defined as natural habitats where their value (in terms of the presence of rare or endemic species, sacred sites, or resources harvested by local residents) is considered to be of outstanding significance or critical importance. For further information see http://www.hcvnetwork.org/
- High Nature Value Farmland – A concept whereby farmed land deemed of high nature value is eligible for increased financial support, for further details see http://agrienv.jrc.ec.europa.eu/publications/pdfs/HNV_Final_Report.pdf
- RED – Renewable Energy Directive – Directive 2009/28/EC
- RFA- Renewable Fuels Agency, UK
- RSB – Roundtable for Sustainable Biofuels
- RSPO – Roundtable for Sustainable Palm Oil
- RTFO – Renewable Transport Fuel Obligation, obligation in the UK requiring fuel companies to blend a proportion of renewable fuels (primarily biofuels) and report against sustainability and carbon related criteria
- RTRS – Roundtable for Responsible Soy
- Verifier – Within this study the verifier is considered to be the expert who independently assesses the compliance of biofuel and bioliquid supply chains with the RED's requirements
- Voluntary Scheme – Certification Scheme
- WWF – for details of activities see http://wwf.panda.org/

CHAPTER 1 - INTRODUCTION

1 THE PURPOSE OF THIS REPORT

This study is concerned with developing methods for securing the sustainability of the biofuels market in Europe, whether from domestic or imported sources, with particular reference to grasslands. Its purpose is to facilitate the development and implementation of an approach to assessing highly biodiverse grasslands and their protection from direct conversion for crop production to meet the expanded EU demand for biofuels and bioliquids (referred to subsequently as biofuel feedstocks), as required under the EU Renewable Energy Directive (RED, reference 2009/28/EC). Specifically it tests elements of an approach developed by the Institute for European Environmental Policy (IEEP) for operationalising the RED's requirements related to the protection of grasslands – here after referred to as the IEEP approach. Annex I sets out in detail the proposed IEEP approach as originally presented in IEEP Working Paper 1[1] - Interpreting Grassland Requirements set out within the Directive on Renewable Energy (Directive 2009/28/EC), and Working Paper 2[2] - Operationalising Criteria to Protect Highly Biodiverse Grasslands under the Renewable Energy Directive (2009/28/EC) – both working papers were kindly funded by WWF.

In summary the IEEP approach to assessing highly biodiverse grasslands under the RED consists of three elements these are as follows:

- a set of principles and guidelines upon which any assessment process should build;
- a three level approach to systematically and efficiently assess the appropriateness of land for biofuel development – the appropriate level to which an assessment progresses will depend on the level of uncertainty over a grassland's status; and
- detailed requirements and proofs that could be used as a basis for reaching decisions within the three assessment levels.

The specific objectives of the study are to:

a) determine the efficacy and practicability of the IEEP approach through the use of three case examples
b) determine whether the approach could be adopted or incorporated into voluntary schemes for certifying the compliance of biofuels with the RED; and
c) consider the transferability of the approach, developed for highly biodiverse grasslands, to the assessment of the land use based biofuel sustainability set out in the RED.

[1] http://www.ieep.eu/publications/pdfs/2010/Working-Paper-1-for-circulation.pdf
[2] http://www.ieep.eu/publications/pdfs/2010/Working-Paper-2-for-circulation.pdf

2 BACKGROUND

2.1 Increasing EU and UK Demand for Biofuels

Interest in the use of biofuels and bioliquids as an energy source has been increasing. The desire to use biofuels has been driven by three factors: their potential contribution to the rural economy and the diversification of agricultural markets; as an alternative to liquid fossil fuels offering the potential for increased energy security; and, if cultivated and produced correctly, greenhouse gas (GHG) savings compared to fossil fuels. In 2003 the European Union adopted its first legislation promoting the use of biofuels as a transport fuel focused primarily on delivering energy security and greenhouse gas benefits. Directive 2003/30/EC on renewable transport fuels promoted alternative sources of transport fuels, however, due to the limited number of technologies at market ready stage in essence the Directive largely supported the adoption of biofuels. Under the Directive indicative targets for the market penetration of renewable road transport fuels were adopted; these were 2% of road transport fuels in the EU by 2005 rising to 5.75% of fuels by 2010.

In 2008 the European Council and Parliament adopted the renewable energy Directive (RED), as part of a wider package of measures intended to set out the EU's approach to delivering greenhouse gas (GHG) savings up to 2020. Under the RED two targets are set for the European Union as a whole: 20% of energy to be sourced from renewable sources by 2020 (this is differentiated by Member State dependent on GDP and historic levels of effort); and 10% of all transport fuels to be sourced from renewable sources by 2020. These targets are anticipated to further simulate the demand for biofuels as a transport fuel and, to a lesser extent, other bioliquids for heating and electricity use.

At the national level there has been a range of initiatives put in place to stimulate biofuel usage across Europe, driven to a large degree by the EU targets. To deliver EU targets for renewable transport fuels the UK established the Renewable Transport Fuel Obligation (RTFO), which is regulated by the Renewable Fuels Agency (RFA). The RTFO obliges suppliers of fossil fuels to ensure that a specified percentage of the road fuels they supply in the UK is made up of renewable fuels – in practice biofuels[3]. Targets are set regarding the proportion of renewable fuel to be placed on the market by a given date. Importantly the RTFO also requires fuel suppliers to report on the carbon emissions and sustainability of the biofuels used.

The first year of verified data under the RTFO (based on usage between April 2008 and April 2009) identified that 1,284 million litres of biofuel had been supplied in the UK under the RTFO. This amounted to approximately 2.7% of total road transport fuel. The UK was noted to use a high proportion of biodiesel, when compared to bioethanol: bioethanol accounted for only 18% of use versus 82% for biodiesel. The majority of biofuel feedstocks were imported, with over 90% sourced from other countries including other EU Member States (eg Germany) and

[3] For further details regarding the requirements and origins of the RTFO see http://rfa.gn.apc.org/aboutthertfo

Third Countries. The most widely reported source of biodiesel was American soy (24% of biodiesel supplied). The most widely reported source of bioethanol was Brazilian sugarcane (79% of bioethanol supplied)[4].

Estimates by the Joint Nature Conservation Council (JNCC) place the global land requirement to deliver this annual biofuel demand at 1.4 million hectares. As a consequence of the high usage of soya based biodiesel, 60% of the land use pressure from UK biofuel consumption was anticipated to arise in the USA, Argentina and Brazil. This places much of the UK's biofuel footprint within the temperate grassland biomes of both Northern and Southern America[5]. This land requirement is anticipated to expand as demand rises to meet the EU 2020 targets.

2.2 Introducing the Sustainability Requirements under the Renewable Energy Directive (RED)

The RED attempts to limit the negative consequences of expanded European demand for bioliquids and biofuels stimulated by the targets set. It proposes a series of sustainability criteria, set out under Article 17. Under the Directive biofuels and bioliquids must fulfil the Article 17 criteria if they are to be taken into account when complying with national targets set under the Directive; or to be eligible for financial support. The criteria encompassed within Article 17 focus on delivering a minimum level of greenhouse gas reductions from biofuels and protecting land-uses of environmental value from conversion to crop production to meet expanded European biofuel demand. The aim is to protect land deemed of biodiversity value and land considered to act as a carbon store from direct conversion.

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.

[4] Renewable Fuel Agency (2009) Quaterly Report 4: 15 April 2008 to 14 April 2009, Verified Data Set http://www.renewablefuelsagency.gov.uk/sites/rfa/files/_documents/RFA_verified_report_RTFO_year_one.pdf

[5] Joint Nature Conservation Committee (2009) The global biodiversity footprint of UK biofuel consumption, http://www.jncc.gov.uk/pdf/Biofuelsfootprint%20(2).pdf

Point c has been the source of considerable debate among experts, policy makers and environmental NGOs with uncertainty over precisely what it covers 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[6].

2.3 Implementing the RED Sustainability Requirements

If the provisions in the Directive are to be effective, it is not sufficient simply to set out the criteria to be met; mechanisms for implementation, enforcement and verification of compliance are necessary. Article 18 of the RED specifies the mechanisms for verifying compliance with the sustainability criteria (set out in Article 17) of biofuels placed on the EU market by economic operators.

For biofuels to count towards the RED targets or be eligible for financial support, economic operators must demonstrate to the relevant Member State that the RED's sustainability criteria are being complied with. Under the Directive Member States are required to adopt measures to ensure economic operators submit reliable information on compliance. Member States may also request from the operators the data used to develop this information or proof. The information provided by the economic operator must have been independently audited, prior to submission to the Member State authorities, to ensure that the evidence is accurate, reliable and protected against fraud.

To assist economic operators in developing an evidence base and demonstrating compliance, Article 18 specifies several support processes that could be put in place[7]. The following decisions would be made under the EU comitology procedure.

- The European Commission may conclude bilateral agreements with individual third countries specifying compliance with the sustainability criteria included in the RED. In these cases biofuel feedstocks grown within that country would be considered to comply with the Directive's requirements.
- The European Commission may approve national or international voluntary schemes that set standards for biomass production and are deemed to meet adequate standards of reliability, transparency and independent auditing.
- The European Commission may recognise areas for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature (IUCN).

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[6] 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

[7] Additional guidance has been adopted by the Commission subsequent to the RED setting our requirements and auditing procedures appliacable to voluntary schemes and calculation methodologies for GHG, these can be downloaded at http://ec.europa.eu/energy/renewables/biofuels/sustainability_criteria_en.htm

Of particular interest to this study is point 2, above, the approval of national or international voluntary schemes. There are already a number of schemes operational or under development that certify or aim to certify biomass sources that could be used to produce biofuels. These will be an important mechanism for securing sustainable supply chains stretching from feedstock producer to fuel supplier.

2.4 The IEEP Approach to Grassland Assessment

The RED specified that the Commission should expand details of its requirements related to highly biodiverse grasslands, both in terms of their definition and geographic ranges. While extensive work has been completed in terms of assessing grasslands at the EU level, linked for example to the application of funding criteria for agriculture (such as work on High Nature Value (HNV) farmland), this has not been expanded to consider global questions. Moreover there is a perception, confirmed within this analysis, that key stakeholders lack understanding as to how best to identify and assess grasslands.

To help effectively integrate existing grassland knowledge into the biofuel debate and support the development of guidance in this field IEEP (funded and supported by WWF Europe) developed two working papers on the question of highly biodiverse grasslands and the RED. These papers aimed at helping define and interpret the often complex and ambiguous wording of the RED in relation to grasslands (Working Paper 1[8]); and, based on these clarifications, develop an approach to assessing the status of a grassland in terms of its biodiversity value (Working Paper 2[9]). Together the assessments and analysis within these two papers form the basis for the IEEP approach, tested within this report.

The IEEP approach, as set out in Working Papers 1 and 2, was developed in coordination with experts in the field of grassland assessment and informed by existing approaches to certification adopted and/or under development by the voluntary schemes. They also drew on extensive work by IEEP in the agricultural field, particularly work on HNV grasslands in Europe[10]. Key elements of the IEEP approach include the following (further details of the principles, 3 level assessment approach and detailed assessment criteria are presented in Annex 1):

- That the assessment approach should be based around the precautionary principle so that in situations of uncertainty there is a predilection toward the protection of habitat;
- That there is no hierarchy, in terms of the level of protection offered under the RED, between the protection of highly biodiverse natural and highly biodiverse

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8 Bowyer, C. (2010), Interpreting Grassland Requirements set out within the Directive on Renewable Energy (Directive 2009/28/EC), Institute for European Environmental Policy http://www.ieep.eu/publications/pdfs/2010/Working-Paper-1-for-circulation.pdf

9 Bowyer, C., Tucker, G., By, H. and Baldock, D. (2010) Operationalising Criteria to Protect Highly Biodiverse Grasslands under the Renewable Energy Directive (2009/28/EC), Institute for European Environmental Policy http://www.ieep.eu/publications/pdfs/2010/Working-Paper-2-for-circulation.pdf

10 Cooper T., Arblaster, K., Baldock, D., Beaufoy, G. (2007) Guidance Document to the Member States on the Application of the HNV Impact Indicator, Institute for European Environmental Policy, http://www.ieep.eu/publications/pdfs/hnv/hnv_guidance_121007.pdf

non natural grasslands; hence grassland currently 'in use' for agriculture may also be protected under the RED;

- That there is a need for both an efficient and robust approach to determining biodiversity value of grasslands, hence the adoption of the 3 level assessment process designed to enable the achievement of both goals. At the first stage if sufficient evidence can be determined from a desk based assessment using written proofs – this can include details of site assessments completed by the producer against very specific parameters (see Annex 1) – that land is either definitely not of biodiversity value or definitely is of value then that area can be exempted from further detailed assessment at this stage. There then follow two more detailed assessment levels: an initial on site review by an appropriately trained assessor; and, if the site's status can still not be determined, a detailed ecological assessment of the sites condition.

This study aims to examine in further detail the potential application of the IEEP approach, in terms of delivering the RED requirements, and to conduct further groundtruthing regarding its practicability. Thus, this study aims to test the approach developed in the two earlier Working Papers and explore more broadly the implications arising from the implementation of the grassland requirements in the RED.

Other work has also been completed on the grassland protection issue; this includes analysis by the Oeko Institute looking more broadly at the implementation of the RED sustainability requirements in Germany[11]; as well as work in support of the Commission.

In December 2009 the European Commission launched a public consultation examining the implementation of the grassland aspects of the RED sustainability criteria. Responses to the consultation can be found at http://ec.europa.eu/energy/renewables/consultations/2010_02_08_biodiverse_grassland_en.htm.

3 METHODOLOGICAL APPROACH

In effect, addressing the three objectives of this study required three distinct assessments. The key methodological steps are, therefore, presented below as three distinct tasks based on the specific objective to be achieved. This report is set out according to this structure, with overall conclusions and recommendations provided within Chapter 6.

It should be noted that consultation with stakeholders and key actors has been central to all three elements of this analysis. The researchers have endeavoured to elicit responses from all the key groups of actors potentially involved in the

[11] Hennenberg, K.J., Fritsche, U.R, Bleher, D., Busche, J., Hook, S., Herrera, R., Krismann, A., Luick, R., Bertzky, M., Scharlemann, J. and Dickson, B. 2009. Specifications and recommendations for "grassland" area type. GTZ Project for the Practical Implementation of BioSt-NachV – Sub-project Area-related Requirements

delivery of sustainable biofuels and bioliquids[12]. Box 1 presents the main types of actors involved in decisions regarding the future compliance of biofuels with environmental standards. To inform all elements of the work a series of tailored questionnaires were developed and circulated as a basis for interview and written response. A list of the organisations contacted during the completion of this study is presented in table 1, below.

Table 1 – Organisations Consulted During the During the Completion of this Study

Voluntary certification schemes	Roundtable on Responsible Soy Association (RTRS)
	Roundtable on Sustainable Palm Oil (RSPO)
	Better Sugarcane Initiative (BSI)
	The Assured Combinable Crops Scheme (ACCS)
Auditors/ certification bodies	Ernst & Young
	SGS Group
	Independent expert
Industry (fuel)	Shell
	Greenergy
Feedstock producers/ processors	Cargill
	Grupo Lucci (soy producer) Argentina
	El Tejar (soy producer), Argentina
	National Farmers Union for England and Wales
Other technical and grassland experts	Renewable Fuels Agency
	HCV Resource Network
	WWF
	Equilibrium – ecological consultants
	Conservación y Desarrollo Sustentable Fundacion Vida Silvestre Argentina (grasslands programme)
	Indonesian Palm Oil Commission
	Grassland Trust
	UNEP- WCMC
	Natural England
	Joint Nature Conservation Committee, UK

Within all three elements of the work stakeholder views have provided input, aiding understanding as to the status quo and efforts anticipated in the future. In addition to the questionnaire-based consultation a discussion event was organised on the 22 March 2010, this offered the opportunity for a limited number primarily UK based stakeholders and experts to discuss the provisional findings of the study. This complemented earlier stakeholder events organised to develop the initial IEEP/WWF working papers in January 2010.

[12] It should be noted that from this point onwards in the study, the term "biofuels" is used as a means of simplifying the text. However, it is intended to cover both biofuels as a transport fuel and bioliquids for either heat or power.

Box 1 - Key Actors

There are a wide range of actors vital to delivering a system that can implement effectively environmental sustainability criteria for biofuels. For this study it was important to understand the respective roles of different groups. These are set out below.

- European Commission – the Commission will be responsible for developing guidance in terms of the permitted actions on the part of Member States and their regulators. Moreover, they will importantly specify which voluntary schemes are deemed in compliance with EU requirements.
- National regulators and competent authorities – this includes importantly for the UK the Renewable Fuels Agency, who currently provide guidance and benchmark voluntary schemes in line with requirements under the UK based Renewable Transport Fuel Obligation.
- Voluntary schemes – this broad heading encompasses assurance schemes that have set standards relevant to biofuel and agricultural production. This includes the Roundtable for Sustainable Palm Oil, Roundtable for Sustainable Soy but also quality assurance schemes such as Genesis and ACCS in the UK.
- Standard setting bodies – these organisations specify detailed standards to be adopted in order to audit or verify compliance
- Certification and verification bodies – these organisations will be providing auditing services either to determine compliance with requirements by producers on the ground or to assess the compliance with standards along the supply chain.
- Industry representatives – important groupings include farmer representatives such as the NFU, product specific support groups for example focusing on the marketing and development of oilseeds or sugar products and fuel producer groups.
- Processing industry – including feedstock marketers, importers, fuel processors, oil seed crushers.
- Feedstock producers – including individual farmers, cooperatives and plantations.
- Civil society – including environmental NGOs and independent experts developing standards and approaches for assessing biofuels and grasslands.

3.1 Task 1 - The efficacy and practicability of the IEEP approach – Methodology

To assess the efficacy and practicability of the IEEP approach three case studies were completed, supported by the wider stakeholder consultation activities, to examine the features of the approach. Based on the case study information and the stakeholder comments, conclusions were drawn regarding the applicability of the IEEP approach. The case study information was also used to support analysis in task 2 and 3. Within the report the detailed case studies are presented within Annexes II to IV. The conclusions drawn from the case studies and stakeholder consultation are presented in Chapter 2, as they represent points of interest in their own right. The conclusions that can be drawn based on these regarding the IEEP approach's efficacy and practicability are presented in Chapter 3.

The case studies were required to cover one example of UK biofuel feedstock production and two key imported biofuel sources. Within each case study the

following were examined: the nature of biofuel feedstock production in a given country or region; the potential implications in terms of grassland conversion; the infrastructure and potential arrangements to support the proposed IEEP approach; any implementation issues anticipated in response to the proposed IEEP approach. Finally conclusions were drawn in terms of the development and implementation of the grassland requirements under the RED.

During an initial scoping exercise the following case studies were selected for assessment:

- production of rapeseed oil for biodiesel in the UK;
- the production of soya oil for biodiesel in Argentina; and
- the production of palm oil for biodiesel in Indonesia.

It should be noted that these case examples all represent biodiesel feedstocks. While into the future it may be useful to conduct additional case studies to provide a more comprehensive picture, these examples were deemed appropriate for this study based on the following:

- Analysis of UK utilisation of biofuels shows that far higher quantities of biodiesel are consumed compared to bioethanol ie between April 2008 and April 2009 biodiesel usage stood at 1,057.7 million litres for the UK while bioethanol was 225.4 million litres.
- While the consumption in the UK of bioethanol produced from UK grown sugar beet was slightly higher in 2008/2009 than for biodiesel from UK grown rapeseed oil, overall rapeseed oil produced in third countries represents an important source of biofuels.
- In work by the JNCC on the global biodiversity footprint of UK biofuel consumption, UK usage of soya-based biofuels is noted as highly significant and potentially leading to substantive impacts in South America and for grassland systems in particular.
- Palm oil is a widely used source of biofuels in the UK, and it is the primary biofuel commodity grown in SE Asia – a key area for assessment specified in the terms of reference for this study. Moreover the Roundtable for Sustainable Palm Oil (RSPO) is the only fully operational voluntary scheme already certifying a potential biofuel feedstock as 'sustainable'.

The methodological steps undertaken during the analysis were as follows:

- Initial research to refine and justify the case study selection
- Development of a questionnaire to provide information for the case studies
- Compilation of lists of relevant stakeholders
- Desk based analysis of the available literature
- Interviews – 3 per case study
- Analysis of interviews and written questionnaire responses
- Synthesis
- Discussion with stakeholders – Defra event March 22nd
- Development of conclusions

3.2 Task 2 - Adopting or incorporating the approach into voluntary certification schemes

Within this task national and international voluntary schemes were evaluated, both those in operation and under development. In order to focus the assessment the schemes reviewed were those in operation in the case study areas ie applicable to soy (Roundtable for Responsible Soy), palm oil (Roundtable for Sustainable Palm Oil) and UK rape production (Assured Combinable Crops Scheme and Genesis Quality Assurance). In relation to the latter, at the time of review only the Assured Combinable Crops Scheme and Genesis Quality Assurance were approved under the UK's RTFO as in compliance with the specified sustainability requirements. As a consequence only these were selected for assessment despite the knowledge that other schemes might be evolved into the future to provide certification for UK produced materials, for example LEAF.

Voluntary schemes will have a key role when implementing the RED's sustainability requirements. It is, therefore, important to identify the extent and effectiveness of their coverage in relation to grasslands and how the IEEP assessment approach might be applied to them. Following an initial desk based comparison of the requirements under different voluntary schemes relevant to the three case studies (see task 1), stakeholders were provided with a questionnaire as a basis for interview or written response. Conclusions were developed based on the outcomes of both processes.

The methodological steps undertaken were as follows:

- Desk based comparison of the potential voluntary schemes available
- Interviews (4) with key representatives from the voluntary schemes and biofuel industry
- Discussion with stakeholders – Defra event March 22nd
- Conclusions regarding the applicability of the proposed approach set out by IEEP to the various voluntary approaches under development

3.3 Task 3 - Transferability of the grassland approach to other land uses specified in the RED

This analysis focused on desk based research looking at the requirements set out in IEEP's approach, the key alternative land uses of relevance as set out in the RED and how these might be conceptualised based on the Directive's wording. The team then evaluated whether the core elements of the IEEP approach could be applied to the other land-uses specified in the RED and what additional elements or amendments might be needed.

The methodological steps undertaken were as follows:

- Establishing other land types of relevance
- Reviewing the assessment steps within the IEEP approach
- Identifying gaps and challenges for use
- Limited stakeholder consultation during discussions on 22nd March and a dedicated question within the broader questionnaire for tasks 1 and 2
- Drawing of conclusions regarding wider applicability

CHAPTER 2 – PRESENTING THE CASE STUDY ASSESSMENT AND CONCLUSIONS FROM STAKEHOLDER INTERVIEWS – CONCLUSIONS REGARDING THE IMPLEMENTATION NEED AND ROLE OF THE IEEP APPROACH

1 REVIEW OF THE IMPLICATIONS OF THE RED AND THE IEEP APPROACH FOR BIOFUEL SOURCING: A CASE STUDY APPROACH

Within the study three detailed case studies have been completed, concerned with soy production in Argentina, rapeseed oil production in the UK and palm oil in Indonesia. These are presented in full within Annexes II, III and IV respectively. Each case study provides an overview of the situation in the relevant country or region, the potential implications of feedstock production for grasslands of high biodiversity value and the infrastructure arrangements in place that could be utilised in order to deliver compliance with EU requirements as set out in the RED. The case studies were intended to perform two purposes:

1. to provide an understanding of the situation related to biofuel production under the three different sets of conditions and the importance of grassland considerations; and
2. based on this short analysis, to help establish the relevance of the IEEP approach and whether it could be applied usefully in the different contexts in the case studies.

1.1 Case Study Conclusions

The key production characteristics and outcomes from the three cases are summarised and compared within Table 2 (see next page). As might be expected all case studies show a propensity towards growth in the production of the relevant crops. This is both to meet biofuel demand and the expanding global market for vegetable based oils and other by-products. ***In the Argentine example there is significant potential for expanded production of soy to encroach onto areas that are currently considered grassland and potentially of biodiversity value, including existing pastureland.*** In the case of palm oil, for Indonesia specifically there appears to be limited information about non-forest habitats potentially affected by production expansion, but a perception that these are of lesser value than forest habitats. However, ***in other regions where palm oil production is anticipated to expand grasslands are likely to be of greater biodiversity importance and better provision should be made under the RSPO (and other schemes that deal with the sustainability of palm oil) to address the question of non-forest habitats*** at risk, including grasslands.

In all three cases potential schemes that could be utilised to support certification and the delivery of the RED are in place or under development. These are, however, at varying stages of development. The UK schemes ACCS and Genesis QA are well established mechanisms for ensuring the quality and traceability of agricultural commodities; the RSPO (for palm oil) is fully functioning albeit a relatively recent development; while the RTRS (for soy) was at the time of drafting still at the testing stage.

All the schemes considered certify commodities rather than specifically feedstocks for biofuels, meaning they have broader applicability across the relevant agricultural sectors. ***While all the schemes could potentially be adapted to deliver the IEEP approach and in turn the RED, arguably none yet do so.*** At present none directly address the protection of highly biodiverse grasslands; instead approaches are adopted based on the avoidance of high conservation value (HCV) areas - in the case of the RSPO and the RTRS - and the protection of valued uncultivated or semi-natural habitats - in the case of ACCS and Genesis QA. The applicability of the RSPO and RTRS to grasslands is, at present, very dependent on the comprehensive nature of HCV and associated environmental impact assessments conducted prior to the cultivation of land or expansion in cultivation. Meanwhile, the protection offered under ACCS and Genesis QA is dependent upon the effective implementation of statutory requirements applicable in the UK, specifically the completion of EIAs where an expansion of agricultural cultivation into uncultivated and semi-natural areas is proposed. ***It should be noted that none of the schemes were explicitly developed to meet the RED requirements, but a wider set of goals. It is vital that they are now adapted to be fit for purpose in delivering the EU legal requirements.***

The key conclusion emerging from all three case studies is that there is a ***clear need for a comprehensive assessment approach for grasslands***. While there is interest in the development of such an approach, in the past grasslands in the context of biofuel expansion have been viewed as a relatively low priority. This is despite the fact that expansion is anticipated in areas with important grassland biomes. ***There is limited understanding in the community as to how best to classify, assess and protect them effectively. This underlies the importance of a systematic, clear and dedicated process for grassland assessment, as presented within the IEEP approach***.

Table 2 – Comparison of the key features of the case studies and the implications for the IEEP approach. Please see Annexes II to IV for further detailed information and references.

Case Study	Soya oil from Argentina	Rapeseed oil from the UK	Palm oil from Indonesia
Introduction to production characteristics			
Other key areas of production	US, Brazil, China, India (US, Brazil and Argentina are the main exporters)	Other European countries with Germany being the largest producer	Primary producers are Malaysia, Indonesia, Nigeria, Thailand and Colombia; with Malaysia and Indonesia the major exporters.
Scale of production	45.5 million tonnes of soy was produced in Argentina in 2007 with only 5% consumed domestically with exports consisting of beans, flour, oil and cattle feed. In 2008 Argentina produced 10% of the world's biodiesel, placing it third behind the US and Germany.	Between April 2008 and 2009, Rapeseed oil was the principal arable based biodiesel feedstock produced and consumed in the UK. In 2008/2009 8% of biofuels consumed in the UK were sourced from feedstocks grown in the UK. Rapeseed oil based biodiesel made up 25% of total biofuel usage in the UK (based on figures reported under the RTFO). This represented a total of 324.2 million litres, of which 26.3 million litres were sourced from UK rapeseed oil production.	Palm oil is the vegetable oil most produced and traded internationally. According to the FAO, palm oil production increased by over 400% between 1994 and 2004, when total production reached over 8.66 million tonnes. In 2007, Indonesia became the top producer of palm oil, surpassing Malaysia.
Landuse implications	Arable land in Argentina has increased from 21 million hectares (Mha) in the 1970s to 32 Mha in 2007. Currently around one half (16.6 Mha) is used for soy bean cultivation. The introduction of GM soy has enabled production to expand into areas previously considered 'marginal' for arable crop production and non-arable areas (likely to be pastureland ie grasses). According to figures from the UK RTFO, as a consequence of high usage of soya based biodiesel 60% of land use pressure arising from UK biofuel consumption occurs in the USA, Argentina and Brazil.	In 2008 the 4740 thousand hectares devoted to arable crops in the UK resulted in a total production based income of £7 679.1 million. Of this total £617.8 million was attributed to the production of oilseed rape. The production of rape is therefore a significant but not a dominant arable activity. Of the rapeseed derived fuels produced and consumed in the UK, in 2008/2009 14.5 million litres were reported as produced on existing cropland. Meanwhile, the previous land use, prior to rape cultivation, was unknown for 11.8 million litres – this is likely to be arable or previous set aside land. This, however, demonstrates that even in a highly regulated country such as the UK previous land use for biofuel feedstocks can remain elusive.	In 1985 there were about 597,362 ha of palm plantations; in Indonesia by 2005 this had risen by more than 800% to over 5 million ha. During this time there has been a significant shift in primary ownership from government owned plantations to private sector ownership. Over the same period output has risen by over 10 times from 1,243,430 tonnes to 12,620,000 tonnes.
Associated	Oil seed cake is Argentina's leading export, with soy-based animal feed another major export earner	Rape seed oil for edible purposes. Note that oilseed rape is normally grown as part of a	Palm oil is used in a range of products that previously contained animal or other vegetable oils

markets		rotation commonly of 1 in 3 years. Important break crops are cereals but also include potatoes, sugar beet, grass leys, peas and beans.	including as cooking oil; the main ingredient for most margarine; a base for most liquid detergents, soaps and shampoos; a base for lipstick, waxes and polishes; and to reduce friction in some manufacturing processes
Supply chain	Vegetable oil refineries dominate biodiesel processing; these are owned by three major local operators and three multinationals. Due to EU restrictions on using GM crops for human consumption, no raw material is shipped to the EU for processing. In addition, current export taxes favour the export of biodiesel over other soy products - soy oil is subject to export taxes of 32%, while for biodiesel it is 14.16%.	The vast majority of UK domestic biofuel feedstock production already has been certified in terms of its supply chain and meets the environmental standards set by the RTFO. This is because the RTFO accepts for this purpose the principal and widely adopted agricultural crop certification schemes, which have an environmental component ie . According to RTFO figures, 94-98% of rape seed oil is produced in line with such environmental requirements – see below.	Palm oil is mainly grown in large plantations, established as monocultures in concessions ranging in size from 400 hectares to 75000 ha. During the establishment of a plantation, most standing vegetation is removed by cutting, mechanical clearing or burning. After clearing, the land is planted in a grid pattern of 8 by 8 metres with around 140 trees per hectare. Palm oil can first be harvested after about three years. Fertiliser use is significant, accounting for 40 to 60 percent of management costs. Palm seeds spoil within 48 hours of harvest, which means that processing mills must be located nearby. Often the plantation and processing mills are owned and operated by the same company.
Anticipated future production trends	Soy production is anticipated to expand as a consequence of increased demand for cattle feed, human consumption and biodiesel. Argentina, and other soy producing nations are seen as key sources of biodiesel for the EU market.	Oilseed rape production in the UK rose steadily between 2000 and 2008 as an economically attractive crop for producers. CAP rules for set-aside enabling production of energy crops on such land contributed to some of this expansion. If prices remain high production would be anticipated to continue to expand.	Per capita consumption of vegetable oils including palm oil has increased rapidly in the past thirty years, due to a preference for vegetable oils over animal fats and economic growth in China and India. Demand is anticipated to continue to grow.
Examining the habitats at risk			
Key habitats	Temperate subhumid grasslands affected by arable expansion included the Pampas. These grasslands are widely used for cattle and sheep grazing. In addition to concern regarding temperate grasslands Chaco, sub-tropical seasonally-dry forest, is also believed to be under threat from soya expansion.	Rape is grown principally on established arable land. However, semi-natural grassland could be affected too. Grassland habitats listed in the EIA guidance as of value include calcareous grassland, acid grassland, neutral grassland, species rich upland or lowland hay meadows	The primary concern in SE Asia from a biodiversity perspective is the loss of tropical rainforest associated with expanded palm oil production. Forest clearance is attractive given the cash flow from logging and ease with which land rights can be established.
Grasslands, their relevance and anticipated	Since the 1970s farmers have consistently been switching from cattle rearing to soy cultivation and most soy is grown on former pastureland ie	Grassland, of some form or another, is the largest land use within UK agriculture accounting for 11,536 thousand hectares, based on figures from	The main form of grassland discussed in the context of Indonesia is Imperata (locally known as alang-alang), considered as a mono-culture in most cases

importance	grassland. A key question is the quality of the remaining natural and semi natural (classed as non-natural under Directive 2008/98/EC) grassland habitats that remain. Much will be pastureland but as such it still has the potential to hold significant diversity of species with such grasslands representing potentially important habitats. A study commissioned by Greenergy examined land use change in the eastern part of La Pampa province in Argentina as a result of the expansion of soy cultivation. The study showed a marked increase, over 162,000 ha, in the area of soybeans over the period 2002/03 to 2008/09. Soy expanded into both grassland and into existing cropland.	2008. This is made up from grasses under 5 years (1141 thousand hectares), grasses over 5 years (6036 thousand hectares) and sole right rough grazing (4359 thousand hectares). Most of the permanent grassland (ie grassland over 5 years old) is in the uplands but some patches remain in the lowlands where rape is grown. Many of the UK's most diverse and important habitats are made up of some form of grassland.	and of limited biodiversity value. It is made up of one of the most persistent elements in the vegetation complex the invasive grass *Imperata cylindrical.* It is found in areas where the soil has been disturbed, such as timber harvesting areas. Once established it often forms dense monocultures. It prevents natural regeneration of forest and once established, generally results in the abandonment of land or at best use only as dry season grazing. Imperata grassland is seen of limited biodiversity importance, assuming forest regeneration is no longer possible.
Information and implementing infrastructure			
Relevant voluntary schemes	Roundtable on Responsible Soy Association (RTRS) – at the time of review the RTRS were at the pilot testing stage but detailed of criteria were fully approved in June 2010 with trading under the RTRS anticipated from January 2011. Requires a social and environmental assessment to be completed prior to establishing new/expanded soy cultivation and that soy cultivation may not take place on land cleared of native habitat after May 2009. The scheme has been set up largely as a consequence of concerns regarding the sustainability of biofuel production.	Genesis Quality Assurance and the Assured Combinable Crops Scheme (ACCS) are both schemes deemed to comply with the environmental requirements under the RTFO and are both used to certify rape seed production. These schemes primarily grew up as a consequence of concerns regarding food safety and traceability and have been adapted for use for biofuel feedstocks. The schemes require applicants to confirm that they are in compliance with statutory requirements related to environmental management and protection and that producers who plan to use uncultivated or semi-natural areas for arable production ensure that they are in compliance with Environmental Assessment (EIA) Regulations.	The Roundtable on Sustainable Palm Oil (RSPO) is the only fully operational international scheme for certifying potential biofuel feedstocks. RSPO's goal is to promote sustainable agriculture and address environmental issues. The scheme grew out of concerns regarding the impact of expanding palm oil production on biodiversity and a desire for validated production chains for vegetable oils that can be used for biodiesel and other uses. Of relevance to the IEEP approach it requires an independent social and environmental impact assessment for the establishment of new plantings/operations or expansion of existing ones; and that new planting should not replace primary forest or any other HCV area.
Information sources and evidence	The RTRS relies upon an EIA assessment which in terms of land use relies on the identification and assessment of High Conservation Value (HCV) habitats and protected areas.	ACCS and Genesis QA primarily rely on the provision of proof that statutory environmental requirements have been met and an obligation to declare if they are non-compliant. Their primary benefit is that they offer a more regular mechanism for checking this compliance.	Key proofs are the EIA process and reliance on the avoidance of areas considered of HCV. There are a number of HCV assessments and mapping exercises based on HCV areas that have been developed for Indonesia based on the drive to protect forest systems. The RSPO does not provide guidance on

			assessing grasslands as such rather the guidelines seem to suggest that non-forested land can be freely used.
Other supporting infrastructure and policy	Agriculture and natural resource policy is the responsibility of the provinces. As a result, the expansion of soy cultivation has taken place without overall national planning and oversight. The absence of agricultural support payments with associated rules and central oversight has left the development of agriculture in the hands of the market, and for soy in particular the export market.	In legal terms, there is reliance on the requirement for EIA assessments on uncultivated and semi natural areas and the wider implementation of statutory requirements related to the protection of the environment during agricultural production. There is high take up among farmers of the voluntary certification schemes as a consequence of broader pressure to certify the quality of their product and access key markets.	For Indonesia there is significant information available in terms of the mapping of biodiversity hotspots and high conservation value forest. There is, however, no specific information on natural or non-natural grassland available for Indonesia.
Conclusions			
Key issues	The RTRS is yet fully operation therefore there is currently no mechanism operational for delivering soy based biodiesel in line with the RED requirements. RTRS certified soy will be available on the market from early 2011. The validity of the RTRS system for the protection of grasslands is dependent upon EIA evaluations based on areas identified under HCV principles.	The UK has an operational and widely adopted system of crop certification in place. However, the success of this in protecting highly biodiverse grasslands depends on the effectiveness of statutory requirements. Moreover, those certified are not required to provide a statement regarding the land use prior to cultivation in all cases, it is therefore difficult to assess whether for example the EIA requirements protect semi natural and uncultivated grasslands in practice as well as in principle.	The RSPO is the only fully operational international scheme for the certification of biofuel feedstocks. For Indonesia concerns regarding protection of grasslands have been limited given the nature of the natural habitats present and a focus on forestry protection, but in other potential regions of growth of palm oil this is not the case. The RSPO relies on EIA assessments and HCV principles to assess whether palm oil developments can go ahead. However based on the schemes guidance there is a perception that non-forested areas are considered acceptable for production as the focus is the protection of natural forest.
Possibility of applying IEEP approach principles	No obvious barriers to the adoption of the IEEP approach with representatives from RTRS stating their desire to include new requirements to protect grasslands within the scheme and interest in the IEEP approach. They await guidance from the Commission on this issue. The case study suggests that at present there is no comprehensive approach for dealing with or protecting grasslands, which is a concern given the apparent expansion of soy production in key temperate grassland habitats.	No direct barriers in the current system to applying the IEEP approach. However, compliance with the IEEP approach and its interpretation of the RED requirements would likely require some amendments to requirements so as to generate appropriate proofs. It is unclear how open the schemes and participants would be to any extension of requirements. However, it is noted that the schemes are now in discussion with members on this issue, with ACCS having devised a questionnaire for members.	No obvious barriers to the adoption of the IEEP approach, however at present there is no clear approach to the consideration of grasslands. There is a question of the comprehensive nature of the RSPO's coverage of non-forested areas which could prove problematic in terms of demonstrating RED requirements and protecting valuable habitats as palm oil production expands to other regions and habitats. Imperata monocultures could potentially be screened out and deemed appropriate for use at the first level of assessment in the IEEP approach.

2 ANALYSIS AND CONCLUSIONS FROM THE STAKEHOLDER CONSULTATION

To complement the case study assessments stakeholders were consulted to ensure that broader challenges, problems and potential inaccuracies could be assessed – earlier in the report table 1 presented the full list of experts consulted and the categorisation applied. In addition a specific stakeholder workshop was held in association with Defra to discuss issues emerging from the case study assessments in March 2010, this built on earlier workshops and discussions in January of 2010.

The following section is presented according to the key issues and themes identified during discussions with stakeholders. These relate to the potential role of the IEEP approach and more generally set out important considerations when applying the grassland requirements under the RED.

- ***The Usefulness of the IEEP Approach*** - Overall those consulted felt that, given the relative simplicity of the IEEP approach, they were unable to identify any major implementation concerns. The approach itself was seen as quite suitable for its intent and purpose. It should, however, be noted that representatives from the agricultural industry highlighted the need for administrative burden to be minimised and mechanisms put in place to recognise the added value of approved materials. This applies more broadly to the application of sustainability criteria and is important in order to gain producer confidence.

- ***Clarity Over the Official Definitions of Grasslands*** – Stakeholders from across all the groups consulted expressed concern regarding the ability to implement any approach to delivering grassland protection in the absence of clarity over the definition of grassland. They emphasised the importance of the European Commission's role in providing this clarity. Representatives from industry commented that the approach, although logical, would need to be amended in light of any definitions adopted by the Commission. The Voluntary Schemes consulted generally considered the approach proposed by IEEP could be a useful way forward. However, they were uncertain as to who would be responsible for adopting the approach's requirements ie should they as the overseeing schemes adopt the approach and its requirements? Would this be specified in guidance by the Commission? Is this an approach that should be adopted by those verifying and certifying the supply chain. Several voluntary schemes commented that they were awaiting formal confirmation by the Commission of the grassland definitions and proposed approach before taking forward any further analysis in this field.

- ***Perceptions of Grassland -*** Several technical and grassland experts raised the concern that grasslands have not been subject to the same level of investigation as for example forest biomes and are currently not receiving sufficient attention under assessment techniques, for example, the High Conservation Value (HCV) concept (although efforts are underway to improve coverage). Another pressing issue is the perception among certain important stakeholders, including some ministries (identified in the Argentinean case study) and voluntary schemes, that grasslands grazed by livestock (including extensive pastureland) do not include habitats of high biodiversity value. This is incorrect and raises a concern over the

potential application of the grassland clause. The fact that grassland is grazed by livestock, or otherwise used by humans, cannot be used as a basis for assuming biodiversity value.

The IEEP approach proposes an approach to assessing the value of grassland that is not based on whether the land is currently in use, but on the site conditions and the nature of land management. There appears, however, to be a need for wider communication on this issue, to ensure that all actors better understand grasslands and the factors that determine their biodiversity value.

- ***The Complexity of Grasslands*** - It was commented by several technical and grassland experts that issues relating to grasslands are much more nuanced than, for example, forests. Grasslands are often grazed even in a natural system and are valuable in biodiversity terms under a wide array of conditions. The inherent complexity of assessing grasslands was also noted by several respondents to the Commission's consultation on grasslands, which took place in December 2009.

Again the IEEP approach attempts to take account of this complexity by a mechanism for considering the on-site assemblages of species and evidence of recent cultivation as part of the assessment.

- ***Auditing Grassland Requirements*** – Those auditors consulted considered that, when implementing the RED sustainability requirements, it is important to recognise that assessments are aiming to prove a negative ie that biofuels have not been produced at the expense of biodiverse grasslands. The burden of proof is therefore to demonstrate that land is not and has not been, since the January 2008 base year, highly biodiverse grasslands. When making assessments of site condition, whether to determine if a site is highly biodiverse or if it is considered natural or non-natural, the auditors would adopt a conservative approach. This is in keeping with the proposed burden of proof under the IEEP system and the core principles of the approach, including adopting a precautionary approach as its basis.

In cases where there is doubt ie a possibility that biofuels could have come from biodiverse grasslands, the auditor's intend to assess this using a range of sources including title deeds, maps, satellite imagery, land use reports from relevant authorities, reports from conservation authorities and results from EIAs conducted prior to site development. It was commented that if no credible third party information on land use can be provided, auditors will be conservative and assume 'worst case' unless it is proved otherwise.

One note of caution is that auditors at present appear to be relying largely on data and resources that cannot distinguish the quality of a grassland. The latter is not possible to assess solely by reference to maps and satellite imagery. Based on analysis by IEEP and others (eg the Oeko Institute), while resources might be available to determine the possible range of natural grasslands and satellite imagery may be used to assess whether land appears to be grassland, these methods cannot define the condition of existing grassland. Defining the quality of a

grassland's condition is necessary to determine whether it qualifies for protection under the RED.

The IEEP approach proposes that records of cultivation etc could be used to determine whether a grassland is considered to be of value. This sits alongside a series of evidence based steps either requiring provision of proofs by a farmer or an expert assessment. The three-level approach to assessment allows information such as maps to be utilised in conjunction with other information regarding current on farm conditions and records/evidence of historic management. Only with this combination of information, historic and current, generic and site specific, will it be possible to determine whether grassland is suitable to be converted for the production of biofuel feedstocks.

- *Costs* – The costs associated with the whole approach to the certification of biofuels was raised as a concern by several stakeholders, especially industry representatives and feedstock producers. Despite this, however, most also commented that it is difficult accurately to assess the cost of certification in general, or the additional cost associated with the IEEP approach in particular. Based on responses from auditors and voluntary schemes there is, however, reason to believe that any additional cost of the IEEP approach would be mostly marginal given that many of the processes and steps will need to be undertaken for the assessment of other land-use conditions in line with the RED. The IEEP approach simply adapts these steps into an approach more suited to the assessment of grasslands. Actual costs resulting from implementing the approach will also vary considerably from case to case depending upon which level of analysis is needed to determine whether land is suitable for development or not.

According to feedstock producers and processers the grasslands criteria are not seen as a major challenge, when considered in the context of the other land use based criteria set out in the RED. Several stakeholders interviewed were supportive of the IEEP approach, as it contains systematic steps that mean a full expert assessment of environmental impact will not always be required.

The main issue of concern raised by stakeholders (including industry representatives, auditors and feedstock producers) was not the question of costs, but rather at which stage of the certification process the approach should be introduced. Suggestions included the inclusion of the approach in guidance from the Commission, within guidance on the application of HCV, as guidance from the voluntary schemes to producers or as part of the auditor's assessment processes. This issue should be clarified with the ideal being coordinated guidance from the Commission.

Box 2 – Examining existing costs associated with certification under the Roundtable for Sustainable Palm Oil.

As the RSPO is the only international scheme currently in full operation, it is only through this that the premium placed on certified feedstocks and costs of certified production can be assessed. According to one feedstock processor the premium

paid for RSPO certified palm oil was initially US$50 per tonne. This premium has since dropped to US$25 to 30 per tonne. As one hectare produces approximately 4.5 tonnes, the premium per ha is around US$ 130 per hectare. Achmad Mangga Barani, the Indonesian Ministry of Agriculture's director general of plantations, has suggested that the cost of certifying is around $159 a hectare[13]. The Malaysian Palm Oil Council places the cost of RSPO certification at $50 per tonne of crude palm oil (equating to around $220 per hectare), which currently wholesales at around $600 per ton[14]. An RSPO membership costs €2000 Euros a year or around $2700 plus between US$1 and US$3 per hectare to obtain the RSPO certification[15].

Despite the associated costs the Indonesian Palm Oil Commission, has commented that on-site assessment is the only feasible way to distinguish between areas that are or are not acceptable for production in Indonesia[16]. This view is shared by the Indonesian Palm Oil Board, which suggests that site assessment is the only preferred means of distinguishing between areas in an objective way[17]. The Malaysian government concurs with this view, arguing in its consultation response that even though it requires extra resources and places a burden on the producers, it does provide certainty as well as a higher degree of confidence[18].

According to one feedstock processor exact costs of complying with the RED cannot be specified as details remains unclear. They consider that the following payment regime would apply ie the farmer/plantation owner would generally pay on-site assessment costs to the auditor, based on a volume charge.

- ***Determining if a Crop is a Biofuel Feedstock*** – Several feedstock producers and processers noted that the producer of a given crop will not necessarily be able to identify the use to which it would ultimately be put. For example, they may be

13 http://thejakartaglobe.com/business/indonesias-small-scale-palm-oil-farmers-finding-green-certification-costly/342212

14 Reuters, cited on http://news.mongabay.com/2009/0708-palm_oil.html

15 Ministry of Tourism, Culture and Environment, Sabah: http://kepkas.sabah.gov.my/index.php?option=com_content&view=article&id=18022:malaysia-needs-to-play-its-roles-in-rspo&catid=42:year-2009&Itemid=132

16 IPOC Comments, Public consultation for Biodiverse grassland, biofuels and bioliquids: http://ec.europa.eu/energy/renewables/consultations/2010_02_08_biodiverse_grassland_en.htm

17 The Indonesian Palm Oil Board comments in the public consultation for Biodiverse grassland, biofuels and bioliquids: http://ec.europa.eu/energy/renewables/consultations/2010_02_08_biodiverse_grassland_en.htm

18 Malaysian government comments in the public consultation for Biodiverse grassland, biofuels and bioliquids: http://ec.europa.eu/energy/renewables/consultations/2010_02_08_biodiverse_grassland_en.htm

producing soy for a given mill or processer, but they will not determine the end use. For soy and palm oil in particular there are multiple potential uses of the material. A number of feedstock producers and processors, therefore, considered that systems and schemes used to implement the RED need to be able to capture the broader production chain for a commodity without applying undue burden upon the farmers in that sector.

- ***Small-scale producers*** – While voluntary schemes costs are often tiered to ensure burden reflects the scale of production, costs are still considered high for smaller producers. Moreover, one feedstock processor commented that small producers might be less likely to certify their production or identify the EU as a potential market place given the anticipated additional burden of compliance.

3 PRIORITIES FOR FURTHER WORK

From the case study analysis and discussions with stakeholders several key issues in need of further investigation and consideration have emerged. ***When considering the implementation of the RED's requirements on grasslands the following must be taken into account within any further approach adopted by the Commission.*** If this is not possible such actions should be taken forward at the Member States level, although different national governments would need to cooperate in order to deliver clarity.

1. The reliance of international certification schemes upon environmental impact assessment based on the identification of ***High Conservation Value*** areas and concerns that the latter does not adequately consider grasslands;
2. That generally there is ***limited understanding*** of the value of grasslands, particularly that pasturelands may be simultaneously in use and of biodiversity value;
3. That ***commodity based voluntary schemes*** (ie that certify a given crop, or series of crops) appear to be the present norm and are favoured by producers who often are unaware of the ultimate market for their product;
4. That there is a need to better ***integrate grassland requirements across all the voluntary schemes*** examined, but before this can be completed the Commission needs to provide both guidance as to the definitions of grassland and a clear steer as to who is responsible for determining the best practice approach to assessment.

The conclusions reached within this Chapter, and needs for further work, are integrated into subsequent chapters and resulting recommendations. Specifically the role of voluntary schemes is examined in detail within Chapter 4 of this report, where points 1 and 4 are investigated further.

CHAPTER 3 – EXAMINING THE EFFICACY AND PRACTICABILITY OF THE IEEP APPROACH TO GRASSLAND HABITATS

Chapter 2 established that there is a need for a clear and reliable assessment approach to enable the effective implementation of the RED grassland requirements. This section builds on the conclusions and analysis set out in chapter 2. It is intended to provide a consolidated picture on the efficacy and practicability of the IEEP approach and its ability to address the needs and concerns raised by stakeholders and within the case studies. It also builds on work completed during the development of IEEP's original working papers 1 and 2 (see chapter 1, section 2.4 for details) within which the IEEP approach was developed.

1 EVALUATING THE EFFICACY AND PRACTICABILITY OF THE IEEP MODEL AGAINST KEY PRINCIPLES AND PARAMETERS

Chapter 2 draws out conclusions and issues of concern to experts and actors working to deliver sustainable biofuels, in line with the RED requirements. As a consequence there are a series of needs, principles, questions and issues that should be covered or considered within an approach to assessing highly biodiverse grassland requirements. Table 3 consolidates these issues examining: how the IEEP approach might address them; the likely effectiveness of the IEEP approach, based on stakeholder opinion and evidence from the case studies, in addressing these issues; and challenges that remain after consideration of the IEEP approach.

Table 3 – Reviewing ability of the IEEP model to address needs and concerns identified within the case studies and by stakeholders.

Issue – concern or need identified	Description of Issue	IEEP Approach the Issue	Comments and Evaluation of the effectiveness of the IEEP Approach	Outstanding challenges
Lack of established approach to the evaluation and definitions of grasslands	The RED sets out criteria for grasslands but lacks definitions on key issues meaning that it is difficult for experts to interpret what is technically required	The IEEP Working Paper 1 discusses the basis upon which the RED criteria and requirements should be defined as a basis for determining an approach to implementation.	Stakeholders and experts were supportive of the approaches and definitions developed by IEEP and several have endorsed their use in consultation responses to the Commission. It should however be noted that production based industry representatives raised concerns about any approach that might apply additional administrative burdens to farmers without	Definitions and their interpretation are yet to be specified by the Commission, they are anticipated as part of the commitology process and it is vital for the delivery of RED that these are clear and allow a broad conception of grasslands, natural and non-natural systems

			sufficient reward in the market place.	
Lack of coverage and consistency in voluntary scheme approach to grasslands	Prior to the RED voluntary schemes largely focused on questions of forests and broader biodiversity goals, few were aware of the issues associated with grasslands and their potential loss due to conversion.	The IEEP approach sets out a consistent mechanism by which voluntary schemes can assess grassland habitats. The three tier approach and broad conception means that this can be applied to different commodities, regions and scales of development allowing adoption by all schemes.	Voluntary schemes expressed support for the approach proposed by IEEP and a potential desire to adopt an approach similar to this within their schemes. Certainly there was a desire to improve grassland coverage.	Voluntary schemes are unable to determine a way forward in terms of delivering grassland protection ahead of clear messages from the Commission regarding their interpretation of the issues. Several schemes stated that they would be happy for an approach akin to IEEP's to be adopted as a basis for EU guidance to ensure a consistent and appropriate standard.
Inability of certain tools to address the needs of grasslands	The current conception of the HCV concept is based on a heritage of forestry assessment and the delivery of protection of only natural habitats therefore it does not offer a broad basis for implementing the RED and is in some cases misused as a basis for determining the necessary scope of biodiversity assessments.	While HCV might represent one information source at the first level of the IEEP assessment approach, this is not the basis used for determining whether a grassland is deemed of value or not.	Grassland experts consistently raised concern regarding potential over-reliance on the HCV concept. They felt that the IEEP approach provided a more robust and correct basis for grassland biodiversity assessment	There is a need for the Commission and/or Member States to make clear that simply adopting HCV areas is not consistent with the protection of habitats in line with the RED requirements and prescribe a broader approach to assessment.
Lack of experience with grassland issues on the part of some stakeholders	The case studies and stakeholder discussions illustrated a lack of understanding of grassland biodiversity and particularly potential biodiversity levels associated with non-natural grasslands such as pastureland.	The IEEP approach is based on the principle, as set out in the RED, that there is no hierarchy between the protection of natural and non-natural grasslands. Moreover it sets out clearly situations under which non-natural grasslands might be considered of particular value.	Environmental groups are particularly concerned about the potential lack of protection of valuable semi-natural grassland habitats under the RED – which would fall into the non-natural category. They therefore welcomed the balanced interpretation of the need to protect both habitat types	There is a need to communicate messages more widely regarding the importance of not only natural but non-natural grasslands. Within the case studies there was a perception by some actors that if land is in-use as pasture, even if grassland is not specifically cultivated, then it is of low value in biodiversity terms. This is often not the case.
Lack of understanding regarding the grassland protection needs	To date much of the effort of voluntary schemes and environmental groups in relation to biodiversity and biofuels has focused on forestry protection, however, analysis of the sourcing of biofuels demonstrates the potential risks affecting grassland habitats in the Americas in particular.	The IEEP approach allows a rebalancing and recognition of the importance of different grassland types.	Environmental groups welcomed the prioritization of grasslands and the level of detail in terms of the analysis conducted by IEEP in the development of their approach to enable broader biodiversity considerations to be taken into account.	Again it will be important to communicate the importance for biodiversity of biomes beyond forests and the key role of both natural and semi-natural habitats – even when deemed in use for human activities such as pasture.

Need to amend existing voluntary schemes to achieve compliance with the RED grassland requirements	The voluntary schemes reviewed under the case studies do not specifically take into account grassland requirements.	The IEEP approach provides a basis for voluntary schemes to potentially consistently address the question of grasslands. The approach was developed by experts in the field and therefore avoids the need for schemes to individually repeat analysis on how best to approach this question.	Stakeholders consulted welcomed the proposal of a consistent clear approach to dealing with the question of grasslands. Many schemes acknowledged that the do not currently adequately deal with this issue and wish to expand their coverage.	Until Commission guidance on this question is issued voluntary schemes can not take forward action to rectify this situation as they are not aware of the official position that the Commission will adopt.
Complexity of grassland systems	Grassland systems are considered by experts as complex to assess given the importance of land use and management in determining their biodiversity value.	The IEEP approach provides a flexible, clear and consistent basis for addressing the wide variety of grasslands.	The breadth and flexibility of the IEEP approach was welcomed in terms of enabling a consistent approach to the treatment of grasslands.	As for questions of lack of understanding and experience with grasslands, communication is key and within this explaining the complexity of when a grassland system can be deemed of value is critical.
Demonstrating the burden of proof and adopting an approach based on the Precautionary Principle	The burden of proof is key to securing a robust system to protect highly biodiverse areas.	The IEEP approach sets out that the burden of proof lies in terms of the producer demonstrating that an area is not of high biodiversity value and that in cases of uncertainty over status the precautionary principle should apply ie that development should not progress.	The approach adopted to burden of proof and adoption was endorsed by verifiers as in line with the sprit of the Directive and appropriate assessment practices.	The importance of the burden of proof and application of the precautionary principle should be central to any scheme for delivery the grassland criteria.
Need to distinguish the quality of grasslands not simply their existence to deliver RED compliance	Many forms of evidence cited, including maps and remote sensing data are only able to determine whether a certain land use exists and not the quality of the habitat. In order to fulfill the REDs requirements both are need to be clarified.	The IEEP approach, due to the three levels of assessment applied, enables use to be made of maps and other data sources but provides a basis for these to be combined with other site specific proofs to determine habitat quality, such as details of cultivation or, if necessary, site visits.	Stakeholders from environmental and industry groups considered this to be key to protecting land on the one hand and also freeing areas for biofuel use on the other. There were, however, concerns regarding the fact that the producer will potentially face administrative burdens and that the market needs to reflect this cost.	This basis differs from materials currently used by verifiers and therefore would need to be specified as best practice to secure adoption.
Delivering a robust but also efficient and cost effective approach	Balancing these needs are key to the acceptability of any assessment approach.	The IEEP approach, and the three levels of assessment therein, provides a mechanism for ensuring that the proofs required are proportionate to concerns and potential biodiversity value of the site. It enables cultivated grasslands to be	This approach was welcomed by stakeholders who felt that the levels of assessment provided a robust basis but also followed a common sense approach enabling low value	It is important that such a tiered approach is always twined with a burden of proof based on demonstrating that something is not highly biodiverse and the application of the precautionary principle in

		screened out without a site visit, if appropriate proof can be provided.	biodiversity grasslands to be screened out quickly. The simplicity of this approach was welcomed. However, more broadly concerns were expressed about the potential burden on producers of needing to comply with sustainability requirements especially where it is difficult to determine when a product will be used for biofuels requiring wider adoption of requirements across the sector.	situations of uncertainty to avoid poor implementation.
Need for comparability and simultaneously flexibility	Any approach to grassland assessment needs to deal with regional differences and variability in production scale.	The broad approach by IEEP is intended for adaption to different levels and feedstocks. The concepts presented are generic and intended to be adaptable to different needs.	Stakeholders from across a variety of production chains considered that the IEEP approach could be adapted and was appropriate to their needs.	An approach to delivering this should be developed by the Commission.

2 CONCLUSIONS

The case study analysis and stakeholder consultation, coupled with the evaluation in table 3 have not identified any obvious barriers to the application of the approach for assessing grasslands under the RED put forward by IEEP; nor do there appear to be any elements that experts feel are unworkable or inappropriate given the coverage of the Directive. Stakeholders from across all interest groups were supportive of what they saw as a clear approach to assessment. It should, however, that some producer representatives raised concern more broadly regarding potential costs of compliance faced by farmers at large given that it is often not possible to determine in-field whether a crop will be used as a biofuel feedstock or not.

Specifically the three level assessment process adopted within the IEEP approach was welcomed as it allows different intensity of assessment dependent upon the risk determined by on-site characteristics and level of cultivation. In so doing it was felt to offer both an efficient and rigorous approach to reviewing grassland areas based on the most appropriate information sources available at any given location. Moreover it was welcomed that IEEP were thinking about the question of grasslands in such detail and trying to offer a basis for improved clarity in relation to this issue; many noted that they have yet to fully examine or grasp the issues related to the delivery of the RED's criteria on grassland.

Most stakeholders agreed that there is a need for greater clarity in this area and that the IEEP approach aids understanding of the question of the importance of grassland potentially aiding their compliance with the relevant RED requirements. It was also welcomed that the IEEP approach highlights the importance of not only natural but non-natural grasslands. However, while supportive of the IEEP approach (with some voluntary schemes keen to test and integrate the approach) stakeholders also pointed to the importance of the Commission's role. Actors from all groups noted that they cannot progress efforts to address better the grassland question until the Commission sets out its thinking on this issue. As a consequence while the IEEP approach is supported it requires significant political will to ensure the principles and analysis are translated firstly into EU best practice and then into on the ground requirements via the voluntary schemes. To this end there are a number of actions necessary, including the development of key institutional arrangements (see box 3), to facilitate the adoption of the IEEP approach. Member State governments, and other actors in the biofuel field, should support the following actions set out in box 3 to aid the implementation of the IEEP approach. Moreover, the list in box 3 would be important for the delivery of any other rigorous approach to grassland assessment under the RED.

Box 3 – Supporting actions necessary to secure the implementation of the IEEP approach and more generally the RED's grassland requirements.

New institutional arrangements are needed to facilitate the implementation of grassland requirements and Member States should push the Commission to undertake the following actions. These could be adopted in the form of detailed guidance and support tools ancillary to the RED and would greatly aid clarity of understanding both in terms implementing the RED requirements and understanding the impacts of the RED. It is considered essential that the following clarifications and actions are undertaken to deliver a robust assessment and monitoring system for the future.

- Establish an information base bringing together data, maps and other sources of potential proof into a toolkit for decision makers and industry;
- Establish a baseline and better understanding of biofuel imports and production in the EU;
- Ensure that the assessment process is clearly established and maintained;
- Establish a chain of custody system to provide clear rules on the evidence or proofs of compliance;
- Independently verifying that standards are being met;
- Develop a consistent reporting system to enable the review of sourcing practices, the schemes used to deliver compliance with the RED requirements and the quantities of biofuels utilised from different feedstocks, source countries and the fuel types used ie biodiesel vs bioethanol;
- Undertake awareness raising to aid understanding of the concept of grasslands and how best they should be assessed and protected.

CHAPTER 4 - THE ROLE OF VOLUNTARY CERTIFICATION SCHEMES

1 INTRODUCING VOLUNTARY SCHEMES

Voluntary schemes are viewed as an important mechanism for demonstrating compliance with the sustainability requirements under the RED. Importantly, they should enable the delivery of auditable supply chains from the biomass producer (farmer) up to the economic operator placing biofuel on the EU market (normally a fuel company). This is crucial if evidence is to be provided demonstrating a biofuel's compliance with land use based sustainability criteria, including those applicable to grasslands. Once a biofuel is processed it is impossible to identify the location from which it originates or the condition of land prior to production unless this is accompanied by a clear record of chain of custody.

The voluntary schemes currently in operation or under development offer different approaches to approving crops as sustainable. The schemes may aim:

- to certify biofuels specifically, as envisaged under the Roundtable for Sustainable Biofuels (RSB);
- to certify a given commodity that may be used for biofuel production, for example the Roundtable on Responsible Soy (RTRS), the Roundtable for Sustainable Palm Oil (RSPO) or the Better Sugar Cane Initiative (BSI); or
- to certify the whole of arable or agricultural production within a given country, for example the Assured Combinable Crops Scheme (ACCS) or the Genesis Quality Assurance Scheme which both operate in England.

At present the only scheme fully operational at the international level is the RSPO. The other schemes ie RSB, RTRS and BSI are undergoing testing phases. ACCS and Genesis QA have been in operation since the late 1990s.

1.1 The Relationship between Voluntary Schemes and the RED

It should be noted that none of the voluntary schemes, listed above, was explicitly developed to meet the RED sustainability criteria. In addition all contain requirements that apply to areas not covered by the RED. The requirements of each scheme have been developed as part of wider discussions relating to the sustainability of biofuel and broader agricultural production. The international schemes are largely based on other, more established, voluntary systems such as the Forestry Stewardship Council (FSC) or those aimed at securing fair trade. The UK specific schemes ie ACCS and Genesis, cover a whole range of agricultural production and have grown out of concerns related to traceability, food safety and sustainability.

Under the UK's RTFO some schemes are already benchmarked as being in compliance with the sustainability and carbon reporting conditions specified under this national scheme (which differ from the RED requirements, although efforts are underway to align the two). Under the RTFO the RFA have developed detailed guidelines and requirements for schemes including a basis for auditing and assessment. A benchmarking approach is also envisaged to be undertaken at EU level to approve voluntary schemes considered in compliance with the RED criteria. It is as yet uncertain whether the EU benchmarking exercise will approve

the same schemes as the RTFO exercise; the Commission has issued guidance on requirements for the voluntary schemes[19] under the RED although at the time of drafting the benchmarking exercise had yet to formally commence – these do not yet set out the approach to grasslands given that clarification is awaited on coverage of these issues

As the European Commission is yet to finalise its definitions for grasslands, it is hard for the voluntary schemes under development to finalise their standards in this are; or for existing schemes to understand if their approaches must be adapted to achieve RED compliance. It is expected that the EU will not recognise all voluntary schemes, nor will all voluntary schemes apply to be recognised. It may also be that schemes will emerge that specialise in the exact EU requirements and nothing more, given that the existing schemes all encompasses wider requirements.

At present there are no consistent guidelines adopted by all the voluntary schemes in terms of how audits should be performed, what proofs are accepted etc; nor are there signs of any under development in the near-term. It should be noted that some (not all) voluntary schemes provide guidance on how to audit against the requirements of that particular scheme. Those schemes accepted in the UK as in compliance with the RTFO's requirements have to work to a set of guidelines specified by the RFA, however, no broad system of guidance or coordination currently exists under the RED.

2 IMPLEMENTING THE IEEP APPROACH

The framework developed in IEEP's working paper 'Operationalising criteria to protect highly biodiverse grasslands under the Renewable Energy Directive' sets out a approach for assessing grasslands under the RED. This consists of three key elements:

- a set of principles and guidelines upon which any assessment process should build;
- a three level approach to assessing the appropriateness of land for biofuel development – the appropriate level to which an assessment progresses will depend on the level of uncertainty over a grassland's status; and
- detailed requirements and proofs that could be used as a basis for reaching these decisions at the three assessment levels.

2.1 Clarifying the Role of Voluntary Schemes and Consistently Applying the RED

From reviewing the IEEP approach and the different roles of stakeholders involved in delivering sustainable biofuel chains, the following actors have critical roles: competent authorities; the certification body of the voluntary scheme; the auditors assessing on site conditions; and verifiers assessing appropriateness of proofs along the supply chain. Figure 1: conceptualises the different steps necessary in order to specify and implement verifiable, sustainable biofuel supply

[19] See http://eur-lex.europa.eu/JOHtml.do?uri=OJ:C:2010:160:SOM:EN:HTML pages 1 and 8 of the Official Journal, C 160, Volume 53, 19 June 2010

chains; sets out the actors potentially involved in delivering each element; and suggests their potential roles in delivering the three different elements of the IEEP approach.

Figure 1 – Presenting a conceptualisation of the key steps in establishing an infrastructure for compliance with biofuel sustainability criteria, the stakeholders involved and relationship to the three key elements of IEEP's approach. The role specified as competent authority could ideally be taken up by the Commission, or alternatively could be run at the Member State level. The latter would be more complex given that this could lead to multiple approaches.

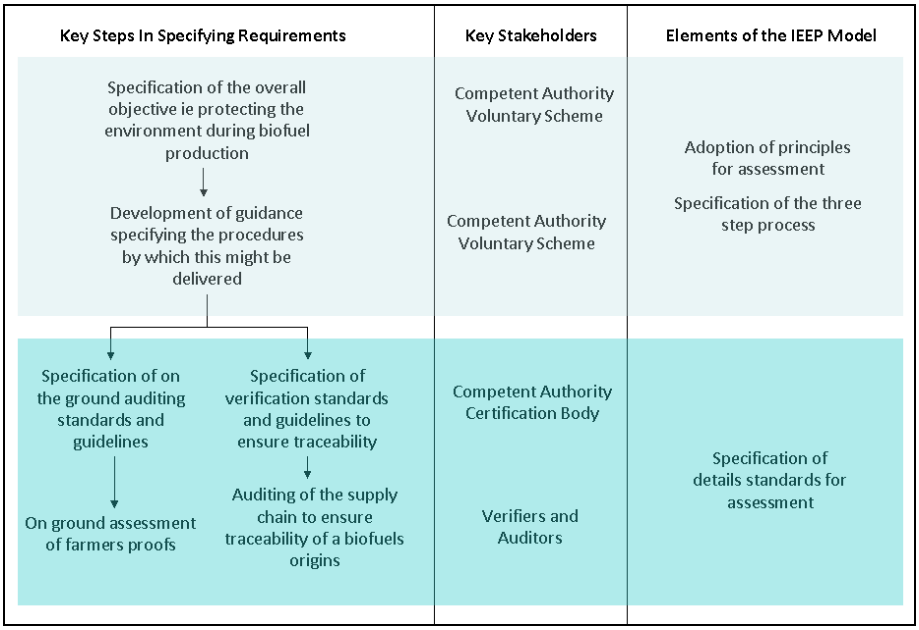


Figure 1 demonstrates several important issues both in relation to the implementation of the RED and the integration of the IEEP approach into voluntary certification systems. Firstly, at present there is a lack of clarity as to who will further specify the approach to implementing the RED. During discussions with stakeholders (see Chapter 2) it emerged that there is uncertainty as to whether the Commission will prepare detailed guidance on verification methodologies and implementing procedures, as it has done for example under the EU Emissions Trading Scheme. If not there is a question as to whether Member States will do so, and if so the implications of 27 Member States completing such a process.

Many of those consulted, from across the different stakeholder groups, commented that further guidance is necessary: at a high level this should determine the assessment approach and tools to be utilised; and at a more detailed level set out expectations of auditors – both those certifying on ground conditions and verifying the appropriateness of a supply chain. Different voluntary schemes apply different rules and approaches to controlling those auditing under the scheme. Of the voluntary schemes reviewed for this work some have a system of approved auditors to whom they specify, at least to some extent, the approach and techniques to be adopted; meanwhile others rely on the discretion and

expertise of accredited auditors. Under the RTFO the RFA acts as a relatively strong competent authority and has issued detailed guidance on the assessment methodologies to be employed by voluntary schemes wishing to be accredited, certifiers assessing on-ground conditions and verifiers assessing the sustainability of a custody chain. It was commented by industry that this is felt to be helpful as it reduces uncertainty and clarifies the conditions and approaches to compliance.

Were the IEEP approach on grassland to be adopted – or a similar approach – the principles, three-level approach and detailed approach to site assessment would be best incorporated into guidance documents ideally emanating from the Commission. Were this not possible, each Member State's competent authority should adopt such guidance. In the latter case some form of coordination process would be needed in order that similar approaches were adopted EU wide, avoiding the burden of companies having to deal with a number of different regulatory systems. If the situation were to remain as the status quo it would be left up to individual voluntary schemes to adopt such a methodology or even for individual certification or auditing bodies to adopt such an approach as a good practice standard.

2.2 Ensuring Effective Coverage of Grasslands

Four voluntary schemes were assessed in detail for the purposes of this study. These were selected based on the case studies specified under Task 1 and are applicable as follows:

- Argentinean soya oil – Roundtable for Responsible Soy (RTRS) (testing phase at the time of analysis)
- Indonesian palm oil – Roundtable for Sustainable Palm Oil (RSPO) (operational)
- UK Rapeseed oil - Assured Combinable Crops Scheme (ACCS) and the Genesis Quality Assurance Scheme. At the time of analysis these schemes were selected as the only voluntary schemes then fully approved in line with the sustainability requirements applied under the RTFO.

Comparative analysis of these schemes, both by IEEP and by Ecofys (on behalf of the RFA)[20], have identified several references within the existing (as of January 2010) requirements under the RTRS, RSPO, ACCS and Genesis relevant to the highly biodiverse grassland criteria specified in the RED. These are set out in detail within Box 4.

[20] Ecofys (2009) Renewable Transport Fuel Obligation Standards against the European Union Renewable Energy Directive http://www.renewablefuelsagency.gov.uk/sites/renewablefuelsagency.gov.uk/files/_documents/RFTO_vs_EU_RED_Benchmark_RFA_version_061109.pdf

Box 4– Existing aspects of RTRS, RSPO, ACCS and Genesis requirements relevant to highly biodiverse grasslands

ACCS Requirements of Relevance **-** Producers who are planning to use land classified as uncultivated or semi natural area at 01.11.2005 for arable production must ensure EIA Regulations have been met – these require that an EIA be conducted to assess the value of the habitat and based on the EIA the decision is made whether to go ahead with development. The standard also contains broader requirements regarding the management of agricultural activities and ongoing environmental impact including ensuring compliance with requirements applicable to sites protected for conservation purposes including SSSIs and Special Protection Areas

Genesis Requirements of Relevance **-** Producers who are planning to use land classified as uncultivated or semi natural area at 01.11.2005 for arable production must ensure EIA Regulations have been met - these require that an EIA be conducted to assess the value of the habitat and based on the EIA the decision is made whether to go ahead with development. The applicant is required to confirm in writing that they are not subject to prosecution by a statutory body with regard to environmental legislation.

RSPO Requirements of Relevance **-** A comprehensive and participatory independent Social and Environmental Impact Assessment is undertaken prior to establishing new plantings or operations, or expanding existing ones. New plantings since November 2005 must have not replaced primary forest or any area identified as containing one or more High Conservation Value.

RTRS Requirements of Relevance (based on those from June 2009 field tests) **-** Expansion for soy cultivation during the field test period may not take place on land cleared of native habitat after May 2009. Producers who want or plan to clear native habitat after the cut-off date of May 2009 must produce scientific evidence from a comprehensive and professional third-party assessment of the area concerned that identifies the absence of: primary forest, other HCV areas etc

Based on the information, and the conclusions reached in chapter 2, it is possible to identify the following conclusions in terms of the schemes coverage of grasslands.

- Grasslands, unlike forests per se, are never explicitly mentioned by any of the schemes.
- Within the UK most highly biodiverse grasslands are considered to be covered by the clauses under ACCS and Genesis related to the need for an EIA should cultivation require expansion into areas of semi natural and uncultivated habitat – it should however be noted that under the Regulations for England this only applies to areas over 2 ha. The effectiveness of grassland coverage, therefore, relies on the inclusion of all grassland areas of interest within the conception of semi natural and uncultivated land and the adequacy of existing EIA requirements including the appropriateness of thresholds and the basis on which an assessment is made.
- Within the international schemes the adequacy of protection afforded to grasslands is based on the adequacy of the High Conservation Value (HCV) concept and the inclusion of all high biodiversity grasslands within the HCV's

remit. It should be noted that there are questions over the adequacy of the HCV assessment process in terms of delivering the coverage of grassland especially those deemed non-natural.

- While ACCS, Genesis and the RSPO could be interpreted to cover both natural and non-natural grasslands, the RTRS's wording of 'native habitats' would suggest a focus on only natural grasslands.

2.2.1 Grasslands and High Conservation Value (HCV) Concept

Introducing HCV as a Concept

The High Conservation Value (HCV) approach to protecting important biodiversity and social values was originally developed by the Forest Stewardship Council (FCS) in the context of forest certification (High Conservation Value Forests or HCVF) in the late 1990s. The approach has since been further developed by a network of biodiversity conservation organisations and other stakeholders and is being applied to other kinds of ecosystems and habitats[21]. The approach focuses on protecting and enhancing six types of HCV that cover the range of conservation priorities shared by a wide range of stakeholder groups (see box 5). This is achieved by identifying HCV areas, which are defined as natural habitats where these values are considered to be of outstanding significance or critical importance. Thus an HCV area is simply the area where these values are found, or, more precisely, the area that needs to be appropriately managed in order to maintain or enhance the identified values. For example, the FSC uses them to define forest areas of outstanding and critical importance – and then (under Principle 9 of the FSC's Principles and Criteria of Forest Stewardship) requires forest managers to identify any HCVs that occur within their individual forest management units, to manage them in order to maintain or enhance the values identified, and to monitor the success of this management.

Box 5 – The Six types of HCV with examples

1. Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia).
- *For example, the presence of several globally threatened bird species within a Kenyan montane forest.*
2. Globally, regionally or nationally significant large landscape-level areas where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.
- *For example, a large tract of Mesoamerican flooded grasslands and gallery forests with healthy populations of Hyacinth Macaw, Jaguar, Maned Wolf, and Giant Otter, as well as most smaller species.*
3. Areas that are in or contain rare, threatened or endangered ecosystems.
- *For example, patches of a regionally rare type of freshwater swamp in an Australian coastal district.*
4. Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control).

[21] http://www.hcvnetwork.org/

- *For example, forest on steep slopes with avalanche risk above a town in the European Alps.*

5. Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).

- *For example, key hunting or foraging areas for communities living at subsistence level in a Cambodian lowland forest mosaic.*

6. Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

- *For example, sacred burial grounds within a forest management area in Canada.*

Source: http://www.hcvnetwork.org/about-hcvf/The%20high-conservation-values-folder

HCV and its application to grasslands

The HCV approach has been adopted as a basis for protecting biodiversity within the international voluntary schemes relating to biofuels reviewed for this study ie the RSPO and the RTRS. The HCV approach does not currently contain specific provisions for or guidance on assessing grasslands, however, natural grasslands may - at least to some extent - be covered by the first four HCV types.

Some grasslands might qualify as HCV areas on the basis of the type 1 HCV values, however, the detailed HCV criteria for forests[22] indicate that such areas have "extraordinary concentrations of species, including threatened or endangered species, endemics, unusual assemblages of ecological or taxonomic groups and extraordinary seasonal concentrations". The exact meaning of the terms threatened and endangered species are not clarified in the criteria, but seem to refer to globally threatened species according to the IUCN Red List criteria. The criteria also indicate that only in exceptional circumstances would an HCV area be identified for a single species. Thus it is important to note that these criteria are clearly focussed on very high levels of conservation importance that are only likely to be rarely met by grasslands. Furthermore, such sites would almost certainly qualify as protected areas, in which case HCV recognition would confer no further protection for grasslands from biofuel production as other RED sustainability criteria already explicitly rule out protected areas.

Some natural grasslands would qualify as HCV areas according the presence of type 2 values, but the requirement for large areas that support viable populations of the natural species would exclude grasslands that have become fragmented and/or lost key animal communities (eg native large herbivores), even though they may be of high biodiversity value for other reasons (eg in terms of their near natural plant communities). Some of these ecologically degraded grasslands might be sufficiently rare and threatened to qualify as HCV areas according to type 3 values. It is, however, evident that adaptation of the existing criteria would not necessarily capture a high proportion of remaining natural grasslands of high biodiversity value.

[22] http://www.hcvnetwork.org/about-hcvf/The%20high-conservation-values-folder/hcv1

Some grasslands might well qualify as HCV areas in terms of their ecosystem service benefits (eg HCV type 4 values relating to the protection of soils or water supplies), but these values are not related to the RED criteria for highly biodiverse grasslands. Consequently, HCV areas that are only identified for these should not necessarily be excluded from biofuel production on biodiversity grounds.

The HCV Network has indicated that it is concerned with grasslands being converted for either biofuels or tree plantations, and have tried to address some of the issues of identification. This is, however, work in progress. To date the HCV network has not attempted to formulate an 'approved' set of criteria or indicators for HCV grasslands. The main aim of extending the HCV concept to cover grasslands has not, to date, been to protect grasslands generically but to identify grassland areas of importance in forest areas and to aid forestry management.

A typology of grassland types has been discussed within the HCV network (see box 6). The network considers that the differentiation of natural or non-natural grassland (as in RED) is not of relevance in determining biodiversity value. The proposed list of grassland types could be compatible with the IEEP approach, however, the categories are very broad and difficult to match up with the RED grassland criteria. In particular, category 4 incorporates a very wide variety of grasslands (e.g. from grazed but unimproved, to improved by fertilisers, herbicides and drainage etc but not re-seeded / ploughed). Some category 4 grasslands could therefore be high biodiversity value, whilst others would not.

Box 6 – The proposed list of grassland types under discussion within the HCV network

The following list of habitats is based on analysis completed in Uruguay.

1. Predominantly exotic grassland
2. Predominantly native grassland but as an artificial monoculture
3. Predominantly native grassland but ploughed in the last decade
4. Predominantly native grassland not ploughed for at least a last decade, but cut, grazed or burned as part of management
5. Almost entirely native grassland, not ploughed for at least a decade, no management interventions, livestock grazing or cutting; natural disturbance patterns in place

Conclusions – HCV and its application to grasslands

The current HCV approach and existing criteria would not capture many grasslands of high biodiversity value other than those that are likely to be within protected areas (which are already protected under RED sustainability criteria). Moreover, the discussions around HCV grasslands are not well developed and fail to provide clarity in the context of the RED.

Under the existing HCV approach very few non-natural grasslands would qualify as HCV areas on biodiversity grounds. Therefore schemes that rely exclusively on

identified HCV areas would not deliver the protection required for grassland habitats under the RED. Under the IEEP model HCV areas should be considered when land is assessed for its suitability for biofuel feedstock production but as part of a wider desk based assessment conducted within the level 1 analysis (see Annex 1). Importantly, within such an analysis other authoritative datasets on biodiversity value should also be taken into account. This should include information such as Important Bird Areas[23] and, in Europe, Important Plant Areas[24].

HCV as a tool might aid the screening process for identifying areas not suitable for feedstock development, but it can not substitute the more detailed on-site assessment requirements set out in the IEEP approach, the concept is not sufficiently developed or applied to ensure the effective protection of grasslands in line with the RED's legal requirements. A scheme that relies exclusively on the HCV approach to assess areas of biodiversity value and specifically grasslands would, therefore, not be compatible with the IEEP approach. Moreover, in the opinion of the authors such a HCV focused scheme would also be inadequate to deliver the requirements for grasslands specified in the RED.

2.3 The role of Environmental Impact Assessment (EIA) in voluntary schemes

There are two conceptions of EIA referred to within the specifications of the voluntary schemes, set out in box 4 Under the RSPO the EIA reference relates to the broader concept of environmental impact assessment, to determine the impact of a land use change. Under the ACCS and Genesis schemes these are references to an explicit type of EIA assessment as specified under Directive 85/337/EEC on Environment Impact Assessment.

Annex II of the EIA Directive requires an EIA to be completed for several types of land use change potentially relevant in terms of land conversion of grasslands for biofuel feedstock production. This includes agricultural projects that convert or otherwise improve the use of uncultivated land or semi-natural areas for intensive agricultural purposes. Article 4 for the Directive, however, specifies that for these types of project it is up to the Member State to determine through either case by case examination, thresholds or criteria whether the project will be made subject to an EIA assessment. The coverage and effectiveness of EIA in line with Directive 85/337/EEC to deliver protection of highly biodiverse grasslands is therefore anticipated to vary significantly across Europe dependent upon the thresholds or criteria used to determine when an EIA is appropriate.

In England the EIA requirements for agriculture, including the cultivation of semi natural and uncultivated land, were implemented through the Environmental Impact Assessment (Agriculture)(England)(no.2) Regulations 2006. According to Guidance published by Natural England in 2006 the Regulations apply to the following categories of land and activities.

[23] http://www.birdlife.net/sites/index.cfm

[24] http://www.plantlife.org.uk

- Land Types - land that (i) has not been cultivated (physically or chemically) in the last 15 years; or (ii) is considered a semi-natural area. The latter is defined in Annex I of the guidance and include calcareous grassland, acid grassland, dwarf shrub heath, montane habitats, neutral grasslands, species-rich upland or lowland hay meadow, coastal and floodplain grazing marsh.
- Types of activity - types of work (or "projects") covered include any work aimed at increasing the productivity of land for agriculture. For instance, increased levels of fertiliser or soil improvers; sowing seed; physically cultivating soil (e.g. by ploughing, tine harrowing, rotivating); draining land; or clearing existing vegetation either physically or using herbicides.
- Threshold – The requirements for EIA of uncultivated and semi-natural land normally applies to projects of 2 hectares and above.

There is significant ongoing debate concerning the adequacy of in particular the threshold applied in the UK, in term of the ability to protect all grasslands of value.

Firstly, it is up to the land owner to decide if they think an EIA might be triggered by a particular activity, there is no generic screening process for all expansions in development. While the regulatory authority overseeing implementation (Natural England) and other experts in this area agree that most farmers are believed to comply with the need for an EIA and understand when it might be triggered there are particular circumstances when this process fails. There are obviously occasional cases of activity where the land owner has simply ignored the requirements for environmental protection, but industry experts believe that this is tempered by the risk of losing single farm payments were such a breach identified. In terms of accidental land conversions in breach of the regulations, this generally occurs following a change of ownership ie the new land owner is not aware of the habitats present on a given site and their value. In terms of the application of the RED this means that schemes purely relying on the EIA system in the UK as a basis for identifying land use change impact have no way of verifying that all land use changes have not involved the conversion of valuable habitat at present.

Secondly, there is controversy over the threshold level at which an EIA is triggered. In the UK grassland habitats are often fragmented. There are concerns expressed that some sites fall through the system in that they are not protected by the 2ha limit in England. It should, however, be noted that many sites of value will be classified as some form of protected area.

3 CONCLUSIONS

Based on the analysis of voluntary schemes and the key tools applied to ensure compliance the following conclusions can be drawn.

- **Implementing a consistent approach for grassland assessment** - At present it remains unclear as to who will take the decision to adopt a specific approach of assessment, in this case, who would determine that the IEEP approach represents good practice and promote the adoption of this approach. There is a perceived need to clarify approaches for delivering assessments of land use and proving land status in line with the RED. This would be necessary to ensure

the consistent uptake of the IEEP approach, or any other approach to assessment. It was commented that ideally further guidance be issued by the Commission. This should set out the principles upon which an assessment should be based, an assessment approach, on site assessment steps and proofs needed. The IEEP approach could be utilised as a basis for this. In the absence of central EU guidance it would be up to the Member States, the individual voluntary schemes or even auditing bodies to adopt such an approach as good practice. Without further coordinated guidance, however, some stakeholders felt there is a risk of confusion and inconsistency potentially increasing the burden on economic operators and weakening the system.

- **Compatibility between the IEEP Approach and Voluntary Schemes –** Analysis of the most relevant voluntary schemes for this study (the RTRS, RSPO, ACCS and Genesis) shows that none directly reference highly biodiverse grasslands, or explicitly requires the protection of valued grasslands. As identified in Chapter 2, the adequacy of their coverage of grassland biodiversity depends primarily on the effectiveness of two tools: HCV based assessments and EIA assessments.

  In principle the HCV concept and EIA processes are compatible with the IEEP approach; indeed the final level of assessment within the IEEP approach could be encompassed into a broader EIA assessment. Within the IEEP approach HCV would be seen as one possible source of evidence that might support a case for determining whether biofuels can be cultivated on a given site, as part of a broader review of evidence. However, to ensure that HCV is fit for purpose in this context, the HCV types need to be expanded to better capture grasslands. The current, forest derived standards are likely to be too specific and high level to capture many grasslands considered of high biodiversity value, especially non-natural grasslands.

  The adequacy of EIA coverage depends on the guidelines applied; specifically the thresholds used to trigger an EIA, the appropriate inclusion of grassland related parameters within the scoping phase and clear decision criteria for determining whether development can be allowed to proceed. HCV areas should represent only one of many information sources that could be used within an EIA assessment to identify sites of high biodiversity value. A scheme that only relied on HCV to determine biodiversity value would be considered as incompatible with the IEEP approach and the requirements of the RED.

- **Adopting the IEEP Approach –** Despite voluntary schemes currently relying on HCV and EIA assessment tools, no specific barriers to the future integration of the IEEP approach into such schemes emerged within the analysis. Indeed the IEEP approach was developed in consultation with those engaged in the development of voluntary schemes. During this consultation many of the schemes expressed a desire to amend their approach to better take into account grassland requirements but are unable to take forward decisions in this field in the absence of clear guidance.

CHAPTER 5 – BEYOND GRASSLANDS – THE TRANSFERABILITY OF ASSESSMENT APPROACHES TO OTHER LAND TYPES

1 INTRODUCTION

The detailed analytical work completed by IEEP has focused on interpreting and implementing criteria for the protection of highly biodiverse grassland, set out in the RED. This is a consequence of the envisaged comitology process intended to further define criteria and geographical ranges of grasslands covered by the Directive.

The RED, however, sets out broader criteria intended to deliver environmentally sustainable biofuels. These are set out in Article 17.3 of the Directive and perform in essence two separate roles:

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.

Grasslands are only one element of the criteria intended to protect sensitive land uses, in line with point 2 above.

The process for assessing compliance with the RED's sustainability criteria can 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.

The IEEP approach provides a mechanism for assessing elements 2 and 3 above. It does so through three important elements. These are as follows:

- a set of principles upon which any assessment should be built;
- a three level approach to assessment; and
- detailed guidance on how the three levels of assessment should be applied.

This section examines whether the principles, three level assessment approach and detailed guidance for their application within the IEEP approach for grassland assessment can applied to assess compliance with the RED's other land use based sustainability criteria.

2 THE CONSIDERATION OF LAND TYPES IN THE DIRECTIVE 2009/28/EC

Within the RED, criteria specifically relating to the protection of particular land types are set out in Article 17 paragraphs 3 and 4. In addition, the Directive's recitals also discuss the interpretation of the land use based criteria. Article 17 of the RED requires that compliant biofuels or bioliquids shall not be produced from raw materials taken from the land types set out in Table 3. Table 3 provides an analysis of the types of land uses specified in the RED and the detailed requirements these encompass.

In total seven different types of land use are protected from cultivation by biofuel feedstocks under the RED. These are protected in order to secure highly biodiverse areas, protect land with a high carbon stock and avoid GHG emissions associated with land conversion. Any broader interpretation of the IEEP approach must take into account all of these elements.

It should be noted that while all the criteria set out in the RED are intended to protect land of given uses from conversion, each of the criteria is specified differently. Importantly there are some key differences from the conception of the grassland requirements that should be noted before assessing the broader applicability of the IEEP approach; these are set out below.

- The definition for primary forests is clearly specified with the recitals setting out the basis for this in line with FAO definitions.
- For continuously forested areas and land with a canopy cover of between 10 and 30% there is a clear threshold applied, the criteria is considered only to apply to land conversions greater than one hectare.
- The criteria for the protection of wetland requires an understanding of the temporal variability in conditions at a site in order to determine whether land is deemed to be permanently saturated or saturated for the majority of the year.
- The peatland criteria requires an understanding of the ongoing management of the peatland to determine if cultivation will lead to drainage.

Table 3 – Summary of the Land Use Criteria set out in the RED Directive - this sets out the justification for avoiding such land, the criteria specified and any interpretive text included in the Directive's recitals.

Provision	Justification	Land Use Type	Criteria for Identification	Interpretative Text
Not be made from raw material obtained from land with high biodiversity value, namely land that had one of the following statuses in or after January 2008, **whether or not the land continues to have that status**	Protection of land of high biodiversity value	Primary Forest and other wooded land	forest and other wooded land of: - native species - where there is no clearly visible indication of human activity; and - the ecological processes are not significantly disturbed	The sustainability criteria should consider forest as biodiverse where it is a primary forest in accordance with the definition used by the Food and Agriculture Organisation of the United Nations (FAO) in its Global Forest Resource Assessment, which countries use worldwide to report on the extent of primary forest or where it is protected by national nature protection law. Areas where collection of non-wood forest products occurs should be included, provided the human impact is small. Other types of forests as defined by the FAO, such as modified natural forests, semi-natural forests and plantations, should not be considered as primary forests
	Protection of land of high biodiversity value	Designated areas[25]	Areas that: - have been designated by law or by the relevant competent authority for nature protection purposes - have been designated for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature	
	Protection of land of high biodiversity value	Highly biodiverse grassland	That is: - natural grassland, ie that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes - non-natural grassland ie that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded[26]	Highly biodiverse nature of certain grasslands, both temperate and tropical, including highly biodiverse savannahs, steppes, scrublands and prairies

[25] It should be noted that under Directive 2009/28 Article 17.3.b biofuels could be produced from feedstocks sourced in designated areas so long as this does not interfere with those nature protection purposes

Not be made from raw material obtained from land with high carbon stock, namely land that had one of the following statuses in January 2008 and **no longer has that status**[27]	Avoiding a change in land use on land with high carbon stock	Wetlands	Land that is covered with or saturated by water permanently or for a significant part of the year	The reference to wetlands should take into account the definition laid down in the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, adopted on 2 February 1971 in Ramsar.
	Avoiding a change in land use on land with high carbon stock	Continuously forested areas	Land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30 %, or trees able to reach those thresholds in situ	
	Avoiding a change in land use on land with high carbon stock	'Other wooded areas' – not defined specifically in the Directive	Land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds in situ [28]	The Commission should produce guidance to serve as the basis for the calculation of carbon stock changes for the purposes of this Directive, including such changes to forested areas with a canopy cover of between 10 to 30 %, savannahs, scrublands and prairies
Not be made from raw materials obtained from land that was peatland in January 2008	Avoidance of greenhouse gas emissions associated with peatland drainage29	Peatlands	This applies unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil	

[26] It should be noted that harvesting of raw materials for biofuel/bioliquids is permitted on non-natural grasslands under Directive 2009/28/EC Article 17.3.c but only if this is necessary to preserve its grassland status

[27] These provisions do not apply if 'at the time the raw material was obtained, the land had the same status as it had in January 2008'

[28] Unless it can be proved that the balance of carbon stocks before and after conversion still permit the biofuel's produced to comply with required levels of greenhouse gas savings under the Directive

[29] Unlike for the other land uses specified in the Directive, the justification for this criteria is not explicitly set out in the Articles of the Directive. However, the impact of peatland drainage on greenhouse gas emissions is referenced in the recitals of the Directive, hence, this is interpreted as the justification for the presence of this requirement.

3 APPLYING THE IEEP APPROACH'S PRINCIPLES

There are three core elements of the IEEP approach; importantly this includes a set of principles that should be taken into account when developing and implementing any assessment system. In order to draw conclusions regarding the application of the approach to other land uses it was felt useful to set out the principles of the IEEP grassland approach and identify where any differences arise. Table 4 sets out the principles upon which the grassland approach is based, and considers the implications associated with applying these to the other land uses set out in Table 3.

Based on table 4 the majority of principles from the grassland approach are equally applicable across all the land use types covered by the RED. A key difference to note, however, is the potential applicability of mapped data and remote sensing.

For grasslands it was considered that these materials would be of limited use given that it is the quality of the grassland, not simply the existence of the grassland, which is of interest. Based on the wording of the RED (as set out in table 3) the quality of designated areas, wetlands, continuously forested areas and land with 10 to 30% canopy cover is of less interest; their presence is the primary basis for assessing compliance. For these areas, therefore, mapped information and remote sensing may be of wider use. However, it should be noted that mechanisms for ensuring the quality of mapped information would remain important.

For primary forest there is a more specific definition set out within the Directive, and the intensive efforts devoted to forestry assessment in recent years, should enable more extensive use to be made of remote sensing and mapped data. In addition there is anticipated to be a wider data resource with on-ground assessments having been completed already, for example, as part of HCV mapping activities. Moreover, there is a greater awareness of the forestry issues of concern, when compared to grasslands, with concepts such as HCV applied directly to this habitat type (see section 2 for further discussion on the origins of HCV).

Table 4 – The key principles of the IEEP Approach, their coverage and potential application to the other land uses considered in the RED

Principle/Issue	Description of the principle – as applicable to the grassland approach	Interpretation of the principle in the context of other land uses
Embodying the Precautionary Principle	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 reseeding for crop based production with potential significant impacts upon biodiversity and carbon stocks. In the event of uncertainty over the	Principle that should be adopted and applied to the conversion of all land for the delivery of biofuels ie that producers be required to show that land is not deemed of value and that when there remains uncertainty over the value of land that development/land conversion for biofuels does not progress

Principle/Issue	Description of the principle – as applicable to the grassland approach	Interpretation of the principle in the context of other land uses
	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 is to protect lands of high biodiversity value and high carbon stocks, hence in situations where status is uncertain the emphasis must be to prove that land is not biodiverse.
Agreeing the dataset	The best available data should be used for assessments and these should be agreed by national / regional competent environmental authorities.	This should be applied across all land uses as a key principle of any assessment process
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	This is essential for all land types to ensure that while assessment systems are robust they are properly adapted to local conditions in a transparent and publicly reported way using the best available scientific data. This requires appropriate component environmental institutions to identify the appropriate standards for given regions and ensure these are adopted
Expert assessments	Expert assessments should be carried out by appropriately trained, accredited and independent assessors, and overseen by an independent third-party certification body	This is a key principle of any assessment or audit system and should be applied to any scheme.
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.	This applies to all land use types, although the level at which expert and non expert assessments are required will vary.
Use of mapping and remote sensing	For grassland it was considered that this is only of use in terms of identifying a lack of grassland, identification of potential ranges for natural grasslands and for developing a non binding system of sensitivity mapping and that there	For other land uses mapped data may be more meaningful. The challenge for grasslands is that highly biodiverse can not be spatially mapped or identified through remote sensing, however, protected areas and primary forest are more intensively studied (the later in particular as part of

Principle/Issue	Description of the principle – as applicable to the grassland approach	Interpretation of the principle in the context of other land uses
	is a need for some form of institutional arrangement to approve a minimum requirement of mapped or remote sensing data sets, these assessments would be iterative	HCV assessments) and their definitions under the Directive more spatially explicit. However, it would still be desirable to have in place some form of oversight to ensure the quality and reliability of mapped information and promote best practices.
January 2008 base date	As there was no global stock take of land use in 2008 it is considered difficult to apply this date, or prove retrospective compliance. Therefore it was recommended that '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'	The issues over the 2008 base date remain for all land uses, however, for protected areas this will largely be available. In terms of forest extent, remote sensing data etc may be of greater use in determining extent than for grassland, when the quality of land use is key rather than the type of land use.
Proofs	In order for biofuels to be considered to meet conditions under Directive 2009/28 proofs will have to be demonstrated to show that feedstocks, hence biofuels, are in compliance with criteria for the protection of natural grassland.	Similarly proof will have to be supplied to demonstrate compliance with all the criteria set out in the Directive. 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.
Institutional arrangements	To effectively implement Directive 2009/28 institutional arrangements must be clarified. In so doing it is essential that the following be completed to provide a clear basis for future action: - Establishing the information base - bringing together data, maps and other sources of potential proof into a toolkit for decision makers and industry. - Establishing a baseline and better understanding of biofuel imports and production in the EU - Ensuring that the assessment process is clearly established and maintained - Establishing a chain of custody system to provide clear rules on the evidence or proofs of compliance - Independently verifying that standards are being met	New institutional arrangements are needed to set standards in terms of the required information base, understand the nature of EU biofuel trade and use, ensure an assessment process is clearly established and maintained, and establish a chain of custody and independent verification to an acceptable standard.

4 CONCLUSIONS

Following analysis and discussions with stakeholders it is considered that there are no major barriers to the application of the IEEP approach for grassland to other land use categories. Some concerns were expressed regarding the potential burden placed upon producers and the need to balance this against the delivery of benefits in the event of compliance; however, this would apply equally to any system for applying such sustainability requirements.

The majority of the assessment principles specified within the IEEP approach, and defined for grasslands, will apply to all the other land use types defined under the RED. Moreover, the three level approach to assessment (see Annex I) could also be applied to all land uses. The detailed guidelines for assessment would have to be modified and adapted to the different land use types. In order to adapt the IEEP grassland approach, to deliver compliance for all the land use types specified in the RED, the following actions are considered necessary.

- The questions to be answered at each level of the three levels of assessment would need to be further defined. So too would the logical order in which these might be asked.
- Detailed guidance would have to be developed in order to specify how each of the assessment levels might be applied to the different land uses specified in the RED.
- More detailed consideration would need to be given to the role of mapped data and remote sensing in establishing an evidence base for non-grassland land uses. As discussed in part 3 of this section, the applicability of such tools will vary depending on land use type and the nature of the criteria specified.
- The grassland criteria under the RED are essentially ex-ante assessments ie they take place before a development decision, with ongoing management of little relevance when determining compliance.

Stakeholders generally welcomed the IEEP approach as offering a detailed and apparently sensible approach to the assessment of grasslands under the RED. In the absence of more detailed guidance for the implementation of the other specified land use types, some stakeholders requested that guidance and a methodological tool akin to the IEEP grassland approach be developed for all the land uses. The need was felt to be particularly pressing by those interpreting the carbon store requirements.

Stakeholders in general wish to receive clear and consistent guidance. This would help ensure that industry, including fuel suppliers, feedstock producers, accreditors, verifiers and certifiers, understand what is necessary to comply with the RED requirements and that application is fair and consistent.

CHAPTER 6 – RECOMMENDATIONS

Detailed conclusions are presented at the end of each chapter related to the relevant issue in question. Emerging from the collective analysis, however, there are a number of overarching questions and concerns that should be addressed when further developing any approach to implementing the RED sustainability requirements – both for the application of highly biodiverse grasslands and more broadly. These are presented below accompanied by specific recommendations.

- ***Recommendation 1 - Perceptions of grasslands*** – Comments by a number of stakeholders have raised concerns regarding the state of knowledge and understanding of grassland biodiversity. There appears to be a lack of awareness of the potential biodiversity value of grasslands and also a perception that if a grassland is in use ie being used as pastureland, it is of low biodiversity value. The challenge is that unlike for many ecosystems the use of grassland, in particular for grazing, can not be used as a proxy for low biodiversity. Indeed low intensity management may have played a positive role in maintaining high biodiversity. The IEEP approach proposes a method for assessing the value of grassland that is not based on whether the land is currently in use, but on the site's ecological conditions and the nature of past cultivation. ***There is a need for communication on the part of the Commission, supported by Member State governments and nature conservation groups, to ensure that all actors understand grasslands and the factors that determine their biodiversity value. The latter should be based on an assessment of site conditions and the nature of cultivation practices. Ideally a Commission report, set of frequently asked questions or guidance should be issued to clearly explain these issues. This would build on and clearly interpret definitions and requirements set out in the legal text adopted under the comitology process.***

- ***Recommendation 2 – Ensuring an adequate basis for decision making, use of HCV and EIA –*** At present the voluntary certification schemes, anticipated to be used to assess the compliance of biofuels with the RED, rely on two assessment tools High Conservation Value (HCV) and Environmental Impact Assessment (EIA). However, there are concerns over the adequacy of these tools in their current application as a basis to determine highly biodiverse grasslands. In both cases it is the detailed standards and requirements applied that will determine their adequacy as a basis for assessment.

  To ensure the that HCV is fit for purpose in terms of assessing grassland habitats, the HCV types need to be expanded to better cover the range of grasslands of potential value. In addition the basis of standards set under the HCV, in terms of capturing areas in need of conservation, would need to be altered. The current, forest derived standards are likely to be too specific and high level to capture many grasslands considered of high biodiversity value, especially non-natural grasslands. The adequacy of EIA coverage depends on the guidelines applied; specifically the thresholds used to trigger an EIA, the appropriate inclusion of grassland related parameters within the scoping phase and clear decision criteria for determining whether development can be allowed to proceed

To ensure minimum standards are achieved, guidance on the development and application of these tools should be adopted by the Commission. Moreover, the appropriateness of their application must be taken into account during the Commission's process of benchmarking voluntary schemes as in compliance with the RED requirements. It should be noted that it is not sufficient, in the case of grasslands, for a voluntary scheme to rely on HCV assessments alone as a basis for determining biodiversity value, this represents only once source of information available. Without a broader and more considered approach there is a high risk of failure to deliver the protection of highly biodiverse grasslands, as specified in Article 17.3.c of the Directive.

- ***Recommendation 3 – Clarifying requirements -*** Many stakeholders have, as yet, taken only limited steps to determine the impact and approach to implementing the RED's grassland requirements. This is because they are awaiting the definitions and further criteria under development by the European Commission. This suggests that there will only be a limited period for the voluntary certification schemes to effectively take account of grassland requirements ahead of any approval processes, anticipated at the end of this year. ***The European Commission and Member States must rapidly reach agreement as to the requirements to be applied to grassland and ensure that the actions to be taken to implement these are clear and actively communicated to the voluntary schemes. At present the state of debate and action on this issue is insufficient to deliver effective and timely implementation.***

- ***Recommendation 4 - Consistency across the EU*** – At present there appears to be no mechanism under the RED for ensuring EU wide consistency including the approval of: mechanisms for assessment; verification and certification procedures; and the coverage of these assessments. Under the UK based RTFO detailed guidance is provided. Stakeholders commented that, while at times this can feel prescriptive, they value the clarity this provides offering a mandate for what is deemed appropriate under the scheme. There are fears that a lack of a consistent EU wide approach could lead to confusion and a burden being placed on economic operators. ***The European Commission should, in addition to legislative requirements set out as a consequence of comitology, bring forward detailed guidance on how operators and voluntary schemes should seek to comply with the criteria relating to highly biodiverse grasslands, this will increase certainty and aid the implementation in this potentially complex field. Ideally, this would be part of a broader package of detailed guidance relating to the best practice application of all the land use based criteria under the RED. Stakeholders, including representatives of industry and voluntary schemes, would welcome a broader, detailed set of guidance.***

- ***Recommendation 5 - The importance of an information base for assessment*** – This analysis has been made possible due to the large body of detailed monitoring data required of industry and published under the Renewable Transport Fuel Obligation in the UK. This provided an information base for assumptions regarding levels of imports, sources of supply, key feedstocks, compliance with sustainability requirements under the RTFO etc. Reliable and accessible data is

key to assessing the potential impact of Europe's demand for biofuels and ensuring oversight over the success of implementing sustainability requirements. ***Developing a publicly available data resource that allows the monitoring and analysis of feedstock sourcing and compliance of biofuels used in Europe with the RED should be a priority. As demonstrated by the benefits associated with the data published under the UK's Renewable Transport Fuel Obligation, only with such a detailed data set will it be possible to effectively assess the implementation of the RED and its the potential impacts. The Commission should put in place Member State reporting requirements to enable the development of both national and EU level assessments of sourcing and compliance. The details should be made publicly available in terms of the sources of biofuel feedstocks, the nature of the fuels in use and the schemes utilised in order to ensure compliance with the RED.***

ANNEX I - SUMMARY OF IEEP APPROACH

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 reseeding 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 /ECArt 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*[30]**

- **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*[31]**

- **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 mammals). Furthermore, consideration of species richness should not be solely based on small-scale assessments, for example species per m^2. 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

[30] 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*'

[31] 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'.*

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.

A Potential Assessment Approach

Set out below and in the following Figure is a proposed approach 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).

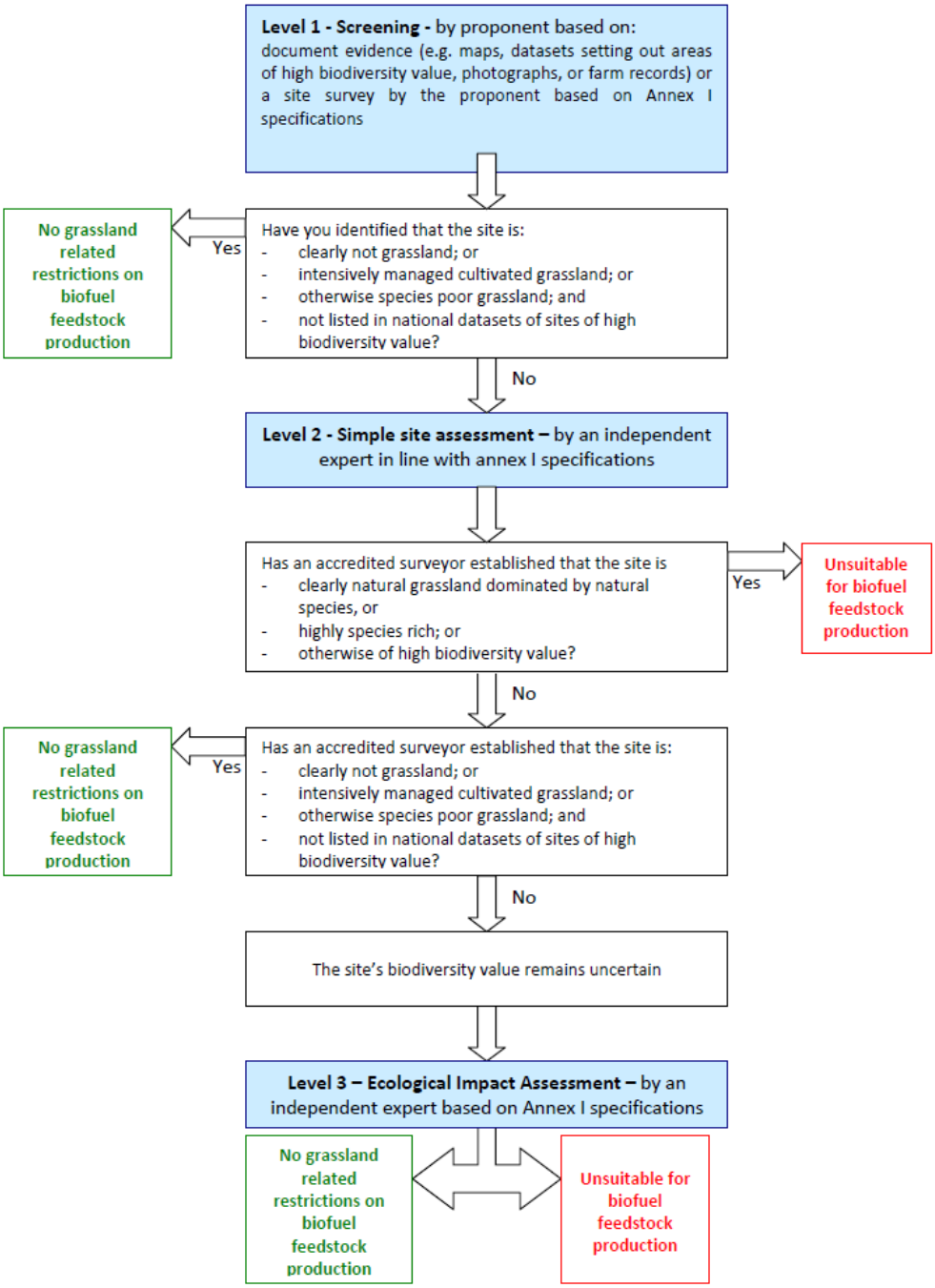
If it is not possible to identify, and provide sufficient proof, that a grassland is suitable for conversion to biofuel feedstock production from a Level 1 assessment, then the analysis of the land progresses to ***Level 2*** (assuming the proponent still wishes to proceed with the development of land 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 processer, 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 a - A three level decision structure - a basis for assessment



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 a. The purpose of the different assessment levels and their application is explained below.

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[32] 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[33]; OR

- At least two of the following apply to the site on the basis of a self assessment[34] (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 fewer species/m^2; 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[35],[36].

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32 I.e. the best available data as identified and approved by the competent environmental authority.

33 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.

34 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^2; or
  - There is more than [30%] cover of herbs and sedges (excluding clover and undesirable species according to local circumstances).

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35 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).

36 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^2; 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[37]).

[37] CBD (2006) Global biodiversity outlook 2 Secretariat of the Convention on Biological Diversity, Montreal.

ANNEX II – CASE STUDY 1 - IMPLICATIONS FOR SOY PRODUCTION IN ARGENTINA

4.1 Introduction

Soy beans are primarily grown to provide cheap edible oil and high protein animal feed, with the supply of the former currently largely driven by the demand for the latter. Soybean oil is the most consumed oil in the world, while soybean meal is a feed of choice for animals. Recently soy has also become an attractive feedstock for biodiesel.

Soy is primarily produced in the US, Brazil, Argentina, China and India, with the US, Brazil and Argentina as the main exporters and China and the EU as the major importers.

The major environmental impacts from soy come from the conversion of natural habitats, soil erosion and degradation, agrochemical use (particularly associated with genetically modified varieties).

Oil seed cake from soybeans is Argentina's leading export, with soy-based animal feed another major export earner. Of the 45.5 million tonnes of soy produced in Argentina in 2007[38] only 5% was consumed domestically, with the remainder exported to Asia as beans, flour and oil and the EU as cattle feed.

4.2 Soy Production in Argentina

Primarily as a consequence of the high UK usage of soya based biodiesel, over 60% of the land use pressure arising from UK biofuel consumption occurs in the USA, Argentina and Brazil. As a result the current UK biofuels land use footprint falls primarily within temperate grassland biomes in both the northern and southern hemisphere. Assessing imports from Argentina is complicated by the fact that until recently soya based biodiesel imported from the USA included biodiesel originating in Argentina and re-exported to UK (JNCC, 2009).

Arable land in Argentina has increased from 21 million hectares (Mha) in the 1970s to 32 Mha in 2007. Currently around one half (16.6 Mha) is used for soy bean cultivation. The introduction of GM soy has enabled production to expand into areas previously considered 'marginal' marginal and non-arable areas (Monti, 2008). The most famous grassland in Argentina is the Pampas (see box 5) much of which is grazed by cattle.

Box 5 – Introducing the Pampas[39]

Temperate subhumid grasslands occur over some 700,000 km^2 from 28^0 to 38^0 S in area of central-eastern Argentina, Uruguay and southern Brazil around the Rio de la

[38] FAO, 2008

[39] Gibson, D.J. (2009) Grasses and grassland ecology Oxford University Press, Oxford.

Plata. According to these include 500,000 km2 of humid Pampas, which mainly occur in the Argentine provinces of Buenos Aires, eastern La Pampa, and southern part of Santa Fé, Entre Ríos and Córdoba provinces. They include the rolling pampas and 60,000 km^2 of the flooding pampas. The grasslands have been widely used by cattle and sheep grazing (introduced by settlers in the sixteenth century) and many areas are now used for the intensive cultivation of wheat. Maize, sorghum and soy). As a consequence, natural and semi-natural grasslands remain a dominant landscape feature only in the flooding pampas and Uruguayan Campos (Soriano 1992, cited in Gibson).

The Argentinean Ministry of Agriculture, Livestock and Fisheries, in its response[40] to the EU consultation on grasslands, states that most of their grasslands are subject to some kind of animal husbandry activity. Local grasslands are therefore referred to as naturalized grasslands, i.e. grasslands used as forage resources. Pastures for grazing may also be part of a crop rotation cycle with corn or soybeans, both crops which are likely to be intended for the production of biofuels. The government considers that grasslands in Argentina do not show very high biodiversity levels (although this statement is not qualified further), however, they also note that "it should considered that natural grasslands grazed may have higher biodiversity than those not grazed".

Despite soy being a highly mechanised, efficient crop it may not be a very suitable crop for biofuel production as it is a relatively low-yielding oilseed crop, producing around 500 litres of oil per hectare, compared to around 900 for rapeseed and 4500 litres per hectare for palm oil . From a greenhouse gas perspective the Co2e payback period for Argentinean soy grown on land converted from forest is estimated to be 553 years, and 69 years on land converted from grassland (Tomei and Upham, 2009).

A study commissioned by Greenergy studied land use change in the eastern part of La Pampa province in Argentina as a result of the expansion of soy cultivation. The study showed a marked increase, over 162,000 ha in the area of soybeans over the period 2002/03 to 2008/09. Soy expanded into both grassland and into existing cropland. Corn also expanded into grassland but contracted overall because more corn cropland was converted to soy than expanded into grassland[41].

4.2.1 Farming systems

Soy is grown as a monocrop. In Argentina, 98% of soy grown is of the genetically modified herbicide-tolerant "Roundup-ready" variety, which leads to significant use of the herbicide glyphosate. Unlike for most agricultural feedstocks, where the end use tends to be determined further along the supply chain, Argentinean farmers that

[40] Argentina, Ministry of Agriculture, Livestock and Fisheries: EC Draft Consultation paper definition highly biodiverse grasslands http://ec.europa.eu/energy/renewables/consultations/2010_02_08_biodiverse_grassland_en.htm

[41] Tipper and Viergever (2009) Regional Monitoring of Indirect Land Use Change in Argentina: http://www.ecometrica.co.uk/ecometrica-press-2/land-use-change/

certify their production will increase the likelihood that the feedstock is used for biofuels in the EU. This is due to EU restrictions in GM soy for human consumption.

Soybean production is highly productive and mechanised. It is estimated that one worker in Argentina can farm 250 hectares of soybean, compared to one worker for every 12 hectares at a mechanised palm oil plantation in Malaysia.

4.2.2 Supply chain

The supply chain is relatively simple. The producer delivers the product to a warehouse, where it is stored until shipped to a processor. Here the beans are turned into soybean meal and oil or biodiesel.

Vegetable oil refineries dominate biodiesel processing; these are owned by three major local operators and three multinationals. Due to EU restrictions on using GM crops for human consumption, no raw material is shipped to the EU for processing.

4.3 Examining the Habitats at Risk

Cultivation of soybean is often part of the process of converting natural habitats to agriculture for the first time. This is especially true in South America where soybean cultivation has taken place at the expense of savannahs and tropical forest (Clay, 2009).[NO reference list]

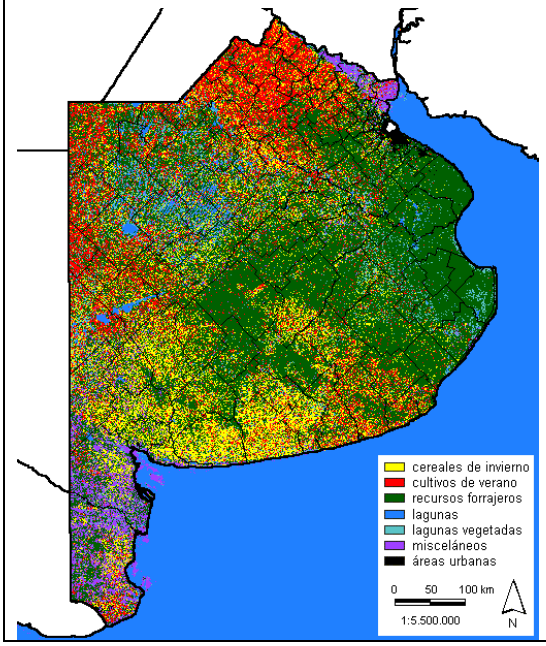
In Argentina, the main concern is the conversion of the *Chaco*, the second largest forested area in South America after the Amazon. The Chaco is a sub-tropical seasonally-dry forest that covers more than 22Mha in Argentina. Between 1969 and 1999 the Chaco declined by 85% - with the primary driver being agricultural expansion into cattle ranches or soybean plantations (Tomei and Upham, 2009).

Since the 1970s, when soy was introduced to Argentina, farmers have, however, gradually switched from cattle rearing to the cultivation of soy. This means that less land may currently be cleared for soy cultivation per se, as most soy is grown on former pastureland. The agricultural expansion has, however, lead to desertification in some parts of the country and to flooding in other parts (Monti, 2007).

Grasslands in Argentina have not received the same attention as forests and are often treated as underused or degraded land that is open to unconditional development.

Box 6 – Mapping Land Use in the Samborombón Bay Area, Argentina

Fundacion Vida Silvestre Argentina (grasslands programme)[42] has combined remote sensing data with on-site assessment to identify and define highly biodiverse grasslands in the Samborombón Bay area in Argentina.



The map colours refer to:

- Winter cereals (yellow)
- Summer crops (red)
- Forage (generally grasslands) (green)
- Lagoons (dark blue)
- Vegetated lagoons (light blue)
- Miscellaneous (purple)
- Urban areas (black)

5 Mha are planted to winter cereals, and another 5 Mha to summer crops. Forage resources cover just over 16 Mha.

4.4 Implementing Grassland Requirements

Agriculture and natural resource policy is the responsibility of the provinces. As a result, the expansion of soy cultivation has taken place without overall planning and oversight (Tomei and Upham, 2009). The absence of agricultural subsidies and central oversight has left the development of agriculture in the hands of the market, and for soy in particular the export market. This export focus has left Argentina well-placed as a supplier of biofuels; it is already the worlds' largest exporter of soy oil.

Further, current export taxes favour the export of biodiesel over other soy products - soy oil is subject to export taxes of 32%, while for biodiesel it is 14.16% (Tomei and Upham, 2009). This creates an incentive to locally process and export biodiesel. In 2008 Argentina produced 10% of the world's biodiesel, placing it third behind the US and Germany.

4.4.1 Roundtable on Responsible Soy Association (RTRS)

The RTRS, which is currently in a pilot testing stage, sets out national interpretation guides for the relevant countries. For Argentina it sets out the following relevant assessment criteria for biodiversity (listed as environmental responsibility in the standard):

[42] Resultados: http://www.agro.uba.ar/users/lart/estimacionesagricolas/estimaciones/resultados.htm

- 4.1.1. A social and environmental assessment is carried out prior to the establishment of large new infrastructure43 or that involving high environmental risks.
    - The guidance note suggests that, if applicable, the assessment should consider the cumulative environmental impact s within a basin or regional scale framework.
- 4.4.1 Expansion for soy cultivation may not take place on land cleared of native habitat after May 2009, except where producers produce scientific evidence from a comprehensive and professional third-party assessment of the area concerned that identifies the absence of:
    - All primary forest
    - Other HCV areas
    - Local peoples' land

The RTRS standard suggests that an EIA should consider the following, but not be limited to:

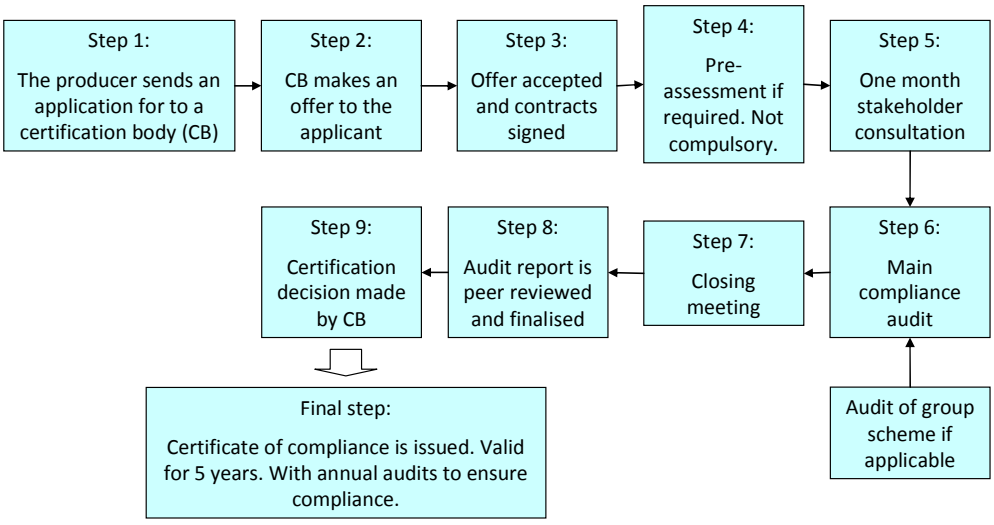
- Identification and assessment of HCV habitats and protected areas.
- Identification of potential waste and pollutants and mitigation measures.
- Efficient use of energy and the use of renewable energy.
- Plans to reduce GHG emissions.
- Building materials.

The RTRS, although only at the testing stage, has been benchmarked against the RTFO standards for sustainability and is considered to meet the Environmental Qualifying Standard levels in the RTFO. As discussed in section 2, when assessing compliance with the grassland requirements under the RED there are two issues of particular interest:

- what is deemed to be a native habitat and how does this relate to requirements to protect both natural and non-natural highly biodiverse grasslands; and
- the effectiveness of coverage of grasslands by the HCV concept.

[43] On-farm infrastructure such as silos, storage areas, drainage works, irrigation works, buildings, roads, bridges and dams.

Figure 2 – Key steps encompassed in the RTRS certification process



4.5 Production of Soy Based Biodiesel in Argentina – A Summary

Soy based biodiesel represents a significant proportion of the UK's biodiesel imports and land used to deliver biofuel feedstocks. When grown the ultimate use of soy s often unclear, however, these is evidence of grasslands in Argentina being cleared for soy production, although the biodiversity value of this grassland is unclear. There is a concern regarding the perception of grassland, emerging from this and other case studies where land is being used as pasture there is a perception that it is not simultaneously of potential biodiversity value.

ANNEX III – CASE STUDY 2 - IMPLICATIONS FOR RAPE PRODUCTION IN THE UK

4.6 Introduction

Between April 2008 and 2009, Rapeseed oil was the most common arable based biodiesel feedstock produced and consumed in the UK[44]. Tallow, a bi-product, used for biodiesel production and sugar beet, used for bioethanol production, were the other key feedstocks of note both produced and consumed in the UK. The usage of biofuels in the UK market is closely monitored and reported on regularly under the requirements of the Renewable Transport Fuel Obligation, providing the UK with one of the best, most comprehensive data sets on biofuel usage. The RTFO standards were developed ahead of EU requirements for biofuel feedstocks set out in the renewable energy Directive.

Grassland, of some form or another, is the dominant land use within UK agriculture accounting for 11,536 thousand hectares, based on figures from 2008. This is made up from grasses under 5 years (1141 thousand hectares), grasses over 5 years (6036 thousand hectares) and sole right rough grazing (4359 thousand hectares). Cropland

[44] RFA report – April 2008 to April 2009

then makes up a further 4740 thousand hectares of the UK's agricultural land[45]. The question of expanded impact on grasslands associated with biofuel feedstock cultivation is, therefore, a pertinent one for the UK.

4.6.1 Rapeseed oil production in the UK and the contribution to biofuel production

In 2008 the 4740 thousand hectares[46] devoted to crops in the UK resulted in a total production based income of £7 679.1 million. Of this total £617.8 million was attributed to the production of oilseed rape[47].

In 2008/2009 8% of biofuels used in the UK were sourced from feedstocks grown in the UK. Rapeseed oil based biodiesel made up 25% of biofuel usage in the UK (based on figures reported under the RTFO). This represented a total of 324.2 million litres, of which 26.3 million litres were sourced from UK rapeseed oil production. Germany provided the highest proportion of rapeseed-based biodiesel during this period, a total of 146 million litres.

Of the rapeseed derived fuels produced and consumed in the UK, 14.5 million litres were reported as produced on existing cropland. Meanwhile, the previous land use, prior to rape cultivation, was unknown for 11.8 million litres. Notably 98% and 94% (grown on previously cultivated cropland and unknown land respectively) of the UK production of rapeseed oil for biodiesel was produced in line the environmental standards set under the RTFO.

4.7 Implementing Grassland Requirements

4.7.1 UK Rapeseed – Compliance with Environmental Standards

As stated above the compliance of UK rapeseed feedstocks with the environmental standards set under the RTFO is 98-94%; this is the highest for any crop except UK produced sugar beet that achieves 100% compliance. It should be noted that this does not automatically mean that biofuels produced in the UK deliver the most greenhouse gas savings, or least environmental impacts. The RTFO sets out a series of criteria that feedstocks must meet in order to be considered sustainably produced. The environmental elements of the standard consider greenhouse gas savings, protection of carbon stocks, and impacts on soil, water, biodiversity and air quality[48]. It also sets requirements on social aspects.

Under the RTFO different voluntary schemes are benchmarked against the prescribed standards to determine if they offer compliance. They can be classified as in complete compliance with the RTFO, as being classed as a qualifying standard or as

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45 *https://statistics.defra.gov.uk/esg/quick/agri.asp*

46 *https://statistics.defra.gov.uk/esg/quick/agri.asp*

47 Defra – detailed crop production figures, table 9.1 Production and income accounts – as updated on

48 Carbon and Sustainability Reporting Within the Renewable Transport Fuel Obligation, Technical Guidance Part 1, Renewable Fuels Agency, Version 2.0 March 2009, http://www.renewablefuelsagency.gov.uk/sites/rfa/files/_documents/Carbon_and_Sustainability_Guidance_Part_1.pdf

not compliant. In the UK there are two key schemes for arable crops that are classified as compliant at the RTFO level for environmental protection. These are Genesis Quality Assurance[49] and Assured Combinable Crops Scheme (ACCS)[50]. It should be noted, however, that the RTFO does not specify explicitly the protection of highly biodiverse grasslands within its standards; a process is currently under way to deliver a RED ready version of the RTFO standards. The RTFO does, however, require that 'Biomass production will not lead to the destruction of or damage to high biodiversity areas'[51].

4.7.2 Examining Certification Systems

ACCS and Genesis both certify rape production (among other crops and farming systems). Neither is specific to biofuels but their requirements are considered sufficient, under the RTFO, to comply with its specified environmental standards for biofuel feedstocks. Once in operation the Roundtable on Sustainable Biofuels could also potentially cover rape, and other UK grown commodities; however, the precise coverage and operation of this scheme is unknown. Given the broader benefits for a farmer associated with being Genesis or ACCS compliant, and the acceptance of these schemes among the farming community, it is anticipated that these two schemes would remain important vehicles for ensuring future compliance of biofuel feedstocks in the UK.

- *Genesis QA*

As with many farm assurance schemes Genesis emerged as a consequence of concerns regarding the safety and traceability of food. The Genesis QA scheme comprises a range of standards that cover best practice methods of production, animal welfare, traceability, legislation, food safety and environmental issues. Genesis sets standards across the whole farm module and has three sets of standards for: cattle and sheep; pigs; and arable and sugar beet. Under the scheme farmers apply to be certified as in compliance with the scheme, once accepted this is valid for one year at which point they are invited to renew their membership. Compliance is assessed on farm annually.

The standards for arable and sugar beet[52] set out several requirements of potential relevance for ensuring the protection of grasslands. These essentially require proofs to demonstrate compliance with environmental protection requirements and with requirements for environmental impact assessment (EIA) for the use of land that is uncultivated or semi natural. It should be noted that the scheme contains several requirements regarding the ongoing management of the land, however, while highly

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[49] http://www.genesisqa.com/consumers-info.asp

[50] http://www.assuredcrops.co.uk/crops/home.eb

[51] *Genesis RTFO benchmark - http://www.renewablefuelsagency.gov.uk/_db/_documents/Benchmark_GenesisQA_-_website_version.pdf*

[52] Genesis QA, Arable And/Or Sugar Beet Standards, (Incorporating Whole Farm Module), http://www.genesisqa.com/Downloads/GQA%20WF%20Arable%20Sugar%20Beet%20Module%202008-2009.doc

relevant to the environmental impact of the crops this is not a requirement explicitly under the EU scheme. The Genesis requirements of interest are as follows:

- Under environmental requirements it is specified that - Applicants are required to confirm in writing that they are not subject to prosecution by, or have received a statutory notice from, a statutory body with regard to legislation concerning the environment. Scheme members are required to notify the Scheme in writing if either of these things occurs after they have been accepted into the Scheme.
- Under the schemes sustainability requirements it is specified that - Producers who are planning to use land classified as uncultivated or semi-natural area at 1st November 2005 for arable production must ensure that Environmental Impact Assessment (EIA) Regulations have been met. In addition, if any of that land is used to produce energy crops, producers must assess and record carbon losses.
- It is also stated under the sustainability requirements of the scheme that Conversion from permanent pasture to arable can significantly increase carbon emissions and biofuel feedstock will need an assessment of carbon emissions. Where there is no land use change (arable – arable) an assessment is not required.
- Under the requirements on fertilisers and nutrients it is stated that producers must be aware of any practices that have an environmental impact and identify and conserve important features of biodiversity and conservation value on and around the farm. Producers must adopt practices to minimise any detrimental impact upon such features. It goes on to state that producers that have any land on or bordering SSSI must adhere to the management requirements as set out in GAEC 6. If land is designated as Special Protection Area under the Wild Birds Directive, producer must adhere to regulations.

- *ACCS*

This scheme, operational since 1998, was developed to address concerns over food safety and the desire for crops to meet consistent quality standards. Originally it set standards for combinable crops ie those harvested with a combine harvester, including wheat, barley, rye, oilseeds including rape and pulses. In 2003 sugar beet was also incorporated into the standard. Under the scheme there are four certification bodies who are licensed to audit based on the schemes standards: CMi Certification; SAI Global-FABBL; National Britannia; and PAI. Producers pay their membership fee to the Certifier and the Certifier is responsible for all aspects of membership and inspection. As for Genesis, there are similar requirements under ACCS of relevance for the discussion on grassland impact from biofuel production. The following are set out in their 2010 Crops and Sugar Beet Standards[53]:

- EI.1 - Producers must be aware of any practices that have an environmental impact –
    - Producers must understand and assess the impact that their growing activity has on the environment, and consider how they can enhance the environment for the benefit of the local community and flora and fauna.
    - Producers must be aware of any practices that have an environmental impact and identify important features of biodiversity and conservation value on and around the farm.
    - Producers must adopt practices to minimise detrimental impact upon such features.

[53] http://www.assuredcrops.co.uk/resources/000/471/429/Combinable_Crops_standard.pdf

    - Producers that have any land on or bordering SSSI must adhere to the management requirements as set out in GAEC 6.
    - If land is designated as a Special Protection Area under the Wild Birds Directive producers must adhere to regulations as set out in SMR 1 and SMR 5.
- EI.1.1 Producers who are planning to use land classified as uncultivated or semi-natural area at 01.11.2005 for arable production must ensure Environmental Impact Assessment (EIA) Regulations have been met. In addition, if any of that land is used to produce energy crops producers must assess and record carbon losses. Conversion from permanent pasture to arable can significantly increase carbon emissions and biofuel feedstock will need an assessment of carbon emissions. Where there is no land use change (arable-arable) assessment is not required. Set-aside land is classified as arable and so does not require assessment of carbon emissions.

ACCS are looking to become an approved voluntary scheme under the RED; however, as requirements remain unclear representatives were unable to determine if changes will be necessary to deliver RED compliance.

4.7.3 Infrastructural Arrangements and Traceability

As set out above the UK already has a system by which the vast majority of domestic biofuel feedstock producers can certify their product in line with environmental standards. While these may differ from those set under the RED, this high level of uptake demonstrates that for traditional arable crops the UK has in place many of the institutions necessary to continue to demonstrate compliance under the EU scheme. There would appear to be a high uptake of these requirements by farmers, although this is anticipated to be largely driven by factors not directly driven by requirements in the bioenergy field but more broadly regarding environmental protection, health and safety within the farming sector. Moreover, the existence of these schemes suggests that traceability pathways etc, are well established under the schemes and throughout the relevant supply chains.

4.7.4 Potential Source of Proofs

ACCS and Genesis both potentially generate proofs that could be used in assessing compliance with the grassland requirements under the RED Directive. ACCS and Genesis focus largely on the delivery of good on farm management, rather than considering in detail on farm land use decisions. This emphasis is a logical consequence of their origins, broader desires to improve on farm standards and the focus of the environmental standards under the RTFO. Under the RED, however, the environmental requirements (with the exclusion of the requirement on Greenhouse gas reduction) focus on preventing land use change for the delivery of biofuels. The question is, therefore, are these proofs sufficient to provide the level of proof envisaged under the proposed IEEP approach for implementing the EU RED requirements. In order to assess this there are several key issues to be addressed:

- whether the system can provide sufficient proof of pre-existing land use for all biofuel feedstocks prior to production and as of 2008;
- whether existing EIA procedures can be relied upon as a proxi for identifying and protecting highly biodiverse grasslands in the UK including:

- whether EIA screening procedures are comprehensive enough to capture all potential conversion of grasslands
- whether EIA procedures are able to determine if grassland is highly biodiverse;
- whether EIA-based land use decisions and approval procedures are effective in preventing development of highly biodiverse grassland (if present).

4.7.5 Examining EIA in the UK

Directive 85/337/EEC sets out the Environmental Impact Assessment requirements to be put in place in Europe. As set out in section 2, section 2.3 this Directive requires EIA's to be completed for uncultivated and semi natural areas, however the basis for determining if an EIA is required is left up to the Member State. Within the UK EIA procedures and guidance are specified separately in the devolved administrations.

Guidance for England[54] on the application of EIA requirements specifies that an EIA is required for projects that increase the productivity of agriculture on uncultivated land or semi-natural areas. This covers any work aimed at increasing the productivity of land for agriculture including increased levels of fertiliser or soil improvers, sowing seed, physically cultivating the soil, drainage or clearing of existing vegetation. There is a threshold of 2ha within the guidance and projects below this in size would not generally be affected by the EIA requirements. A list of semi natural habitats is provided in the guidance. Land is considered to be uncultivated if it has not been subject to physical and chemical cultivation in the last 15 years. There is a presumption that the land is uncultivated unless the land manager can provide evidence that land has been cultivated in the last 15 years including witness evidence, statements from previous owners, farm records, subsidy records, photo graphic evidence etc.

Projects that exceed the threshold of 2ha may not proceed without permission from Natural England. To request permission a screening application must be submitted. These applications include: submission of a plan of the affected area; details of the land and its past management; a brief description of the nature, extent and purpose of the project and its possible effects on the environment; any other information the applicant may wish to include for examine the lands management history. Based on this application Natural England would adopt a Screening Decision, reaching this decision may require a site visit and consultation with stakeholders. If Natural England concludes based on the screening application that the project is likely to have a significant effect on the environment the applicant can proceed to the completion of a full EIA – for which Natural England will provide a scoping opinion setting out what an environmental statement from a full EIA should contain. The EIA's environmental statement must be submitted to Natural England for assessment. In reviewing the EIA environmental statement Natural England can grant consent to proceed or reject this.

[54] Natural England (2007), Guidance on the EIA (Agriculture) (England) (No. 2) Regulations 2006 http://www.naturalengland.org.uk/Images/eiaguidance2007_tcm6-6272.pdf

Should projects commence without the appropriate approval Natural England has a variety of enforcement actions and penalties they can impose. These include reductions in the Single Farm Payment (as compliance with the EIA requirements is one element of Cross Compliance), issuing of stop notices and remediation notices or prosecution of the person undertaking the project.

4.8 Rapeseed Production for biodiesel in the UK - A Summary

The UK appears to have a well-established certification and accreditation bodies. The environmental requirements of relevance to the EU Directive under these schemes essentially at present require compliance with binding regulatory requirements. Their value is that firstly they pull together in a coordinated way a basis of proving compliance and secondly these schemes assess farmer compliance on a yearly basis, while for example under the cross compliance regime only 1% of farms are inspected per year.

Compliance of UK rape production under the current certification systems with the grassland requirements in the RED will depend on the effectiveness of the EIA process. The EIA approach adopted in England where by: the farmer first assesses whether their land is likely to fall into uncultivated or semi natural categories; then if needed completes a screening application; and finally, if needed, a full environmental statement: fits well with the proposed three levels of assessment set out in the IEEP approach. The primary outstanding question regarding the EIA requirements is the appropriateness of the 2 hectare threshold for development. This is the subject of some debate, with some considering 2 hectares as too high a threshold given the fragmentation of UK grasslands. Moreover, there have been some limited incidences of valued grassland being developed, in the absence of maps of high biodiversity value grasslands it is often down to a farmer to identify land of interest. Thresholds applied under the EIA requirements for conversion of semi-natural and uncultivated land are known to vary significantly across Europe. There is no threshold in terms of development size specified as applicable within the RED.

The main gap within the existing UK approach is that, in order to demonstrate compliance under the EU Directive it is envisaged that all farmers would have to report the state of land use prior to biofuel cultivation and when the land was converted for the biofuel feedstock production. While farmers subject to EIA requirements in the UK would have for example a screening application, those farmers who undertook crop to crop shifts or converted previously cultivated grassland to arable would not need to report under the existing system. However, under the EU system logically this information would be needed.

ANNEX IV – CASE STUDY III - IMPLICATIONS FOR PALM OIL PRODUCTION IN INDONESIA

4.9 Introduction

Palm oil is used in a range of products that previously contained animal or other vegetable oils. Palm oil is used as a cooking oil; is the main ingredient for most margarine; is the base for most liquid detergents, soaps and shampoos; serves as a base for lipstick, waxes and polishes; and serves to reduce friction in the manufacturing processes such as for cold-rolled steel. As per capita consumption of vegetable oils increased rapidly in the past thirty years, due to a preference for vegetable oils over animal fats and economic growth in China and India, the demand for palm oil grew significantly. By 2000 palm oil was the vegetable oil most produced and traded internationally.

Primary producers are Malaysia, Indonesia, Nigeria, Thailand and Colombia; with Malaysia and Indonesia the major exporters. Malaysia and Indonesia are also the most cost-efficient producers in the world due to high yields, year-round harvesting, low labour costs and favourable climate and soils. Indeed, palm oil is by far the most productive source of vegetable oil and vegetable based biofuels; one hectare can produce 4500 litres of biodiesel compared to 900 litres for rapeseed and around 500 litres per hectare for soy.

Palm oil products are mainly imported by the EU, India, China, Pakistan and Japan. In the EU and Japan palm oil is predominantly used for non-food purposes, while in China and India it is primarily used for food preparation and cooking. Palm oil is primarily a substitute for rapeseed oil in Europe.

Crude palm oil is extracted from the tissue surrounding kernel with palm kernel oil extracted from the kernel. A third refinery product, stearin, is used for soap production. According to the FAO, palm oil production increased by over 400% between 1994 and 2004, when total production reached over 8.66 million tonnes. In 2007, Indonesia became the top producer of palm oil, surpassing Malaysia.

Palm oil is mainly grown in large plantations, established as monocultures in concessions ranging in size from 400 hectares to 75000 ha. During the establishment of a plantation, most standing vegetation is removed by cutting, mechanical clearing or burning. After clearing, the land is planted in a grid pattern of 8 by 8 metres with around 140 trees per hectare. Palm oil can first be harvested after about three years. Fertiliser use is significant, accounting for 40 to 60 percent of maintenance costs.

Over 50 percent of palm oil plantations are owned by large, private companies. A third owned by smallholders and the remaining by state-owned companies.

Palm seeds spoil within 48 hours of harvest, which means that processing mills must be located nearby. Often the plantation and processing mills are owned and operated by the same company, with local growers providing additional feedstock for the processor.

4.10 Examining the Habitats at Risk

Palm oil production has become synonymous with habitat conversion, particularly tropical forests. Drought and man-made clearances have also led to massive uncontrolled forest fires over recent years, covering parts of Southeast Asia in haze. Fitzherbert et al. (2008) founds that the biodiversity in an oil plantation is no greater than that in plantations of other crops and less than in secondary forest.

Clearing forests for plantations is attractive, as the cash flow from logging can help to cover establishment costs. Further, land ownership is usually simpler to establish in newly cleared forest; for example, someone else may have cleared areas that are now grassland, in so doing they may have established a "customary right" to the land even if no formal legal ownership exists.

In a 2008 study, Corley estimates that global demand for edible oils will double to around 240 million tonnes. Most of the additional oil could be palm oil, although soybean oil production is also likely to increase. To meet the estimated demand for edible oil alone, an additional 12 million hectares of oil palms could be required. Corley looks to grasslands as a possible source of land for edible oils considering grassland of less value than forests. The study suggests that there are about 8 Mha of Imperata grassland (see Box 7) in Indonesia, at least 15.5 Mha of 'fallow' land in Brazil and 49 Mha of permanent pasture in Columbia that could be converted to plantations, thus avoiding further deforestation (Corley, 2008). It is, however, unlikely that all of this grassland, especially pasture in Columbia and fallow land in Brazil will be of low biodiversity value. Of these the cultivation of Imperata (known locally as Alang-alang) grasslands in South East Asia perhaps offer a solution with limited biodiversity impacts (see details of the Imperata in Box 7.

Box 7 – Imperata or Alang-alang Grasslands

One of the most persistent elements in the vegetation complex of Indonesia (as in other parts of Southeast Asia) is the invasive grass *Imperata cylindrical*, locally known as *Alang-alang*. It is found in areas where the soil has been disturbed, such as timber harvesting areas. Once established it often forms dense monocultures. It prevents natural regeneration of forest and once established, generally results in the abandonment of land, although for much of Eastern Indonesia, the grass provides useful dry season grazing.

It is estimated that there are about 8 million hectares of Imperata grasslands in Indonesia. A light-loving weed, it will make its presence felt as soon as the forest canopy is opened and it is common in disturbed environments, especially after fire. Farmers have often sought to replace Imperata with tree crops, such as rubber, coffee or palm oil plantations. Apart from the economic value of the replacement, the existence of planted trees asserts a stronger ownership claim over the land. Since colonial times Imperata has been seen as a problem by government officials, who have promoted leguminous and timber trees to shade out or control the grass.

4.11 Implementing Grassland Requirements

4.11.1 Data Availability

Maps of biodiversity hotspot and high conservation value forest (HCVF) are available; produced by Conservation International (CI), The Nature Conservancy (TNC), WWF Indonesia and several other consultants. The biodiversity hotspot map is a global mapping initiative, but so far only the western part of New Guinea Island has been mapped in detail. For Kalimantan and Papua, a HCV map was developed in 2008. This map is based on mostly secondary data sources, and should be treated with caution; however, it is the only data set available on such a scale (Muliastra, 2009).

A study by the Oeko Institute (2009) found that there is no specific information on natural or non-natural grassland available for Indonesia. Although may be possible to differentiate natural grassland and non-natural grassland by assessing the forest cover maps of 2006 from the Ministry of Forestry. In addition, further information on the status of biodiversity is needed.

4.11.2 Roundtable on Sustainable Palm Oil

The Roundtable on Sustainable Palm Oil (RSPO) was formed by a diverse group of stakeholders in the palm oil industry to promote sustainable agriculture and address environmental issues. The RSPO is a not-for-profit association that unites stakeholders from seven sectors of the palm oil industry - oil palm producers, palm oil processors or traders, consumer goods manufacturers, retailers, banks and investors, environmental or nature conservation NGOs and social or developmental NGOs. It is the only international voluntary scheme currently in full operation, assessing the sustainability of a potential biofuel feedstock.

Some of the initial members were WWF International - which took the initiative to address sustainability issues in palm oil production, Migros, Unilever, Malaysia Palm Oil Association, Sainsbury's and Aarhus UK. Today the organization has more than 400 members, with the secretariat in Malaysia and liaison office in Jakarta.

The RSPO certification scheme comprises three key elements:

- **Standard.** This sets out the requirements which must be met and against which certification assessments are made.
- **Accreditation.** The organisations which undertake certification assessment – the Certification Bodies - are assessed and accredited by RSPO as competent to produce credible, consistent results.
- **Process** requirements. This is the process for establishing whether or not a set of requirements - the standard - has been met, usually carried out by a Certification Body.

The RSPO certification steps are largely similar to those of the RTRS – set out in figure 2. The RSPO accredits auditors and certification bodies, however, this is not common to all other voluntary schemes in operation.

The RSPO is has been benchmarked against the sustainability standards set out under the RTFO and has been deemed to be an Environmental Qualifying Standard under the scheme. In addition the audit quality was assessed in December 2008 and found to fully meet the requirements of the RTFO. Analysis of potential compliance with the RED requirements for grassland identified the following RSPO criteria as of relevance.

- 7.1 - A comprehensive and participatory independent Social and EIA is undertaken prior to establishing new plantings or operations, or expanding existing ones [...].
- 7.3 - New plantings since November 2005 have not replaced primary forest or any area containing one or more High Conservation Values.

According to the RSPO requirements, the assessment referred to in 7.1 should cover the potential effects on adjacent natural ecosystems of planned developments, including whether development or expansion will increase pressure on nearby natural ecosystems. In addition, the analysis should assess the type of land to be used (such as forest, degraded forest, cleared land). The RSPO does not, however, provide guidance on assessing the biodiversity of grasslands as such. Rather, the standard and guidelines seems to suggest that non-forested land can be freely used for palm oil plantations.

Box 8 – Experiences of a Producer Operating under the RSPO

A major global producer and processor of palm oil in Indonesia currently certifies around 50% of its feedstock through the RSPO. The remaining 50% is currently undergoing certification procedures. For this company certification procedures would take place with or without biofuels legislation in the EU.

Raw material originates in the company's own supply chain, where they have devised a mass balance system to monitor the supply chains. Documentation is checked on all incoming materials, as well as on farmer compliance with appropriate environmental criteria, such as RSPO criteria.

4.12 Palm Oil Production in Indonesia for biodiesel – A Summary

Palm oil represents a major source of vegetable oils and biodiesel, given its high potential per hectare yields. Indonesia is the world's largest producer of palm oil and also a major exporter, with imports to the EU primarily for non-food purposes. Palm oil plantations are anticipated to expand due to the increasing global demand for vegetable oils, including for biofuels. The primarily biodiversity concern associated with this expansion is widely seen as deforestation and the loss of tropical forests. Imperata grasslands offer a potential source of land for conversion, given perceived low biodiversity value associated with this invasive grass and benefits associated with foresting such areas. However, there is a potential risk associated with branding all of this land as acceptable for use (as, for example, some could be restored to high biodiversity / carbon value forest), and the IEEP approach provides a mechanism for assessing the value of this grassland.

The RSPO is the only fully operational international voluntary scheme. Some major producers are already certifying large quantities of their palm oil under this scheme, despite binding requirements not yet being implemented in Europe.