



**HOUSE OF LORDS EUROPEAN UNION COMMITTEE, SUB-COMMITTEE D
(ENVIRONMENT AND AGRICULTURE)**

**INQUIRY INTO “THE ADAPTATION OF AGRICULTURE AND FORESTRY TO
CLIMATE CHANGE: THE EU POLICY RESPONSE”**

DEFRA AND FORESTRY COMMISSION SUBMISSION

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Summary

The Department for Environment, Food and Rural Affairs and the Forestry Commission welcome this opportunity to submit evidence to the House of Lords Inquiry into the EU policy response to the adaptation of agriculture and forestry to climate change.

As indicated in the Explanatory Memorandum 8526/09 laid before Parliament on 1 April 2009, the Commission’s White Paper “Adapting to climate change: Towards a European framework for action” - supported by a Staff Working Document “Adapting to climate change: the challenge for European agriculture and rural areas” - proposes a framework to reduce the EU’s vulnerability to climate change. The framework is intended to evolve as further evidence on climate change risks and impacts becomes available and will complement actions by Member States, supporting wider international efforts to adapt, especially in developing countries.

The framework acknowledges that most adaptation measures will be taken at national, regional and local level, noting that the framework “will respect the principle of subsidiarity”, but argues that these can be supported and strengthened by an integrated and coordinated approach at EU level. To this end, the framework adopts a two phase approach, with Phase 1 (2009-12) laying the ground work for the preparation of a comprehensive adaptation strategy for the EU, which would be implemented during Phase 2 from 2013.

The Government welcomes the proposal to establish an EU Adaptation Framework and supports the overall approach in the White Paper – particularly the emphasis on partnership working - and the aim of improving resilience by complementing and reinforcing Member States’ efforts in dealing with inevitable climate change. The Government also shares the analysis in the Commission Staff Working Document on the risks to, and impacts on, agricultural production and food security; agrees on the need for a strategic approach to adaptation which reflects local and regional conditions and differences in impacts and ensures that action is taken at the most appropriate level; and has reached broadly the same conclusions on the likely scope and timing of the actions needed. In this context, whilst recognising the importance of the ground work identified as necessary in Phase 1 of the framework,

before implementation of a comprehensive EU adaptation strategy from 2013, the Government is clear that the impacts of climate change are already being felt by the sector and that it is necessary to take early action, in some cases in parallel with continuing risk assessment work. More broadly, there is a need to address the synergies between adaptation and mitigation - and the importance of agriculture and forestry as a provider of wider ecosystem services - whilst recognising the global need for increased food production.

In relation to forestry, a number of commitments have been made by Member States and the European Commission in the Ministerial Conferences on the Protection of Forests in Europe which reflect the need for action on European forests, including adaptation to climate change. These commitments were included in Resolutions on Forests and Climate Change at the Conferences in Helsinki and Vienna, reiterated in the 2007 Warsaw Declaration. The EU Forestry Strategy and the EU Forest Action Plan provide direction for forestry policy, while respecting the principle of subsidiarity to allow Member States to implement specific actions that reflect local/regional environmental, social and economic circumstances. Importantly the Action Plan contains an Action directly relevant to climate change adaptation, namely to *'Facilitate EU compliance with the obligations on climate change mitigation of the UNFCCC10 and its Kyoto Protocol and encourage adaptation to the effects of climate change'*.

Climate change : key concerns for EU Agriculture and Forestry

1. The Earth's climate is undoubtedly changing. Global temperatures are predicted to continue rising, bringing about changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather. The Commission Staff Working Document indicates that improving and refining the spatial and time scales of assessments of expected climate impacts and vulnerability, and a better understanding of the interactions between agriculture and climate is essential. The Government agrees with this view. To this end, the launch of the new UK Climate Projections 2009 (UKCP09) is an important step forward in improving understanding of our complex climate. Although there are assumptions and uncertainties in any work of this kind, these Projections represent strong and credible climate science. They begin to quantify the uncertainties we face and so will help us to understand the risks that lie ahead.
2. Agriculture covers about 75% of UK land and provides a range of important services and benefits to society, including: food and non-food crop production; essential processes such as water cycling and purification; regulation of air quality, erosion and flooding regulation; carbon storage and climate regulation; habitats for wild flora and fauna; and land for recreation. As well as contributing significantly to global greenhouse gas emissions, agriculture is very vulnerable to the impacts of a changing climate - and is indeed already facing the challenges and opportunities that this presents. Climate change will affect, directly or indirectly, many or all of the important benefits that agricultural land provides to society. UK research findings broadly confirm the following likely impacts on agriculture which the Commission identify:
 - Changes to volume, quality and stability of food production (UK - changes in crop yields, growing seasons and geographical ranges)
 - Impacts on soils (UK – same)
 - Changes in prevalence of pests and diseases (UK – same)
 - Increase in frequency and intensity of extreme weather events (UK – same)
 - Changes to availability of water resources (UK – same : floods and droughts)
 - Degradation of agricultural ecosystems (UK – same)
 - (UK - increased heat stress in livestock)
3. The impacts of climate change on UK forests will have large regional variability; in the north and west, productivity is likely to increase, while the current range of species – both those planted for production forestry and components of semi-natural ecosystems - may prove to be much less viable in the latter half of the century, and perhaps severely so in the south and east of the UK. These impacts must be seen in the context of an increased demand for the services provided by trees, woodlands and the forestry sector, in particular:
 - Woodfuel supply – for renewable energy production (biomass)

- Timber and wood products – as a sustainable material, particularly in the construction sector

The interactions between climate change and forestry were extensively reviewed in the December 2009 Read Report, “Combating Climate Change: A Role for UK Forests”, including impacts to date, likely future impacts and potential adaptation responses.

4. The Office of Science and Technology’s Foresight Programme is undertaking a major project on the future of land use in the UK, which will produce an evidence base to help government and other policy makers understand whether existing land use patterns and practice are fit for the future. The project, which is sponsored by Defra and CLG, covers the whole spectrum of land use from urban to rural and addresses the question of “What land use challenges could the UK face over the next 50 years?”. The project’s findings will be published in early 2010.

Objectives of EU action

An EU Adaptation Framework - Phase 1

Developing the knowledge base

5. The Commission White Paper identifies a need for greater sharing of information and best practice across and between Member States and with other countries, particularly developing countries. To this end, it proposes a **Clearing House Mechanism** by 2011 as a platform for exchanging information on climate change impacts, vulnerabilities and best practice on adaptation. A key element here is research and, as the Staff Working Document says, climate change has been identified as a priority by the EU Standing Committee on Agricultural Research (SCAR). The UK will participate fully in the working group of national research programme managers which has been set up to consider how climate change affects agriculture, and how agriculture can suitably adapt to and mitigate these effects.
6. One of the Key Actions identified by the Commission in the EU Forest Action Plan is support for research, training and studies on the impact of and adaptation to Climate Change. The UK is participating fully in the Ad Hoc Group on Climate Change established by the EU Standing Forestry Committee and will share the results of the recently launched Read Report.
7. At the Informal Agriculture Council under the Swedish Presidency in September 2009, the UK called for better coordination of Member States’ national research programmes through the SCAR and for both the 2010 mid-term review of the EU’s Seventh R&D Framework Programme (FP7) and the development of the eighth programme (FP8) to take account of this issue. In a wider, international context, Hilary Benn confirmed UK participation, along with a number of other Member States, in the Global Research Alliance on Agricultural Greenhouse Gas Emissions, which was launched in Copenhagen

on 16 December 2009 by New Zealand and which will share national research findings between developed and developing countries on mitigation and on synergies between mitigation and adaptation.

Integrating adaptation into EU policies

8. The Commission White Paper identifies the need for adaptation to be mainstreamed into EU policies, based on scientific and economic analysis. This was reinforced in September by EU President Barroso's commitment (in the "Policy guidelines for the Next Commission") to launch a major initiative to assess and if necessary adjust all Community policies to enable the EU to anticipate changes that need to be made to adapt its policies to the challenge of climate change.
9. In a forestry context, for example, woodland creation can be seen as a factor which contributes to climate change adaptation, as well as mitigation, at landscape level, in a number of key EU policy areas, such as:
 - *Water Framework Directive*: Woodland creation can play a role in improving water quality (e.g. through 'absorbing' diffuse pollution from agriculture or through stabilising riverbanks and hence reducing sedimentation through erosion), regulating water flows and limiting the impact of rising temperature on freshwater habitats.
 - *Floods Directive*: Woodland creation can, through catchment management, help to alleviate downstream flooding through increasing percolation and increasing interception losses. Floodplain woodland, where carefully planned can also retain flood waters, slow transmission of peak flood flows through high hydraulic resistance and help to desynchronise peak flood flows.
 - *Landscape Convention*: If a careful balance can be struck between conserving landscapes and enabling land use and landscape change that will be essential to address the future challenges associated with climate change, the role of woodland creation in meeting a range of adaptation needs could be enhanced.
10. The Government welcomes the Commission's aim of ensuring the consequences of climate change impacts are taken fully into account in all policy development. In the UK, the Climate Change Act 2008, which set a long-term greenhouse gas emissions target of a reduction of at least 80% by 2050 and introduced a process of 5-yearly carbon budgets for all sectors, including agriculture, also established a statutory framework for adaptation, including:
 - An Adaptation Sub-Committee to the Committee on Climate Change, to advise the Government
 - A national Risk Assessment by 2012
 - A power for Government to require public bodies, particularly those with infrastructure responsibilities, to produce adaptation plans /reports – which will be matched by Government Departments – by Spring 2010
11. The cross-Government Adapting to Climate Change Programme (ACC Programme), which is co-ordinated by Defra, is organised across 4 key themes:

developing a more robust and comprehensive evidence base about the impacts and consequences of climate change on the UK; raising awareness of the need to take action now and help others to take action; working across Government to embed adaptation into Government policies, programmes and systems; and measuring success and taking steps to ensure effective delivery. Within Defra, adaptation of agriculture, forestry and land management (AFLM) to climate change is being addressed by a joint project between Defra, Natural England, the Environment Agency and the Forestry Commission under Defra's Farming for the Future Programme. Outputs from the project will inform the agricultural adaptation contribution to the Defra Departmental Climate Change Plan to be published in Spring 2010.

Commission and Member States working in partnership

12. The White Paper announced the Commission's intention to set up an Impacts and Adaptation Steering Group (IASG), composed of representatives from Member States involved in the formulation of national and regional adaptation programmes, and to consult civil society and the scientific community, to support cooperation and to take forward the adaptation framework. The IASG is due to have its inaugural meeting in February 2010 - and it is expected that the establishment of a technical working group on agriculture, proposed by the Staff Working Document, will follow. The Government welcomes this emphasis on the importance of partnership working, both between Member States (and between MS and the Commission) and with stakeholders – and Defra expects to participate fully in the technical working group.
13. Partnership working is already an established means of taking forward key objectives in this area in the UK, where Government is advised by a Rural Climate Change Forum (RCCF) comprising senior representatives of the National Farmers' Union, Country Land and Business Association, the Agricultural and Horticultural Research Forum (representing the agricultural and horticultural levy boards), the Agricultural Industries Confederation, the National Trust, the Carbon Trust, the Environment Agency, Natural England, the Forestry Commission, the RSPB, the Soil Association, the Sustainable Development Commission and Defra. Representatives of the Devolved Administrations also attend RCCF meetings.
14. In addition, a number of specific initiatives relating to the sector will have to take the need for adaptation to climate change into account. First, following its launch by the Secretary of State at the Royal Show in July 2009, the industry-led voluntary approach to recapturing the benefits of set-aside - the Campaign for the Farmed Environment (CFE) – will need to take account of the impacts of climate change. Similarly, the industry-led voluntary action plan to deliver the 3MtCO₂e reduction in greenhouse gas emissions (in 2018-22) set out in the farming and land management chapter of the UK Low Carbon Transition Plan, also published in July, will need to explore and utilise the synergies between climate change mitigation and adaptation. Finally, the industry-led Agri-Skills Forum has been developing a Skills Action Plan, in the context of which skills for adaptation for farmers will be important.

15. In an EU context, bilateral events to further cooperation with both Germany and France have been held, with joint workshops in Berlin and Paris respectively – and collaboration is ongoing.

Actions to enable agriculture and forests to adapt to climate change

16. The Commission White Paper highlights proposed actions for both the EU and Member States in sectors that have strong EU policy involvement, including agriculture. And the Staff Working Document both identifies a range of farm-level “adaptive solutions” and recognises that, where climate change impacts are more severe, “sector-wide responses tailored to the diversity of regional and local agriculture and steered by public authorities may be needed to facilitate a broader range and better coordinated adaptive action, and to help avoid maladaptation, which could have serious environmental and economic consequences. National and regional adaptation strategies can provide a coherent framework for enabling adaptation.”

17. The Government attaches great importance to establishing effective national strategies and programmes. Impacts can vary considerably from region to region, and we need to make sure that action is taken at the most appropriate level. The Defra Climate Change Plan due to be published in Spring 2010, including agriculture and covering both mitigation and adaptation, will contribute - along with Plans from all other Departments - to the development of a national strategy. In this context, the “orientations for an adaptation strategy in agriculture” set out in the Commission Staff Working Document resonate with the Government’s thinking in relation to:

- *Prioritising “no regret” measures* - our initial analysis of policy instruments and mechanisms shows that, as is the case in relation to mitigation measures, many effective, “win-win” actions can be undertaken by farmers themselves.
- *Strengthening the role of agriculture and forests as a provider of ecosystem services* - many actions which farmers may, or may have to, take to build resilience against and/or adapt to climate change can have additional or primary co-benefits for society more widely.
- *Developing synergies between adaptation and mitigation* - adaptation actions should be sustainable and it will be particularly important to maximise synergies in relation to these two aspects of the challenge of climate change. The Rural Climate Change Forum provides expert advice to Government how the agriculture, forestry, and land management sector can help reduce greenhouse gas emissions in the UK and adapt to the impact of climate change.
- *Improving the adaptive capacity of farmers* - advisory services, including the sharing of best practices and supported by research, together with enhancement of farmers’ skills, are particularly important elements in strengthening the capacity of farmers to address the challenge of climate change. The Government has provided funding and support at the local

and regional level to build capacity to adapt to climate change through the *Farming Futures* project launched jointly with key stakeholder bodies in 2006. It has delivered fact sheets, case studies addressing the impacts, challenges, opportunities and suggested adaptation and mitigation measures for each farming sector

18. The forestry sector is almost unique in the length of its planning horizon; the effects of adaptive actions taken now may only demonstrate their worth in 50-100 years time. By the same token, any action taken now must be appropriate to both the current and future climate. The EU White Paper on adaptation deals poorly with forestry, with the sole mention being:

“As regards forests, the EU forestry strategy could be updated on climate-related aspects; in the framework of the EU Forest Action Plan a debate should be launched on the options for an EU approach on forest protection and forest information systems. On the basis of this action the European Commission will be publishing a Green Paper on forest protection and forest monitoring in Europe early in 2010.”

19. However, the impact assessment for the White Paper addresses forestry in some detail, focusing on impacts on forests and their goods and services – and a range of adaptation measures to address those risks. The role of woodlands in helping society to adapt was mentioned, but options to achieve this through links with other policies at EU level were not identified. Woodland creation delivers adaptation across many sectors - but there is a lack of a joined up approach on forests between EU policies - inhibiting delivery of these benefits. EU forestry needs to be mainstreamed and become integral to other policy areas.

20. Trees and woodlands can help society and biodiversity adapt to climate change. So it is vital that policy linkages are made to ensure that these benefits are delivered. (In particular, trees and woodland have an important role to play in the urban environment for not only their intrinsic biodiversity, visual and recreational potential but also for their potential role in urban climate control (shade and wind speed reduction)). It will also be important to ensure that EU policies aimed at supporting biodiversity objectives do not, unintentionally, stand in the way of appropriate adaptation measures for example:

EU Plant Health Policy: Forest Reproductive Material (FRM) policy: Appropriate provenance selection can play an important part in climate change adaptation in the forestry sector. The development of FRM policy could improve availability of suitable material for use in adaptation programmes across Europe.

Habitats Directive: The Habitats Directive requires that Member States conserve habitats and native flora and fauna. Although UK Government fully supports this objective, for some species it is arguable whether this will be possible (practically or economically) in the light of climate change projections. As a result, requirements of the Directive could, potentially, restrict appropriate adaptation measures for forestry being put in place. It will therefore

be important to ensure that maximum flexibility is retained in the implementation of the Directive. It will also be important to ensure that EU policies on biodiversity conservation and climate change are implemented in a manner that complement each other and help deliver a healthy natural environment.

21. In terms of responding to the threats posed by climate change impacts to the agriculture and land management sector, Defra's Farming for the Future Programme Adaptation project, which will feed into the agricultural adaptation element of the Defra Climate Change Plan, is currently assessing the potential effectiveness (including co-benefits) and feasibility (including likely costs) of a range of measures which would: build the adaptive capacity of both agriculture production and agricultural ecosystems; reduce exposure or sensitivity to climate impacts; and exploit new opportunities. These include measures in relation to planning, monitoring and risk assessment; changing crops / livestock varieties; technology and green infrastructure; and water, livestock, crop, pest and fertiliser management. Options were considered at a joint Defra-RCCF stakeholder workshop held on 2 December 2009 and the outcomes are currently being analysed.
22. In parallel, this Adaptation project has been mapping the existing policy landscape to identify policy instruments or other mechanisms which could potentially be used to deliver the necessary measures to build or enhance the adaptive capacity of agricultural production systems and agricultural ecosystems. At an EU level, these include: Water, Nitrates and Plant Directives, Animal Health legislation, the CAP Single Payment Scheme and cross compliance requirements, Agri-Environment Schemes funded from the Rural Development Programme, and the Farm Advisory Service (see **Appendix A** for more detail).

The longer-term : 2013-20

23. Looking to the future, the Commission White Paper and Staff Working Document both identify the EU Rural Development policy and CAP regimes as potential mechanisms for taking forward, strengthening or supporting adaptation measures, pointing in particular to the fact that the CAP "Health Check" represents "a further step in the direction of sustainable agriculture with specific emphasis on climate change mitigation and adaptation, water and biodiversity protection, for which further rural development funding has been agreed."
24. The Government believes European Rural Development policy is an important tool to help address the challenges of climate change for agriculture, and we are pleased that this was reinforced in the "Health Check". There is a real opportunity now to use rural development tools to help European agriculture and forestry reduce their emissions, contribute to mitigation and support the adaptation of the natural environment to the impacts of climate.
25. In the UK, using existing programmes, our agri-environment schemes help protect the carbon stores in our soils, and support connection of habitats, so that the biodiversity on our farmland can better adapt to the impacts of climate

change. The Government's policy has been to support farmers in focussing on renewable energy schemes and how farms can be more resource-efficient. But experience has shown that the current toolkit does not provide everything that's necessary. As an example, investment in anaerobic digestion is a high priority for the UK, but there needs to be more flexibility in the way in which it can be supported through rural development programmes. And there needs to be more flexibility to support farmers to change behaviours, adopt better practices and acquire the skills they need to address the mitigation and adaptation challenges of climate change.

26. More generally, the Government has been clear in our ambitions for CAP reform: measures targeting the protection and enhancement of the rural environment, including tackling the threat of climate change, should be given a central role in the future CAP.
27. In a forestry context, well-managed woodland is likely to be more resilient to climate change. RDP Axis 2 payments already promote these objectives, but could be extended to explicitly encompass adaptation.
28. Pan-European forest monitoring provided a good baseline and platform for evaluation in the 1990s. However, in recent years, uncertainty over funding programmes and the requirement to link to demonstration projects has led to a consistent and continuous monitoring no longer being in place. Such a pan-European programme would provide an early warning system for individual countries and allow appropriate adaptation programmes to be put in place.

The international dimension

29. The EU has a significant role in international negotiations, and collaborative initiatives, on adaptation to climate change, particularly in relation to developing countries. The UK fully supports that role and participates actively. The Government considers it very important that EU efforts to address climate change adaptation in the agriculture and forestry sectors reinforces, and is reinforced by, wider international research and policy action in this sphere – for instance in the UNFCCC, the OECD, and in other international fora. Most recently, negotiations on a Decision of the Conference of the Parties on an agriculture work programme, which could include adaptation as well as mitigation elements, were not concluded at the Copenhagen Climate Change Conference, but should continue during 2010. Defra Secretary of State, Hilary Benn, with the support of DFID and DECC Ministers, confirmed UK participation (along with other Member States including France, Germany and the Swedish Presidency) in the Global Research Alliance on agricultural emissions proposed by New Zealand and launched at the Copenhagen Conference on 16 December – which will also address synergies between mitigation and adaptation. Bilaterally, Defra and DFID have also established a Sustainable Agriculture Innovation Network (SAIN) with the Chinese Ministry of Agriculture, which includes a Working Group on climate change adaptation and mitigation issues.

Appendix A

Existing EU Policy Instruments and other Mechanisms which address (or have the potential to address) adaptation issues

- The Water Framework Directive 2000 - which requires that River Basin Management Plans include a programme of measures to meet environmental objectives for surface water, groundwater and protected areas. The England Catchment Sensitive Farming Delivery Initiative (ECSFDI) is a five-year advice and incentives programme, sponsored by Defra and delivered in partnership by Natural England and the Environment Agency, which aims to raise awareness about diffuse water pollution from agriculture and the impacts/requirements on the farming industry of the Water Framework Directive.
- Nitrates Directive 1991 and Nitrate Vulnerable Zones (NVZs) - The Nitrates Directive aims to reduce or prevent water pollution caused by the application and storage of inorganic fertiliser and manure on farmland. In England, the Code of Good Agricultural Practice for farmers, growers and land managers (“Protecting our Water, soil and Air”), published by Defra in January 2009, includes advice on reducing nitrate loss – as well as on actions that will achieve future standards to be met under the Water Framework Directive.
- CAP Single Payment Scheme / cross compliance - cross compliance requirements apply to all claimants under the CAP Single Payment Scheme (SPS). Under recent changes to be introduced in January 2010, cross compliance requirements in relation to the keeping of land in good agricultural and environmental condition (GAEC) will include standards on water resource protection in addition to requirements relating to soils, habitat protection and landscape features.
- Agri-environment schemes - from the Rural Development Programme for England’s budget for 2007-13 of £3.9 billion, jointly funded by the EU and the Government, around 80% (£3.3 billion) has been allocated to agri-environment (such as Entry Level Stewardship and Higher Level Stewardship) and other land management schemes (such as the England Woodland Grant Scheme). This funding helps farmers to go beyond cross-compliance requirements to manage the land more sustainably and deliver important outcomes on biodiversity, landscape and access, the historic environment, water quality and climate change.
- EU Plant Health Directive 2000 and EU Animal Health legislation - provide frameworks for action to control or respond to serious pest and disease threats, including new and emerging threats. Biosecurity is currently a critical issue for both animal health and forestry. The recent outbreak of bluetongue disease in cattle and sheep was an early indicator of what can be expected if climate change causes an increase in insect-borne animal diseases. Defra has been very active to shape

and influence policy and legislation in Europe to enable trade in animals to continue whilst controlling disease spread.

Climate change has been implicated as one of the drivers behind some recent forest pest and disease outbreaks, which raises the prospect of significant risk as climate change progresses making the UK's climate more favourable to a wider range of exotic pests and diseases that could be introduced. The Forestry Commission plays a full part in the development of EU measures against tree pests and diseases through representation on the relevant EC committees responsible for plant health. It will be important to ensure that the review of the EU Plant Health regime expected to be completed in 2012 provides for adequate protection for UK woodlands. The Forestry Commission is also responsible for initiating emergency action against new threats to tree health in Great Britain and for seeking permanent measures by way of amendments to the Plant Health Directive. The outbreak of Oak Processionary Moth in London, which is currently subject to statutory action, is one such example.

- Farm Advisory Service - established in 2005 under the CAP to provide advice to farmers on sustainable land and farm management, including cross compliance standards; and delivered in the UK through a range of mechanisms which built on existing provision.
- For woodland, the greatest scope for adaptation is provided through CAP Pillar 2 and Rural Development Programme payments. In England, this is through the English Woodland Grant Scheme and specifically contributes to adaptation through:
 - 1) The Woodland Creation Grant encouraging the development of woodland habitat networks enabling mobile woodland species to move more easily through the landscape as climate change progresses.
 - 2) The Woodland Improvement Grant can be targeted to specific priority species or groups to improve habitat and increase the resilience of populations to a range of threats, including climate change.
 - 3) The Woodland Planning Grant requires woodland owners to plan for the future, providing an opportunity for the effects of and responses to climate change to be incorporated into the forest plan, as outlined in the Climate Change Guidelines that underpin the UK Forestry Standard.
 - 4) The Woodland Management Grant can fund deer management and improved structural diversity for biodiversity objectives that will promote natural generation.