

Inter-Agency Coordination of Wetland Management

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Introduction to the Post-Consultation Report

In April 1996, the author issued the document *Inter-agency Coordination of Wetland Management: Consultation Draft* for wide consultation. During the remainder of 1996, responses were received from almost 90% of organisations invited to comment, in addition to many from other interested individuals and organisations to whom consultees had copied the document. As those involved with public consultation will know, this return rate is very high, indicating the importance with which wetlands are viewed by many sectors of society, an impetus for improving the ways in which we manage and protect them, and an acknowledgement of the many ecological and societal values that they provide.

Comments arising from consultation, both written and verbal, have been carefully considered and weighed with subsequent advances in scientific knowledge about natural and man-made wetlands. The key conclusions of consultation, representing where possible a consensus of views, are contained in the draft paper attached in Part III of this report. Although the original intention was expressly not to establish yet another group, one of the inescapable conclusions drawn from the consultation exercise was that our wetlands are still in decline, and that this situation is due largely to poor integration of policies by the many organisations with impact on wetlands. To build better bridges between the national organisations with responsibility for matters affecting wetlands, the Environment Agency, with the agreement of members of the Wetland Liaison Group that it chairs, plans to recommend to Government that a National Wetland Forum be established to assist in the development of a holistic national strategy for wetlands (as required by the Ramsar Convention), to facilitate the achievement of consensus on wetland issues, and to work towards the goal of wise and sustainable wetland use through harmonisation of policies.

As we head into the third millenium, striving for the goal of sustainability, the pressures on our wetlands will increase. However, with growing knowledge and closer collaboration, there will also be increasing opportunities to re-evaluate how we view and manage our wetlands, to apply cost-benefit arguments to the values they provide for wildlife and society, and to ensure that they continue to provide these benefits both tomorrow and into the longer-term future.



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The structure of the document is as follows:

Part I: Directory of Organisations with Wetland Interests

This section is an expanded version of that contained in the original consultation document, drawing together in summary form the key responsibilities and activities of organisations with involvement in wetland issues. The directory will provide a reference for any organisation or individual taking decisions that may affect wetland areas.

Part II: Glossary of Acronyms and Terms for Wetland Managers

This section updates the former Part III of the consultation document. It provides a summary of acronyms and other technical terms in common usage, and is intended to provide a reference for wetland managers.

Part III: Draft Paper Summarising Conclusions of Consultation Exercise

This section contains a draft of a paper under consideration for inclusion in a major international journal. It provides an outline of the study, examines longer-term and recent trends in British wetlands, summarises views expressed during consultation, and makes recommendations based on consensus views and the best available science

Appendix: Key Contacts

This appendix provides contact details for members of the Environment Agency-chaired Wetland Liaison Group, and for key contacts within the organisations listed in Part I.

Part I: Directory of Organisations with Wetland Interests

Part I contains a series of one-page summaries of the key organisations with responsibility for, or otherwise affecting, the wetlands of England and Wales. Each page specifies:

- Full Name of Organisation, and Abbreviation where Appropriate
- Key Contact on Wetland Issues
- Key Duties and Powers
- Functional/Operational Responsibilities
- Other Potential Influences on Wetlands
- Databases Held
- Future Data Requirements

(Organisations such as the Ramsar Convention, World Conservation Union (IUCN), WWF and Wetlands International have not been included at this stage as they have a wider international remit.)

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Association of County Councils

Key Contact: David Bays

Key Duties and Powers:

- Wildlife and Countryside Act 1981; Town and Country Planning Acts; Water Acts 1973, 1989; Environmental Protection Act 1990; Water Industry Act 1991; Land Drainage Act 1994; Highways Acts (potential impact on wetlands); Education Acts (Awareness and Education)

Functional/Operational Responsibilities:

- Planning policies and development control including those on wetlands, statutory drainage and flood control duties particularly re: highways and non-main rivers. Statutory coastal defence duties

Other Potential Influences on Wetlands:

- Local authorities are significant land owners, some with important rural estates and coastal properties, local authorities also provide advice and grant aid for a multitude of different land use activities including wetland conservation and management

Databases Currently Held:

- Varies for each authority. many local authorities maintain biological databases with information on nature conservation sites, habitats and species. Some have GIS databases. In some cases, wildlife trusts may maintain the database

Future Data Requirements:

- Not defined

Association of District Councils

Key Contact: Michael Ashley; Undersecretary (Housing and Environment)

Key Duties and Powers:

- Local Authority Association representing the interests of 330 district councils in England and Wales

Functional/Operational Responsibilities:

- None. ADC acts as a "trade body": lobbying, policy analysis and development, representative function, advisory role, etc.

Other Potential Influences on Wetlands:

- Policy development and advice to districts.
- Membership of national bodies (e.g. National Planning Forum, Coastal Zone Management Advisory Groups, etc)

Databases Currently Held:

- None relating to wetlands; many relating to Districts (political control, etc)

Future Data Requirements:

- None

Association of Drainage Authorities

Key Contact: David Noble

Key Duties and Powers:

- Internal Drainage Boards (IDBs) are independent statutory public bodies, responsible to MAFF but with considerable interface with the flood defence function of the Environment Agency
- Key acts are the Land Drainage Act 1991 and 1994, within which conservation duties are embraced and reference is made to other legislation such as the Wildlife and Countryside Act 1981

Functional/Operational Responsibilities:

- IDBs administer three million lowland acres, of which two million is dependent upon pumped systems to provide flood protection
- Either directly or through the Agency, IDBs comment on planning applications, structure plans, etc. solely in their capacity as drainage authorities

Other Potential Influences on Wetlands:

- Boards can receive a MAFF grant of 25% towards projects which meet the necessary cost/benefit and environmental considerations. Such schemes are invariably refurbishment work seeking to retain present flood protection standards and land use
- Within such schemes, grant is applied to appropriate works to protect or enhance wildlife habitats. Equally, grant is available for the costs of implementing Water Level Management Plans and is 50% for areas of particularly high conservation interest
- IDBs have in recent years moved from drainers of land to managers of water levels

Databases Currently Held:

- The key database of interest to wetlands is that generated by the Water Level Management Plan process, the vast majority of which will be prepared by the boards as opposed to the Environment Agency. Some of the information, including SSSI, data will be on GIS, but this will always be limited to the larger boards

Future Data Requirements:

- None - WLMPs are seen as the only important activity and are already in place

Association of Local Government Archaeological Officers

Key Contact: Mr Stewart Bryant, Hon. Sec.

Key Duties and Powers:

- Curation of the archaeological resource under:
 - Ancient monuments and Archaeological Areas Act 1979;
 - The Planning (Listed Buildings and Conservation Areas) Act 1990;
 - Planning Policy Guidance note 15 *Historic Buildings & Conservation Areas*;
 - Planning Policy Guidance note 16 *Archaeology & Planning*

Note: The Association was formed by the merger of the Association of County Archaeological Officers and the Association of District Archaeological Officers in May 1996.

Functional/Operational Responsibilities:

- Providing archaeological advice for the determination of planning applications
- Providing archaeological advice to statutory undertakers;
- Maintaining sites and monuments record;
- Formulating and implementing archaeological policy;
- Interpreting archaeological resource; and
- Providing advice on monument management

Other Potential Influences on Wetlands:

- Providing information for the interpretation of archaeological sites/landscapes

Databases Currently Held:

- Sites and Monuments Records
- Scheduled Ancient Monument information
- Listed building information (in some cases)

Future Data Requirements:

- None

Association of Local Government Ecologists (ALGE)

Key Contact: Mr David Pape, Chair

Key Duties and Powers:

- ALGE represents many ecologists working for local government. The association aims to:
 - Promote & develop good principles & practice of nature conservation in local gov.t
 - Provide a forum for the exchange of information and ideas on nature conservation
 - Provide regular advice on nature conservation to the local authority Associations
 - Provide advice to, and liaise with, other bodies working on related matters
- Members use a wide range of legislation, obligations & guidance in their work, including:
 - *Wildlife and Countryside Act 1981*
 - *Planning Policy Guidance Note 9: Nature Conservation*
 - *The Countryside Act 1968*
 - EC Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora: The Habitats Directive. Also, *The Conservation (Natural Habitats etc.) Regulations 1994* which implement them in domestic legislation
 - *Environmental Protection Act 1990*
 - *Town and Country Planning Acts* (various)
 - *Biodiversity: The UK Action Plan* and *Biodiversity: The UK Steering Group Report*

Functional/Operational Responsibilities:

- Formulating and providing advice on planning policies
- Providing advice for the determination of planning applications
- Many local authority ecologists maintain biological records centres
- Involvement in statutory drainage and flood control duties and statutory coastal defence duties

Other Potential Influences on Wetlands:

- Local Authorities are significant land owners with some important rural estates and coastal properties. Local Authority ecologists are contributors to the management of these areas
- Local Authority ecologists also provide advice and grant aid for a multitude of different land use activities including wetland conservation and management
- Providing advice to owners and occupiers on wetland management
- Liaising with other relevant organisations on wetland management and policy (Environment Agency, Countryside Agencies, Wildlife Trusts, etc)
- Production of Nature Conservation Strategies
- Active in community and educational initiatives

Databases Currently Held:

- The situation varies for each Authority. Many Local Authorities maintain a biological database with information on nature conservation sites, habitats and species
- Some have GIS databases or use the Recorder database, whilst others are still paper-based
- In some cases, local Wildlife Trusts may maintain the database

Future Data Requirements:

- Further requirements are rationalising existing databases & ensuring system is kept up-to-date
- Some local authority areas lack data on species and this area in particular requires attention

Association of Metropolitan Authorities

Key Contact: Alison Livesey/Ian Thomas

Key Duties and Powers:

- AMA is a local authority association representing all 36 metropolitan district councils, 31 London Boroughs and the City of London, and South Gloucestershire. The 19 joint authorities responsible for police, fire, civil defence and public passenger transport are corporate members of the association.
- Although the Association lacks any direct powers and duties, it represents the interests of its constituent members, and with them the obligations under which they operate

Functional/Operational Responsibilities:

- Represents members' views in negotiations with central Government about the implications of proposed legislation and the impacts of existing legislation.
- Provides guidance to members through bulletins, circulars, seminars and publications.
- Carries out research and development work, etc.
- Develops and lobbies on policy in all areas affecting local government.

Other Potential Influences on Wetlands:

- Negotiation with other parties with an interest in wetland areas.
- Representation on local authority coastal protection group, DoE Flood Defence group, and Environment Agency Flood Defence group.
- Represented on Rights of Way Review Committee.

Databases Currently Held:

- Names and addresses of all member authorities, and also of specialist advisor panels on planning, development, environmental matters, leisure and tourism. No information relating directly to wetland held on file.

Future Data Requirements:

- Not yet known

Association of National Park Authorities

Key Contact: Professor Ian Mercer CBE, Secretary General

Key Duties and Powers:

- To act as a link between National Park Authorities (NPAs) and Government/Agencies.
- To act as a voice for NPAs wherever
- To coordinate corporately useful research/inquiry
- To publish as necessary

(ANPA is in some ways a parallel organisation to ACC, ADC &AMA, which are soon to be merged into the LGA)

Functional/Operational Responsibilities:

- Implementation of the above Duties and Powers
- Providing coordination for NPAs
- Enabling collaboration between NPAs
- Assisting fund acquisition

Other Potential Influences on Wetlands:

- Primarily through NPAs individually (although the Lake District and Broads are obvious wetland areas, all NPAs have some wetland areas that require management).

Databases Currently Held:

- Databases, including wetland areas, are still held by individual NPAs. A corporate database is planned in the longer term.

Future Data Requirements:

- Consolidation of data from 11 NPAs and the Broads Authority for national purposes.

Atlantic Arc Wetlands Project

Key Contact: Mr Bill Butcher, Director, Somerset Environmental Records Centre

Key Duties and Powers:

- No statutory duties or powers
- The Atlantic Arc comprises 29 regions in France, Ireland, Portugal, Spain and the UK. The Arc has an environmental theme and is funded by DG XVI fund (Regional Development)

Functional/Operational Responsibilities:

- The objectives of the Wetlands Project are to:
 - Develop a meta-inventory of wetlands within the Atlantic Arc
 - Provide an overview of conservation values and impacts across the Atlantic Arc
 - Develop a prototype assessment procedure covering conservation values and impacts

This purpose of this tool is to enable regional authorities to examine their wetlands and, through a rapid assessment technique, to prioritise conservation action where it will achieve the greatest benefit

Other Potential Influences on Wetlands:

- None in Phase I

Databases Currently Held:

- Meta-inventory of European wetlands

Future Data Requirements:

- Not known

The British Association for Shooting and Conservation (BASC)

Key Contact: Dr Phil Nicolle, Head of Conservation and Learning Services

Key Duties and Powers:

- No statutory duties and powers
- BASC is the National representative body for sporting shooting
- BASC's Conservation and Land Management activities reflect its members' care for the countryside, guide their efforts through the development of policy and practice, and integrate them into national priorities for the wise and sustainable use of natural resources

Functional/Operational Responsibilities:

- Advise members, landowners and agencies on integration of shooting and conservation management, particularly in wetland areas
- Formed the Wildlife habitat Trust (WHT) to assist with the acquisition, management and creation of wildlife habitats for the joint benefits of shooting and conservation
- Formal links with EN and CCW through Statements of Co-operation
- Represent wildfowl hunters' interests on local, regional and national coastal forums/strategy groups
- Publish Codes of Practice for shooting in wetland areas, e.g. Wildfowlers Code, Flight Pond Code
- Research, including waterfowl recruitment and development of non-toxic shot

Other Potential Influences on Wetlands:

- Member of the Crown Estates Joint Group on Wildfowling and Conservation on Tidal Land
- Developing guidelines on waterfowl refuge management with EN and other partners

Databases Currently Held:

- Information on location of wildfowling clubs (confidential)

Future Data Requirements:

- Not yet known

The British Trust for Ornithology (BTO)

Key Contact: Dr Mark M Rehfish, Head of Wetland and Coastal Ecology

Key Duties and Powers:

- NGO: No statutory duties and powers
- BTO's primary duties, as determined by its elected Council, are to:
 - Maintain high scientific and professional standards in all its activities;
 - Co-operate with others in relevant research;
 - Work constructively with those whose activities impinge upon the conservation of birds and their environment; and
 - Ensure that its projects widen participants' experience, knowledge and understanding of birds as well as providing enjoyment.

Functional/Operational Responsibilities:

- Extensive research, applied and theoretical, into waterfowl and other avian populations dynamics with the aim of providing impartial information to all interested parties. Special areas of expertise include:
 - Predicting the effects of habitat loss, through man-made developments or natural changes, on waterfowl populations, which is of particular importance in the context of predicting the effects of sustainable development;
 - Assessing the likely impacts of changes in human behaviour on avian populations eg the likely effect of cleaning up organic discharges on waterfowl populations;
 - Assisting waterfowl conservation through the application of science;
 - Monitoring the UK avifauna, including many waterbirds such as waders, and latterly some mammals, through national censuses that range from the Wetland Bird Survey (WeBS) and the Waterway Birds Survey (WBS) through to the Common Birds Census (CBC) and the Breeding Birds Survey (BBS);
 - Running the UK national ringing scheme; and
 - Integrated Population Monitoring, which melds all sources of population data into an assessment of the likely causes of population changes..
- BTO is a national organisation with extensive international links through its ringing & research

Other Potential Influences on Wetlands:

- Collection and collation of habitat and species information
- Co-organiser of a network of 2500 volunteers who monitor wetland birds throughout the UK

Databases Currently Held:

- The BTO holds many long-term databases relevant to wetlands and their associated birds. The WeBS wader data are held by the Trust, as is information on the UK's avifauna in all habitats. The WeBS wader data have been collected from all estuaries and are available from 1969 onwards. These databases can be consulted by any interested parties.

Future Data Requirements:

- The countrywide collection and collation of data will continue. The datasets will continue to broaden their faunistic coverage.

Broads Authority

Key Contact: Ms Jane Madgwick

Key Duties and Powers:

- Special Statutory Authority formed under the *Norfolk and Suffolk Broads Act 1988*, with duties "to manage the Broads (defined by a mapped executive area) for the purposes of:
 - conserving and enhancing the natural beauty of the Broads;
 - promoting the enjoyment of the Broads by the public; and
 - protecting the interests of navigation."

Functional/Operational Responsibilities:

- Coordination of management of Broads area through a statutory Broads Plan
- Management of nature and landscape conservation:
 - Restoration of aquatic life in the rivers and broads;
 - Restoration and management of fens through management agreements, grant aid and directly through practical projects; and
 - Influencing agricultural use and drainage regimes in the drained marshland areas to benefit their conservation.
- Research and monitoring to help direct management programmes
- Environmental interpretation and information
- Managing navigation and water recreation

Other Potential Influences on Wetlands:

- Involvement in the preparation and revision of the Catchment Plan for the area
- Regional and local involvement with Flood Defence Committees and Internal Drainage Boards (consultation as a statutory body on all aspects of drainage and flood defence as determined by the Broads Act and the Water Acts)
- Consultation on regional and local water resource issues and local abstraction licensing as a statutory body

Databases Currently Held:

- Research Register for the Broads (updated 1996)
- Detailed botanical survey of the fens on GIS with associated environmental data
- Management records for the fens
- Long-term monitoring of macrophytes in the Broads
- Various other local data

Future Data Requirements:

- Wetland hydrology

CADW: Welsh Historic Monuments

Key Contact: R A Hooper, Ancient Monuments Administration

Key Duties and Powers:

- A range of powers and duties with respect to historic monuments, under:
 - The Ancient Monuments and Archaeological Areas Act 1979;
 - The Protection of Wrecks Act 1972;
 - The Planning (Listed Buildings and Conservation Areas) Act 1990; and
 - The Historic Buildings and Ancient Monuments Act 1953 (grant)

Functional/Operational Responsibilities:

- Determining scheduled monument consent applications for scheduled ancient monuments (SAMs) in wetlands
- Grant aid and management agreements for SAMs in wetlands
- Funding of Rescue Archaeological excavations, salvage, survey work (threat-related) in wetlands
- Compilation of Registers of Historic Landscapes and of Historic Parks and Gardens (which can include wetlands) for planning advice
- Providing advice to planning authorities on development applications affecting, or adjacent to, SAMs in wetlands
- Funding the Welsh Archaeological trusts for development control advice to planners on non-scheduled monuments
- Providing advice for built heritage policies in government or local authority structure plans
- Liaising with the Environment Agency via Conservation Committees

Other Potential Influences on Wetlands: • Not specified

Databases Currently Held:

- Scheduled Monument Databases (FOXPRO format) including written descriptions, land class, site status data, archaeological details, etc
- Listed Buildings database (Microsoft Access format) is currently being developed, and will include details of the location and description of all listed buildings
- Note that Sites and Monument Registers (SMRs) in Wales are held by four regional Archaeological trusts: Clwyd Powys, Glamorgan Gwent, Gwynedd, and Dyfed

Future Data Requirements:

- No GIS or digital mapping is used at present
- Future requirements will include the development of the Extended National Database (END) for Wales with the Royal Commission on the Ancient and Historical Monuments of Wales and the four Welsh Archaeological Trusts

Campaign for the Protection of Rural Wales

Key Contact: No information provided

Key Duties and Powers:

- No information provided

Functional/Operational Responsibilities:

- No information provided

Other Potential Influences on Wetlands:

- No information provided

Databases Currently Held:

- No information provided

Future Data Requirements:

- No information provided

Centre for Environment and Hydrology (CEH; NERC)

Key Contact: Dr F Hugh Dawson, IFE, Wareham

Key Duties and Powers:

- NERC's mission is to promote fundamental research into the environment, and particularly aspects of long-term climate change. CEH is a consortia of NERC institutes taking a lead on aquatic and wetland science

Functional/Operational Responsibilities:

- The promotion of research and production of reports support Government policy, and particularly those of the sponsoring department (DTi)

Other Potential Influences on Wetlands:

- NERC's key role as government advisor, and its high-level representation at conferences and through publications, provide it with influence over scientific thinking and policy development

Databases Currently Held:

- Many long-term and GIS databases

Future Data Requirements:

- Not known

Council for the Protection of Rural England (CPRE)

Key Contact: Dr Siân Phipps, Land Use Campaigner

Key Duties and Powers:

- NGO status (no statutory powers or duties)
- CPRE cares for the whole of England's countryside on behalf of present and future generations. It works for a beautiful and living countryside and campaigns for the more sustainable use of land and other resources in town and country.

Functional/Operational Responsibilities:

- CPRE has over 45,000 members and 43 country branches
- Local branches are key players in the planning process
- One of their main responsibilities is to scrutinise planning applications, commenting where necessary and representing environmental interests at Public Enquiries

Other Potential Influences on Wetlands:

- Representation on MAFF's Regional Agri-Environment Consultation Groups
- Seeking representation on Regional Environmental Protection Advisory Committees
- Providing comments on countryside / coastal management strategies and plans
- Campaigning and lobbying for the countryside at national and local levels

(CPRE does not give grants)

Databases Currently Held:

- No national wetland database, but local branches may have their own data

Future Data Requirements:

- Not known

Country Landowners Association (CLA)

Key Contact: Dr Alan Woods, Environment and Water Advisor, CLA

Key Duties and Powers:

- The CLA has no statutory powers or duties, but works to safeguard & promote the interests of owners of agricultural & other rural land, so far as it is consistent with the interests of the nation
- The Association advises and supports its members to encourage public opinion to be sympathetic to the owners of land

Functional/Operational Responsibilities:

- The CLA has 50,000 members who, between them, own some 5 million hectares of land in England and Wales
- The CLA advises its members on land use and water issues. It can only advise and encourage - it can not instruct its members
- CLA members support the organisation voluntarily through their annual subscriptions
- CLA interests in relation to wetlands include: flood and coastal defence; water abstraction; wetland management and restoration; water quality; conservation of wildlife, landscape and heritage; fisheries; and acidification
- The CLA works at EU level through the European Landowners' Organisation (ELO) which represents the interests of many millions of landowners throughout the EU

Other Potential Influences on Wetlands:

- The CLA seeks to influence policy at EU, national, regional and local levels on all issues relevant to its members. It works to this end with the EU institutions, Parliament, UK Government Departments, national statutory agencies, other voluntary bodies, and local authorities

Databases Currently Held:

- Names and addresses of its members, and associated information. This is confidential information, but the association is able, in certain circumstances, to assist other bodies who wish to contact its members

Future Data Requirements:

- Not yet known

Countryside Commission

Key Contact: Andy Neale, Land Use Branch

Key Duties and Powers:

- Statutory advisor to Government on conservation of English countryside and public enjoyment of it.

Functional/Operational Responsibilities:

- Advice on national policies which may affect wetlands, e.g. agri-environment schemes.
- Advice via regional offices.
- Experiments in land management, which include wetlands.

Other Potential Influences on Wetlands:

- Responsibilities pursued as part of wider land use.

Databases Currently Held:

- None specific to wetlands.

Future Data Requirements:

- Number and location of wetland management projects, particularly these that involve changes to less intensive agricultural use.

Countryside Council for Wales (CCW)

Key Contact: Dr Catherine Duigan, Freshwater Ecologist

Key Duties and Powers:

- Identification/notification of SSSIs for habitats, species and earth science features (Wildlife and Countryside Act 1981, as amended)
- Establishment and management of National Nature Reserves (NNRs)
- Identification/notification of SPAs under the EC Birds Directive, SACs under the Habitats Directive and identification/notification of RAMSAR wetland sites
- To assess the implications of proposals affecting European nature conservation sites
- Designation of National Parks
- To carry out, commission or to support research
- To enter into management agreements re: NNRs and SSSIs
- To provide advice to the Secretary of State for Wales
- Promotion of nature and landscape conservation and dissemination of information
- Compulsory acquisition/Nature Conservation Orders
- Statutory Consultee on:
 - Water industry disposal of land
 - Environmental Assessments and potential impacts on SSSIs, etc
 - Development plans
 - Conservation, enhancement, access and development within National Parks & AONBs
- To pursue experimental schemes such as Tir Cymen

Functional/Operational Responsibilities:

- Consultee on planning applications which impinge on SSSIs or NNRs and major schemes such as road developments which affect the wider countryside
- Consultee on agri-environment grants such as ESAs and the Habitat scheme
- Consultee re: WLMPs
- Biodiversity Action Programmes

Other Potential Influences on Wetlands:

- Provision of grant to local authorities and NGOs such as RSPB and National Trust
- Many examples of small collaborative initiatives to protect threatened wetland sites (e.g. Anglesey Wetland Strategy)

Databases Currently Held:

- Computer SSSI database with details of properties, designated features, overlaps with other designations, etc
- Paper database on Lowland Peatland Survey 1982 and 1989, and saltmarsh survey
- Phase I vegetation survey of the whole of Wales in preparation
- Various data sets held in Area offices

Future Data Requirements:

- CCW is working on a revised central computer database (completion date not known)
- A freshwater literature database is being compiled with references relevant to wetland conservation in Wales

Department of the Environment

Key Contact: Ms L Smith, European Wildlife Division

Key Duties and Powers:

- UK authority for the Ramsar Convention. Except for coastal defence and agricultural policy, DoE have a lead role in the development of a national strategy for the protection of wetlands.

Functional/Operational Responsibilities:

- As UK authority for the Ramsar Convention, DoE has the lead policy responsibility for its implementation and for wetland conservation generally. In practice, many of the decisions affecting wetlands will be made by local authorities, NDPBs (Environment Agency, Association of Drainage Authorities, English Nature and its equivalents in Scotland and Wales) and by other public authorities.

Other Potential Influences on Wetlands:

- Government policies on nature conservation should be taken into account in all planning activities which affect rural and coastal land use and should be reflected in regional planning guidance and development plans. Further guidance can be found in Planning Policy Guidance on Nature Conservation (PPG 9, October 1994).

Databases Currently Held:

- List of UK sites listed as wetlands of international importance under the Ramsar Convention.

Future Data Requirements:

- None identified.

English Heritage

Key Contact: Dr Geoffrey Wainwright, Chief Archaeologist

Key Duties and Powers:

- Recommending sites for designation as scheduled ancient monuments (SAMS) under the provisions of the *Ancient Monuments and Archaeological Areas Act 1979*
- Providing advice on Government on matters affecting the historic environment
- Promoting the preservation and enhancement of the historic environment
- Promoting public understanding and enjoyment of the historic environment
- Commissioning and supporting research

Functional/Operational Responsibilities:

- Advising the Secretary of State for National Heritage on applications for scheduled monument Consent
- Involvement in planning applications where they affect SAMS
- Advising owners, occupiers and others on the management of archaeological sites
- Management agreements with owners/occupiers to improve management of SAMS
- Grant aid to capital works for SAMS
- Involvement in MAFF grant aid application affecting SAMS (flood defence, Countryside Stewardship, ESA, etc) and other nationally important sites
- Consultation with Environment Agency over water/drainage issues affecting SAMS and other nationally important sites

Other Potential Influences on Wetlands:

- Conference presentations, production of publications (both academic and popular), sponsorship of publications by other bodies

Databases Currently Held:

- Detailed records of SAMS and their management

Future Data Requirements:

- Not known

English Nature

Key Contact: Dr Chris Newbold, Wetland Ecologist

Key Duties and Powers:

- Identification/notification/protection of SSSIs and selected species through the Wildlife and Countryside Act 1981, with later amendments under the Water Resources Act 1991
- Establishment and management of National Nature Reserves (NNRs)
- Identification/notification of SPAs, ratified by DoE, under the EC Birds Directive, and of SACs under the EC Habitats Directive
- To carry out, commission or support research
- Provision of advice to Government
- Promotion of nature conservation and dissemination of information

Functional/Operational Responsibilities:

- Involvement in Planning Applications where they affect wetland SSSIs
- Involvement in MAFF grant aid applications affecting wetland SSSIs (mainly flood defence, but also Countryside Stewardship, Habitat Options Scheme (e.g. Water Fringe Option) & ESAs
- Involvement/consultation with the Environment Agency over Water Quality/Quantity issues affecting wetland SSSIs
- Key partner in WLMPs with operating authority and MAFF
- Management agreements with owners/occupiers to protect wetland SSSIs, and direct site management of NNRs and some SSSIs
- Restoration of wetland habitats through Wildlife Enhancement Schemes (WES)
- Species Recovery programme
- Biodiversity Action Programme - key habitats
- Notification of RAMSAR wetland sites to DoE, then "designation" of approved sites

Other Potential Influences on Wetlands:

- Conference presentations, papers, articles, EN publications (EN magazine, ENAct, Site Lines)
- Grant aid to voluntary bodies

Databases Held:

- Wetland database on SSSIs in England

Future Data Requirements:

- Database of ~100 SSSI/non-SSSI rivers. Site descriptors to NVC communities of all wetland SSSIs. (Complete 1996)

Environment Agency

Key Contact: Dr Mark Everard

Key Duties and Powers:

- The Agency has a wide range of powers and duties relating the water environment arising from the:
 - Environment Act 1995
 - Water Resources Act 1991
 - Salmon and Freshwater Fisheries Act 1975
 - The Environmental Protection Act 1990
- In addition to this primary legislation, a range of other obligations arise, including: ...
 - *Biodiversity: The UK Action Plan* (DoE, 1994)
 - *The Conservation (Natural Habitats etc) Regulations 1994*
 - Various relevant EC Directives

Functional/Operational Responsibilities:

- Functional Responsibilities deal with the seven major divisions:
 - Pollution control to air, land and water, all of which may impact upon Water Quality
 - Water Resources
 - Flood Defence
 - Fisheries
 - Recreation
 - Navigation
 - Conservation

Other Potential Influences on Wetlands:

- Statutory consultee on development planning applications affecting the water environment
- Major impacts/benefits accruing from operational activities (especially flood defence)
- Providing advice on best practice on a range of activities (farming, development, etc) affecting wetlands
- Promoting & furthering conservation through our own actions and by collaboration with others

Databases Currently Held:

- Public Register databases on water quality, prosecutions, abstracts, etc
- Locally held map-based data on sensitive habitats

Future Data Requirements:

- GIS, digitised data, wetland boundaries, etc

Farmers' Union of Wales

Key Contact: No information provided

Key Duties and Powers:

- No information provided

Functional/Operational Responsibilities:

- No information provided

Other Potential Influences on Wetlands:

- No information provided

Databases Currently Held:

- No information provided

Future Data Requirements:

- No information provided

Farming and Wildlife Advisory Group (FWAG)

Key Contact: Mr Richard Knight, National Technical Manager

Key Duties and Powers:

- No statutory duties/powers
- FWAG is an NGO, with a UK-wide remit, providing advisory services to farmers and land owners and putting policy into practice for partner bodies with agricultural and environmental interests
- FWAG's interests include both wildlife and landscape

Functional/Operational Responsibilities:

- Provision of advice on environmental land management with specific relevance to farmed land
- FWAG encourage retention, appropriate management and creation of wetlands
- Combines good conservation practice with commercial farming

Other Potential Influences on Wetlands:

- Advice covers environmental impact of manure, fertiliser and pesticide application as well as other farming operations/systems
- Advice takes account of the relationship of wetlands and other habitats to the whole farm

Databases Currently Held:

- No public databases

Future Data Requirements:

- Information re: habitat loss/fragmentation and quality change would be helpful at national, regional and local level
- Wetland site records and boundaries

Ministry of Agriculture, Fisheries and Food (MAFF)

Key Contact: Miss Kris Green

Head of Branch A, Flood and Coastal Defence Division (Eastbury House)

Key Duties and Powers:

- Responsible for flood and coastal defence policy in England and administering relevant legislation

Functional/Operational Responsibilities:

- Many, but importantly coordinating the production of WLMPs

Other Potential Influences on Wetlands:

- Encouraging the provisions of adequate and technically, environmentally and economically sound and sustainable flood and coastal defence measures
- Production of MAFF/WO *Water Level Management Plans: A Procedural Guide for Operating Authorities*

Databases Currently Held:

- Database to monitor preparation and progress of WLMPs

Future Data Requirements:

- Not currently known

National Farmers Union (NFU)

Key Contact: Brian McLaughlin

Key Duties and Powers:

- No statutory powers or duties

Functional/Operational Responsibilities:

- Providing advice to members on wetland issues where these relate to their farming activities
- Involvement in water-related plans, including:
 - Shoreline management plans
 - Estuary plans
 - Water level management plans
 - Catchment management plans
 - Other EN and Agency water-related plans
- Liaison with environmental organisations such as RSPB

Other Potential Influences on Wetlands:

- None

Databases Currently Held:

- Not known

Future Data Requirements:

- Not known

National Trust

Key Contact: No information provided

Key Duties and Powers:

- No information provided

Functional/Operational Responsibilities:

- No information provided

Other Potential Influences on Wetlands:

- No information provided

Databases Currently Held:

- No information provided

Future Data Requirements:

- No information provided

River Restoration Project (RRP)

Key Contact: Mr Richard Vivash, General Manager

Key Duties and Powers:

- Non profit-making organisation (no statutory duties or powers)
- RRP's prime objective is to be a catalyst and focal point to assist in the promotion of restoration of river and floodplain habitat, including the processes that form and maintain them

Functional/Operational Responsibilities:

- Demonstration sites on the Rivers Skerne (Darlington) and Cole (near Swindon), and also close links with restoration of the River Brede in Denmark
- Policy is to help organisations to establish partnerships to enable their collective powers and responsibilities to be more effective in river restoration
- Information is given on techniques and contacts
- Monitoring is a critical activity to determine the benefits of restoration to biota, flood defence, water quality, amenity, etc, and the cost benefit and the public's perception of such activities.

Other Potential Influences on Wetlands:

- Demonstration of the benefits of restoration
- Restoration relates to river and floodplain, the floodplain being utilised for flood storage, nutrient reductions and habitat for specialised wetland biota

Databases Currently Held:

- Pre-woks monitoring
- Demonstration site data being developed on GIS system; paper copies presently available
- Reports on:
 - River restoration methods; and
 - the Institutional Framework for Restoration

Future Data Requirements:

- Monitoring of demonstration sites will deliver comprehensive reports, video and manual of achievements in 1997
- Network of restoration activities across Europe being planned as a means of informing practitioners of the progress and experience of others

Royal Society for the Protection of Birds (RSPB)

Key Contact: Ms Deborah Harrison/Dr Roger Buisson

Key Duties and Powers:

- NGO and charity status (no statutory duties or powers)
- RSPB's primary duty, as determined by its elected Council, is "...to strive for the conservation of wild birds, and the environment on which they depend, primarily in the UK but increasingly in Europe and elsewhere in the world"

Functional/Operational Responsibilities:

- Ownership and conservation management of reserve land. (132 nature reserves and other land holdings owned as of 31st March 1995)
- Advice to other land-owners on conservation management
- Research, primarily with a bird habitat and species focus
- Lobbying national and European institutions on environmental legislation, and for financial incentives which protect, manage and create habitats of importance to birds, and the removal of incentives which encourage damage to such habitats
- Expanding international focus
- Raising awareness of bird & habitat conservation issues amongst the public & decision-makers
- Operation in international fora through BirdLife International, the worldwide partnership of voluntary wild bird conservation bodies, to achieve bird and habitat conservation

Other Potential Influences on Wetlands:

- Negotiation with agricultural policy-makers and land users
- Consultation with land drainage/flood defence authorities

Databases Currently Held:

- Numerous databases: Including birds on reserves, and reedbed inventory

Future Data Requirements:

- Not yet defined, but includes appropriate information on habitat quality measures

Welsh Local Government Association

Key Contact: No information provided

Key Duties and Powers:

- No information provided

Functional/Operational Responsibilities:

- No information provided

Other Potential Influences on Wetlands:

- No information provided

Databases Currently Held:

- No information provided

Future Data Requirements:

- No information provided

Welsh Office - Environment Division

Key Contact: Ms Amanda Berry, Environment Division

Key Duties and Powers:

- Wide-ranging ministerial powers under:
 - The Coast Protection Act 1949
 - The Land Drainage Act 1991
 - The Water Resources Act 1991
 - Land Drainage Improvement Works (Assessment of Environmental Effects) Regulations 1988 SI 1217
 - Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 SI1199
 - Land Drainage Improvement Works (Assessment of Environmental Effects) (Amendment) 1995 SI2495
 - The Environment Act 1995
 - The Land Drainage Act 1994

Functional/Operational Responsibilities:

- To administer matters under the above Acts, including appeals and grant aid (Similar to MAFF Flood and Coastal Defence Division's responsibilities, but for Wales)

Other Potential Influences on Wetlands:

- None

Databases Currently Held:

- None specifically on wetlands

Future Data Requirements:

- None

Welsh Office Agriculture Department (WOAD)

Key Contact: Mr S Davies, Agriculture Division

Key Duties and Powers:

- WOAD do not have a statutory requirement to protect wetlands
- ESA primary legislation: - Agriculture Act 1986
ESA subordinate legislation:
 - SI 1993/1210 (Ynys Môn)
 - SI 1993/1211 (Radnor)
 - SI 1994/238 (Clwydian Range)
 - SI 1994/239 (Preseli)
 - SI 1994/240 (Cambrian Mountains 'Extension')
 - SI 1994/241 (Lleyn Peninsula)
 - SI 1995/243 (Cambrian Mountains 'Original')

Functional/Operational Responsibilities:

- Farmers have the opportunity to enter into 10-year agreements to adopt environmentally beneficial farming practices in exchange for annual payments. The scheme operates on a whole-farm basis, but specific management prescriptions may apply to wetland habitats. Six Environmentally Sensitive Areas (ESAs): Cambrian Mountains; Lleyn Peninsula; Ynys Môn; Radnor; Preseli; and the Clwydian Range
- Wetlands may also be protected under the species-rich grassland option of the Habitat Scheme. This operates on a similar basis to ESAs but specific habitats are targeted across the whole of Wales rather than targeting all habitats within a designated area. Site-specific management programmes are drawn up to ensure appropriate farming practices are being undertaken in order to improve or create a particular habitat
- Habitat scheme, analogous to MAFF's Water Fringe Option Scheme, administered by WOAD

Other Potential Influences on Wetlands:

- None

Databases Currently Held:

- For each ESA, land cover data on the area and location of wetlands and other habitats within the area
- For each ESA, wetland under agreement
- For the habitat schemes, wetland under agreement

All databases are at 1:10,000 OS base in digital format

Future Data Requirements:

- May include information on wetland in Wales outside ESA boundaries

The Wildfowl and Wetlands Trust (WWT)

Key Contact: Dr Jeff Kirby,
Director of Research & Director of the Wetlands Advisory Service

Key Duties and Powers:

- NGO (no statutory duties or powers)
- WWT's primary duty, as determined by its elected Council, is "To save wetlands for wildlife and People"

Functional/Operational Responsibilities:

- Extensive research, conservation and EPA programmes are conducted with the primary aim of:
 - Raising awareness of the values of wetlands, the threats they face and the actions needed to save them;
 - Reversing the trend of wetland loss in the UK and working with others to achieve this overseas;
 - Advancing the concept of sustainability in the use of wetlands by people;
 - Working for the maintenance of biological diversity in wetlands;
 - Safeguarding threatened species of wetland wildlife, especially waterbirds
- WWT is a national organisation and its international activities are carried out in partnership with other national organisations or with and through international organisations.

Other Potential Influences on Wetlands:

- WWT currently manages nine Regional Conservation Centres in the UK, each embracing important wetland habitats of national or international significance. New centres are currently under development and WWT aims to develop regionally so that 85% of the UK population is within 50 miles of a WWT Centre.

Databases Currently Held:

- WWT holds many databases relevant to waterbirds and wetlands. These have been generated from 50 years of research and conservation activity. Amongst the most important are the Wetland Bird Survey database and extensive records of swans and geese wintering in the UK. Full details of WWT's databases are available on request.

Future Data Requirements:

- WWT plans to continue its important work on waterbirds and wetlands. Other wetland-dependent groups (fish, mammals, plants *etc.*), especially those whose existence is threatened, are likely to receive greater attention from WWT in the years to come.
- A key and urgent requirement for WWT is detailed information on the locations, extent and characteristics of wetland habitat in the UK, allowing monitoring of the habitat as well as the species that are dependent on it.

The Wildlife Trusts

Key Contact: Caroline Steel, Head of Conservation

Key Duties and Powers:

- NGO status (no statutory powers and duties)
- The Wildlife Trusts mission statement is "to achieve a UK richer in wildlife - the protection and enhancement of species and habitats, both common and rare"

Functional/Operational Responsibilities:

- The Wildlife Trusts own/manage wetland nature reserves
- Biodiversity Action Plan Programme - Key role in the delivery of targets for key habitats and species
- The network of wildlife trusts play a key role in scrutinising and commenting on planning applications and representing environmental interests at public enquiries
- Campaigning and lobbying to reverse the decline in wetland biodiversity

Other Potential Influences on Wetlands:

- Provision of advice to land managers, including that relating to local, regional and national policy with respect to wetlands
- Represented on Environment Agency committees
- Collection and collation of habitat and species information
- Promotion of public awareness of the value of wetlands
- Development of educational programmes
- Run otters and rivers projects
- Input into catchment management plans
- Involved in habitat creation projects (e.g. ponds and gravel pits)

Databases Currently Held:

- Effectively operate as (or the equivalent of) local record centres, with the majority of trusts using the Recorder database
- Key data sets include: Wildlife Sites register; RDB/County notable species; Some statutory site data; and River corridor surveys

Future Data Requirements:

- Further information on Wildlife Sites including Water Quality data
- Digitised boundaries of wetland habitats

Part II: Glossary of Acronyms and Terms for Wetland Managers

The following terms and acronyms are in common use by various national organisations and pieces of legislation relating to wetlands.

ACC	Association of County Councils
ADAO	Association of District Archaeological Officers, which merged with the Association of County Archaeological Officers in May 1996 to form the new Association of Local Government Archaeological Officers
ADC	Association of District Councils
ALGE	Association of Local Government Ecologists
AMA	Association of Metropolitan Authorities
ANPA	Association of National Park Authorities
AONB	Areas of Outstanding National Beauty
BASC	The British Association for Shooting and Conservation
Birds Directive	EC Directive CEC 79/409 on the Conservation of Wild Birds
BTO	The British Trust for Ornithology
CLA	Country Landowners Association
CCW	Countryside Council for Wales
CEH	Centre of Environment and Hydrology, a centre within NERC (<i>ibid</i>) dedicated to promotion of research into aspects of the aquatic environment. Constituent institutes are IFE (<i>ibid</i>), ITE (<i>ibid</i>), IH (<i>ibid</i>) and IVEM (<i>ibid</i>).
Countryside Stewardship	A MAFF-operated scheme helping to achieve land use change
CPRE	Council for the Protection of Rural England

CPRW	Council for the Protection of Rural Wales
CZM	Coastal Zone Management, and integrated approach to planning of all interest in the coastal zone
CZMP	Coastal Zone Management Plan, setting out plans for a CZM???
DTi	Department of Trade and Industry
EN	English Nature
END	Extended National Database for Wales, co-developed by CADW, the Royal Commission on the Ancient and Historic Monuments of Wales, and the four Welsh Archaeological Trusts
ESA	Environmentally Sensitive Area, designated by MAFF/WOAD for grant-aided environmentally sensitive farming
FAEWE	Functional Analysis of European Wetland Ecosystems, an EC-funded community research programme to produce a semi-quantitative field assessment tool to determine the functions performed by wetland systems
FWAG	Farming and Wildlife Advisory Group
GIS	Geographic Information System, a spatial database architecture
Habitats Directive	EC Directive CEC 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora
IAWQ	International Association fo Water Quality
IDB	Internal Drainage Boards
IFE	Institute of Freshwater Ecology, a constituent institute of NERC (<i>ibid</i>)
IH	Institute of Hydrology, a constituent institute of NERC (<i>ibid</i>)
ITE	Institute of Terrestrial Ecology, a constituent institute of NERC (<i>ibid</i>)
IUCN	World Conservation Union (formerly the International Union for the Conservation of Nature)
IVEM	Institute of Virology and Environmental Microbiology, a constituent institute of NERC (<i>ibid</i>)

IWRB	The International Wildfowl and Wetlands Bureau, which has now been subsumed into the new global organisation Wetlands International
MAFF	Ministry of Agriculture, Fisheries and Food
MNR	Marine Nature Reserve
NERC	The Natural Environment Research Council. Funded from the Department of Trade and Industry (DTI), NERC is responsible for the promotion of environmental research
NFU	National Farmers' Union
NGO	Non-governmental Organisation
Nitrates Directive	EC Directive CEC 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources
NNR	National Nature Reserve, designated under the Wildlife and Countryside Act 1981
NPA	National Park Authority
NRA	National Rivers Authority, a now-abolished component part of the Environment Agency
NSA	Nitrate Sensitive Area; a groundwater protection zoning scheme introduced under the Water Resources Act 1991
NVC	National Vegetation Classification, a scheme for classifying typical communities of vegetation
NVZ	Nitrate Vulnerable Zone, designated under the EC Nitrates Directive
RAMSAR Site	Site of international importance for wildfowl, identified by signatories of the Ramsar Convention
RRIN	River Restoration Information Network, a data-sharing network not yet established by under discussion within the RRP
RRP	River Restoration Project
RSNC	The Wildlife Trusts (formerly the Royal Society for Nature Conservation)
RSPB	Royal Society for the Protection of Birds, an NGO (<i>ibid</i>) involved in the

protection of wild birds and their habitats

SAC	Special Area of Conservation, designated under the EC Habitats Directive (<i>ibid</i>)
SAM	Scheduled Ancient Monument, designated under Ancient Monuments and Archaeological Areas Act 1979
SSSI	Site of Special Scientific Interest, designated under the Wildlife and Countryside Act 1981
SPA	Special Protection Areas, designated under the EC Birds Directive (<i>ibid</i>)
SSSI	Site of Special Scientific Interest, designated under the Wildlife and Countryside Act 1981
UNCED	United Nations Conference on Environment and Development (the "Earth Summit") in Rio de Janeiro, 1992
WCED	World Commission on Environment and Development (the "Brundtland Commission")
WES	Wildlife Enhancement Schemes, grant aided by English Nature for the protection or restoration of habitat
WHT	Wildlife Habitat Trust, operated by The British Association for Shooting and Conservation for the acquisition, management and creation of wildlife habitats for the joint benefits of shooting and conservation
WLMP	Water Level Management Plan, following guidelines from MAFF but produced by the Environment Agency, IDBs and/or local authorities
WOAD	Welsh Office Agriculture Department
WWT	The Wildfowl and Wetlands Trust

Part III: Draft Paper

The draft paper attached below is under consideration for inclusion in a major international journal. It provides an outline of the study, examines longer-term and recent trends in British wetlands, summarises views expressed during consultation, and makes recommendations based on consensus views and the best available science.

DEVELOPMENT OF A BRITISH WETLAND STRATEGY

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(This article is based on a presentation given at INTECOL's Vth International Wetlands
Conference "Wetlands for the Future", September 1996.)

Disclaimer

This paper represents the author's personal opinion and does not necessarily accord with the views of the Environment Agency.

Abstract

1. British wetlands have a long history of over-exploitation, and there is evidence of a continuing decline.
2. A significant body of obligations exists for the protection and wise use of British wetlands. However, there is an apparent failure of existing legislation and agreements adequately to protect the remaining resource.
3. Better coordination of wetland policy is required to avert a continuing piecemeal loss of the nation's wetland resource.

4. A consultation exercise has revealed support, and opportunities, for closer collaboration between a wide range of organisation with responsibility for, or which otherwise affect, wetlands.
5. There are many potential advantages to the development and acceptance of a single consistent definition and classification scheme, agreeable to all organisations with interests in wetlands.
6. To provide adequate protection for wetlands, it is essential that the wide-ranging socio-economic and ecological benefits they provide are accounted for in decision-making on all relevant development and land management issues, and are built into cost-benefit assessments and environmental statements prepared to support these decisions.
7. The development of a clear national wetland strategy, in fulfilment of the Ramsar Convention as ratified by the UK in 1976, is a key step towards the goal of protecting the nation's wetland resource.
8. Although the consultation exercise went some way towards building closer coordination of management practice, the establishment of a National Wetland Forum, constituted by representatives from all wetland-related organisations and with support from Government, is of the highest priority if obligations to the wise and sustainable use of wetlands are to be met. Amongst the key tasks of this Forum would be the building of consensus on key issues, and assistance in the development of a national strategy for wetlands.

Introduction

Rapidly-growing populations and technological capabilities both during and since the Iron Age (c1200BC) have resulted in widespread drainage of land for habitation, agriculture, industry and amenity in Great Britain (Purseglove, 1989; NRA, 1995; WWT, 1995). During the Roman occupation (55BC-400AD), as much as 25 % of the land area of the United Kingdom remained covered by wetland. Today, the current estimated wetland resource of c1.2 million hectares represents only 5 % of the land area of the UK (WWT, 1995; NRA, 1995). The loss of wet habitat threatens British flora, one-third of which is wetland-dependant (Palmer and Newbold, 1983), as well as many groups of animals which rely upon open water or damp habitats for all or part of their lives (RSPB/NRA/RSNC, 1994). These wholesale changes to the landscape also have many other ramifications, including not only reductions in habitat and biodiversity (Denny, 1994; DoE, 1994a) but also changing hydrological and physico-chemical conditions in surface water and groundwaters, and declining natural productivity (Maltby, 1991a; Everard, *In Press a*).

The Ramsar Convention defines the term "wetland" broadly to include "*areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt, including marine water, the depth of which at low tide does not exceed six metres*" (Ramsar, 1971). This definition is necessarily broad to take

account of the diversity of wetlands that occur around the world. However, although both qualitative and quantitative losses of open-water habitat certainly threaten wildlife and human interests, it is the more traditional damp habitats, which may only periodically be immersed but nonetheless support characteristic ecosystems dependant upon their hydrology, that are considered in this paper in the context of the term "wetland".

Development of land to support the needs of a population that has grown ten-fold since Roman times is both legitimate and justifiable. However, wetlands have been particularly threatened not only due to their high productivity (Denny, 1994) but also owing to a traditional view that they are "waste" places of no intrinsic value, serving only as sources of disease and therefore to be drained for "productive" purposes such as agriculture or urban/industrial development (Purseglove, 1989). Only more recently have the intrinsic values of wetlands to society, in addition to those of benefit to wildlife, been realised (Dugan, 1990; Denny, 1994), creating a persuasive argument in favour of their wise management (Maltby, 1991b; Ramsar, 1996; Everard, *In Press a*). The impacts of wetland loss on wildlife and societal values must therefore be balanced with the more obvious commercial gains stemming from development activities.

The aims of this paper are to examine recent trends in the British wetland resource, to outline the scope and main conclusions arising from a recent consultation exercise aimed at contributing to closer integration of wetland management, and to make recommendations for the improved protection of wetland systems.

Recent Trends in the UK Wetland Resource

Since the "environmental revolution" of the 1960s, awareness has grown about the importance of conserving natural habitats and species, protecting them from the consequences of man's activities. The Ramsar Convention of 1971 (Ramsar, 1971) was a milestone in global recognition of the value of wetland resources, and remains the only such global agreement on any particular habitat type. More recently, there has also been a growing awareness that the hydrological, physico-chemical and ecological functions performed by wetlands contribute values not just to wildlife but also to society (Dugan, 1990; Maltby, 1991a and 1991b; Denny, 1995).

The growing body of science concerning the functions performed by wetlands challenges the historical perception that protection of wetlands was purely a matter of nature conservation (Purseglove, 1989; RSPB/NRA/RSNC, 1994). These concerns are further amplified by recognition of the importance of biological diversity to the long-term interests of global and local communities (DoE, 1994a), and commitment to the principles of sustainable development to safeguard the quality of life of present and future generations (DoE, 1994b). Since the benefits that society derives from wetlands have commonly been considered as "for free", they have formerly been given nil, or at best only only scant, consideration in urban development, highways and other land-use planning decisions. Long-term impacts of wetland development on hydrology, physico-chemical conditions and ecological health are only poorly understood, and then only at the local rather than the whole-catchment scale. Nevertheless, these impacts may be significant for human interests such as flood defence, water resources, water quality, the provision of fisheries and other amenities, and the protection of heritage and long-term environmental records (Everard, *In Press b*). Determining wise use practices and implementing appropriate national policies is therefore essential to safeguard both present and

future generations. Indeed, sustainable development is achieved through balancing present demands, for example for food production or residential development, with protection of those wetland functions upon which future generations will depend for their quality of life.

The pressures upon British wetlands were never greater. Since 1971, the Ramsar Commission has translated the developing science base into practical agreements on the wise use of wetlands, to be implemented by a growing number of signatories and at an expanding network of designated sites. At the national scale, the importance of wetland protection for the benefit of wildlife and society has been recognised through acceptance or drafting of a range of agreements, legislation and incentives operating at scales from the global to the local. Key global conventions, European agreements, national legislation, and other national agreements and incentives are summarised in Table 1.

With such a comprehensive range of obligations and agreements in place, it is perhaps surprising that British wetlands should still be perceived as under threat. It is unfortunate, though perhaps indicative of their present place within national priorities, that there is no centrally-coordinated national register of wetland areas from which to assess whether the longer-term trend of wetland loss is being reduced or reversed. However, Table 2 provides evidence of a continuing loss of key wet habitat types and, by inference, a probable continuing loss of the overall national wetland resource. This in turn indicates that, despite there being a significant body of legislation and agreements supporting the wise use of wetlands, an inadequate degree of protection still exists. The substantial subsidies that are still available from both domestic and European sources for the drainage, cultivation and intensification of agricultural land must be a major contributory factor to this trend. However, the piecemeal treatment of wetlands in the development planning process, and a generally poor coordination of different pieces of wetland legislation, are both also likely to permit continuing degradation and loss.

Consultation on Inter-agency Coordination of Wetland Management

To determine the reasons for the apparent failure of existing legislation and agreements adequately to protect the remaining wetland resource, a study was undertaken with the following objectives:

- To produce a concise summary of organisations with responsibility for, or otherwise influencing, the wetlands of England and Wales; and
- To open a dialogue on wetland issues, and particularly to seek opportunities for collaboration and consensus on key points.

Given the geographical remit of the Environment Agency, from whose offices the consultation exercise was coordinated, the original study covered only England and Wales. However, subsequent wider interest has led to the formulation of conclusions relevant across Great Britain. For each of a number of key agencies, certain information was sought on overall responsibilities and operational activities. On the basis of this information, the document *Inter-agency Coordination of Wetland Management: First Consultation Draft* (Everard, 1996) was drafted and circulated to a wide range of organisations and individuals for consultation. The purposes of consultation were to confirm organisational details, invite consultees to copy the document to other interested parties who had been overlooked, seek views on a number of

Table 1: Conventions, Legislation and Agreements Applying to British Wetlands

<p>Global Conventions</p> <ul style="list-style-type: none"> • <i>Convention on Wetlands of International Importance Especially as Waterfowl Habitat</i>. 2/2/71, Ramsar, Iran (1971) (The "Ramsar Convention") • <i>The Convention on the Conservation of Migratory Species of Wild Animals</i> (1979) (The "Bonn Convention") • <i>Agenda 21, Sustainable Development Convention and Biodiversity Convention</i>, UNCED, Rio de Janeiro, 1992 (The "Earth Summit") • United Nation's report <i>Our Common Future</i> (World Commission on Environment and Development, 1987), though not strictly a binding obligation nor relating solely to wetlands, is nevertheless a framework for commitment to the principle of seeking to manage natural resources without compromising the needs of future generations
<p>European Community/Union Directives and Communications</p> <ul style="list-style-type: none"> • <i>EC Directive CEC 79/409 on the Conservation of Wild Birds</i> (The "Birds Directive") • <i>EC Directive CEC 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora</i> (The "Habitats Directive") • A recent European Union Communication (CEC, 1995a) contains outline proposals for the protection of Europe's wetland resource. This document, though largely rejected by the UK's House of Commons (House of Commons, 1996), was nevertheless endorsed by a decision of the EU Council of Ministers in March 1996. It is therefore likely that further binding legislation or informal guidance on wetland policy will emerge from the EU on the strength of this Communication.
<p>Key National Legislation</p> <ul style="list-style-type: none"> • <i>The Environment Act 1995</i> • <i>The Water Resources Act 1991</i> • <i>The Water Industry Act 1991</i> • <i>The Conservation (Natural Habitats etc) Regulations 1994</i> • <i>The Wildlife and Countryside Act 1981</i> • <i>Land Drainage Act 1991 and 1994</i> • <i>The Coast Protection Act 1949</i> • <i>Land Drainage Improvement Works (Assessment of Environmental Effects) Regulations 1988 and 1995</i> • <i>British Waterways Act 1996</i>
<p>Other National Legislation Also Significant in Wetland Management Decisions</p> <ul style="list-style-type: none"> • <i>The Town and Country Planning Acts</i> (various) and subsequent <i>Planning Policy Guidance Notes (PPGs)</i> • <i>Environmental Protection Act 1990</i> • <i>Water Industry Act 1991</i> • <i>Ancient monuments and Archaeological Areas Act 1979</i> • <i>The Planning (Listed Buildings and Conservation Areas) Act 1990</i> • <i>The Protection of Wrecks Act 1972</i> • <i>The Historic Buildings and Ancient Monuments Act 1953</i> (provision of grants) • <i>Salmon and Freshwater Fisheries Act 1975</i>
<p>Legislation Relating to Particular Areas Further legislation may relate to the special protection of wetland areas of high national importance, for example <i>The Norfolk and Suffolk Broads Act 1988</i></p>
<p>National Agreements For Which Regulatory Agencies Must Have Regard:</p> <ul style="list-style-type: none"> • <i>Biodiversity: The UK Action Plan</i> (DoE, 1994a) outlines Government strategy for the protection of selected vulnerable species and habitat types in response to the "Earth Summit" <i>Biodiversity Convention</i> • <i>Sustainable Development: The UK Strategy</i> (DoE, 1994b) outlines Government strategy in response to the "Earth Summit" <i>Sustainable Development Convention</i>
<p>Agri-environment Schemes That May Affect Wetland Areas:</p> <ul style="list-style-type: none"> • <i>Water Level Management Plans (WLMPs)</i> are a framework for consensus-building between drainage authorities and statutory nature conservation bodies on the maintenance of ecologically beneficial water levels in sites identified for conservation benefit and flood defence (MAFF/WO, 1995); • <i>Environmentally Sensitive Areas (ESAs)</i> are another subsidy scheme that introduces or maintains sensitive farming practices in areas of high conservation or landscape importance, including several wetland areas across the country. • The <i>Water Fringe Option Scheme</i> which is a targeted subsidy scheme available for uptake by farmers who wish to cease commercial exploitation of land buffering vulnerable rivers; • <i>Countryside Stewardship</i> which provides grants for the management of farmed land for the benefit of nature conservation; and • <i>Setaside</i> grant payments which are available for cessation of agricultural production

Table 2: Evidence of Continuing Wetland Loss in the UK

Ponds	<p>In Britain as a whole, 90% of fresh still water bodies ("ponds") are less than 1 hectare in area (DoE, 1993). There are probably some 400,000 remaining ponds in England and Wales, the remnants of a 65 % loss over the last century, with an estimated continuing loss of 1 % (around 9,000 ponds) per annum (Sansom, 1993). This rate of loss appears to be continuing unabated, despite their potentially high wildlife value (Pond Action, 1993; Biggs <i>et al</i>, 1994; Collinson <i>et al</i>, 1995; Everard, <i>In Press c</i>).</p>
Lakes	<p>A recent survey of the lakes of Anglesey, Wales (Duigan <i>et al</i>, 1996), has found that artificial enrichment, alien species, historic metal mining activities and recreational pressures have reduced ecological quality of these lakes.</p> <p>On a wider geographic scale, Moss <i>et al</i> (1996) have developed a classification scheme for standing waters which indicates that significant ecological damage has occurred in British lakes throughout much of this century.</p>
SSSIs	<p>English Nature (1996) estimate that about 9 % of the freshwater wetland Sites of Special Scientific Interest (SSSIs) in England are threatened by abstractions for water supply and agriculture.</p>
Biodiversity Action Plans	<p>Biodiversity Action Plans are under production for key habitats identified by the <i>UK Biodiversity Steering Group</i> (DoE, 1995). Each habitat plan has a lead agency assigned but is being developed by a consortium of interested partner agencies. Each of the selected habitats has been identified as having been in decline and remaining under threat, implying that the overall trend remains one of decline. Open water/riparian and wetland habitats under consideration include:</p> <ul style="list-style-type: none"> ○ Coastal and Floodplain Grazing Marsh (lead agency: English Nature) losses in the last 60 years have been significant, and the remaining resource is threatened by inappropriate water levels and flooding regimes, grazing or cutting, an decreased nutrient loadings (DoE, 1995). ○ Reedbeds (lead agency: English Nature) were once extensive until major drainage schemes commenced in the 17th century (Everett, 1989). They have since been on a rapid decline, with losses of as much as 40 % between 1945 and 1989 (Bibby <i>et al</i>, 1989), and both a lack of management and continuing overabstraction of water appear to continuing qualitative and quantitative reedbed losses (Hawke and José, 1996; Self <i>et al</i>, 1996). ○ Chalk Rivers (lead agency: Environment Agency) are considered as under threat from overabstraction, pollution and adjacent land use, though no data have yet been gathered to demonstrate recent trends (Paul Raven, Environment Agency, <i>Personal Communication</i>). ○ Mesotrophic Lakes (lead agency: Scottish Environmental Protection Agency) are a diminishing resource threatened, like many other types of lake, by widespread eutrophication (Moss <i>et al</i>, 1996). ○ Saline Lagoons (lead agency: English Nature) have been lost directly through coastal development, and human coastal activities generally inhibit the maintenance and formation of lagoons, resulting in a projected 10% loss of the remaining UK resource over the next 20 years (DoE, 1995). Piecemeal loss of coastal habitats is still continuing (CEC, 1995b). ○ Saltmarsh (lead agency: English Nature) has been extensively lost as a result of land claim, and today 60 % of the UK's total resource is accounted by just ten sites (DoE, 1995). Piecemeal loss of coastal habitats is still continuing (CEC, 1995b). ○ Fens (lead agency: English Nature) are considered vulnerable to further loss and to be still in decline (Brian Johnson, English Nature, <i>personal communication</i>). ○ Estuaries are subject to significant development pressures and also to suffer from the cumulative impacts of pollution and unwise land use upstream in river catchments (Everard, 1994). However, in common with coastal seas, they have until recently been the most neglected of conservation causes (Owen and Dunn, 1996).

generic wetland issues, compile a list of acronyms to aid understanding, and to open a broad dialogue on the desirability of closer integration of national policy affecting wetlands (further details of the scope of the consultation document are provided in Table 3).

The consultation exercise had a return rate approaching 90%, and attracted considerable additional input from organisations and individuals who had not at first been consulted, indicating a high level of interest in enhancing coordination of wetland policy. The various organisations approached were almost unanimous in welcoming the development of a more coordinated national approach to wetland policy, although naturally a diversity of views and concerns were expressed on the specific issues raised for discussion. The key conclusions arising from comments received were that:

- The diversity of organisations throughout England and Wales with responsibility for, or influence upon, different aspects of wetlands was significant. In all, 34 key organisations were identified, spanning central government departments (4), local government associations (9), statutory agencies (6), non-governmental organisations (8), and others (7). These organisations are summarised in Table 4. (Neither universities and consultancies with wetland interests, nor individual local authorities, are included in these figures.) It was evident that many organisations were unaware of each other's existence and/or responsibilities, and this lack of coordination and collaboration was perceived as being contributory to the apparent failure of current legislation adequately to protect wetlands. Lack of close coordination between partner agencies was generally acknowledged, and perceived as contributing to wetland loss. The digest of organisations in England and Wales with wetland interests, contained in the consultation document *Inter-agency Coordination of Wetland Management* (Evcrard, 1996), was perceived as contributing to better common understandings between organisations and assisting decision-makers determine with whom to consult on proposals for development activities likely to affect wetlands. However, it was also widely accepted that further integration was required including, for example, better targeting of subsidies to resolve conflicts between agriculture and nature conservation.
- Many organisations had not yet developed a wetland definition or classification scheme relevant to their particular needs, and to guide their activities. Some relied on the broad "Ramsar" definition with no subsequent tailoring to specific needs, whereas those few organisations that had developed more pertinent definitions had done so without seeking consensus from other partner organisations. Likewise, few organisations had developed classification schemes relevant to their needs or, where schemes were in place, had not sought consensus. There was broad agreement that this hampered clear interpretation of policy and exchange of data between agencies, and that parochial solutions to wetland definition and classification which fail to recognise the needs and differing objectives of other organisations perpetuate the fragmentation of wetland policy and decision-making. A standardised and agree national wetland definition, supported by a commonly-agreed classification scheme, would be a major breakthrough in the achievement of closer cooperation.
- Little effective data-sharing or data collection occurred between agencies owing to incompatible definitions, classification schemes, and agreements on common goals. At present, organisations hold wetland data in a range of disparate formats with no single example of a shared database. This lack of commonality in data formats means not only that data on the nation's wetland resource is chaotic and confused, but also

Table 3: Scope and Further Goals of the Consultation Document

<p>Details Provided or Required about Organisations with Wetland Interests</p> <ul style="list-style-type: none">• Title and key contact;• Key duties and powers;• Functional/operational responsibilities;• Other potential influences on wetlands;• Databases currently held; and• Future data requirements
<p>Key issues upon which views were requested</p> <ul style="list-style-type: none">• Wetland classification schemes in use, and particularly:<ul style="list-style-type: none">◦ Those shared with other organisations; and◦ Current research and development activities• Consistency of data, compatible policies, collaborative R&D, etc) and contentious issues; and
<p>Further objectives of the study</p> <ul style="list-style-type: none">• To compile a glossary of acronyms enabling the various wetland-related organisations to better understand documents produced by their partners.

Table 4: Organisations in England and Wales Affecting Wetlands

<p>Government Departments (4):</p> <ul style="list-style-type: none"> • Department of the Environment • Ministry of Agriculture, Fisheries and Food • Welsh Office - Environment Division • Welsh Office Agriculture Department
<p>Local Government</p> <ul style="list-style-type: none"> • Association of County Councils • Association of District Councils • Association of Local Government Archaeological Officers • Association of Local Government Ecologists • Association of Metropolitan Authorities • Association of National Park Authorities • Broads Authority • CADW: Welsh Historic Monuments • Welsh Local Government Association
<p>Statutory Agencies</p> <ul style="list-style-type: none"> • Countryside Commission • Countryside Council for Wales • English Heritage • English Nature • Environment Agency • National Trust
<p>Non-Governmental Organisations (NGOs)</p> <ul style="list-style-type: none"> • British Trust for Ornithology • Campaign for the Protection of Rural Wales • Council for the Protection of Rural England • Country Landowners Association • River Restoration Project • Royal Society for the Protection of Birds • Wildfowl and Wetlands Trust • Wildlife Trusts
<p>Other</p> <ul style="list-style-type: none"> • Association of Drainage Authorities • British Association for Shooting and Conservation • Farmers' Union of Wales • National Farmers Union • Atlantic Arc Wetlands Project • Centre for Environment and Hydrology • Farming and Wildlife Advisory Group

that there is considerable scope for misunderstandings between partner organisations. There was, however, a broad perception that the sharing of data on wetlands offered a significant area for enhancing overall efficiency in wetland management at a national level, in addition to offering a potential resource saving.

- Agencies tended to focus purely or largely on the wetland values of immediate concern to their responsibilities or interests. There was a broad perception that this myopic view promulgated conflicts of interest rather than supporting the achievement of common goals based on the breadth of values conferred by wetlands.
- The lack of adequate knowledge transfer mechanisms gave cause for concern. An example cited was that of a busy development planner with little specialist knowledge about wetlands, who finds him- of herself unable to make an informed decision owing to the lack of decision-support tools. An illustrative decision support matrix, based on two proposals in the consultation document which in turn were modelled on the SWAMP expert system supporting the Ugandan Wetlands Programme (Everard *et al*, 1995), is reproduced as Table 5. This table-based approach, though currently only illustrative, was seen as a constructive and readily usable approach to knowledge transfer.
- Many organisations conduct or fund research on wetlands which, although not quantified during consultation, is estimated to cost in the order of hundreds of thousands of pounds per annum. Lack of coordination of research programmes between agencies was perceived as widespread, creating a substantial risk of duplicate expenditure, production of incompatible outputs, and a focus on purely parochial needs which may inadvertently serve to perpetuate an atmosphere of conflict. It is clearly beneficial and cost-effective to promote a forum for pooling scarce research resources, and the tailoring of a shared R&D programme to address commonly-agreed, multi-interest goals.
- It was widely acknowledged that strengthening of the legislative framework would enhance the effectiveness of wetland protection, but that this would be most effectively achieved through coordinated implementation of existing powers and duties rather than development of substantive new legislation. The development of a clear national wetland strategy, in fulfilment of the Ramsar Convention as ratified by the UK in 1976, was identified through the consultation process as being a key step towards integrating existing policies towards the goal of protecting the nation's wetland resource.
- Differing priorities for wetland use became apparent during the consultation exercise. Perhaps the best example of polarisation was the belief by the agricultural community that land drained for agricultural production should be declassified as wetland, whereas the conservation community favour prioritising its restoration in addition to protection of the remaining intact resource. Clearly, there is scope for further dialogue and for the establishment of a consensus view on national priorities including, perhaps, better use of agricultural subsidies for the "farming" of wetlands for the conservation and societal benefits that they yield in addition to the more tangible economic benefits of agricultural production.

Table 5: Illustrative Checklist of Wetland Values and Indication of Likely Incompatible Wetland Uses (Adapted from Everard (1996))

Potential Value of Wetland	Scale of Importance (High, Medium or Low)	Potential Uses that may be Proposed for Wetland							
		Nature conservation	Fishing and other field sports	Intensive grazing	Seasonal pastures	Convert to arable	Periodic cropping (thatch, withy, etc)	Playing fields	Industrial or urban development
Nature Conservation Values: Is the wetland designated or recognised as of ecological importance (international, national or local), or does it contain rare species?	#	✓	✓	X	✓/X	X	✓	X	X
Archaeological Values: Does the wetland contain, or is it considered to contain, valuable archaeological remains and deposits, or biological records?	#	✓	✓	✓/X	✓	X	✓	X	X
Physico-chemical Values: Does the wetland play a role in water purification, either through being connected to a river or lake system or by intercepting surface run-off?	#	✓	✓	✓/X	✓	X	✓	X	X
Hydrological Values: Does the wetland have an important hydrological function such as storing floodwater or being an important site for exchanges with groundwater?	#	✓	✓	✓	✓	✓/X	✓	✓	X
Fishery Values: Does the wetland provide an important spawning, nursery, or feeding area for fish, or do fish shelter in it in floodwater conditions?	#	✓	✓	X	✓	✓/X	✓	X	X
Landscape values: Is the wetland an important component of the local landscape?	#	✓	✓	✓/X	✓	X	✓	X	X
Amenity values: Does the wetland provide a local amenities - field sports or other informal leisure pursuits - or does it contribute significantly to the landscape?	#	✓	✓	X	✓	X	✓	✓	X (mitigation)
Note: The table is currently purely illustrative and will require further development and consensus-building before being recommended as a robust tool									
Key: ✓ indicates a potentially compatible use; X indicates that the use is likely to damage the functions performed by the wetland; # band definitions not yet defined (illustrative only)									

Recommendations for the Improved Coordination of Wetland Policy

The European Union found strong evidence that the existing piecemeal approach to planning in the coastal zone, which largely ignores natural coastal processes, fails adequately to protect Europe's coastal resources (CEC, 1995b). The present consultation exercise suggests strongly that a similar fragmented approach to wetland management is also permitting piecemeal degradation of the remaining British wetland resource. Whilst there is no direct evidence to suggest that the legislative framework is of itself inadequate, lack of policy coordination and awareness of the wider benefits provided by wetlands contribute significantly to continuing qualitative and quantitative losses. Consultees were broadly in agreement that the consultation document and exercise had built some links, but that a forum for further integration was required to achieve commitments to the wise use of wetlands. The development of coherent national wetland strategies by signatories is one of the key elements of the Ramsar Convention, as ratified by the UK in 1976. To date, only two countries (Uganda and Canada) have implemented national strategies, although other countries are working towards this goal. The development of a coherent and comprehensive British wetland strategy, taking account of all wetland values and interests, would be a major step towards protecting the nation's wetland resource and resolving conflicts between those organisations with wetland interests.

The lack of a commonly-agreed national definition and classification scheme for wetlands creates an obstacle to common understandings, shared goals and closer cooperation between partner organisations. Many approaches have been made to define and classify wetlands, each having their respective strengths and weaknesses for organisations with wetland interests (Wheeler and Shaw (1996)). However, parochial solutions to wetland classification, which fail to recognise the needs and differing objectives of other partner organisations, are likely to perpetuate the present fragmented approach to wetland policy and decision-making. Further collaborative development is required to support a consensus definition and classification scheme that is both unambiguous yet sufficiently pragmatic and flexible to support day-to-day management decisions by a range of different organisations. The US wetland delineation procedures (Lyon, 1993), based on the three key features of hydrology, hydric soils and wetland-dependant vegetation, provides an established model for defining the overall extent of wetland areas, and has also been accepted in the Mediterranean area of Europe as the wetland delineation procedure underpinning the MEDWET programme (Wetlands International, 1996). However, experience in the USA suggests that an over-prescriptive and inflexible approach to wetland delineation may create political difficulties that compromise an emerging national strategy. The Wildfowl and Wetlands Trust (WWT) are currently seeking to develop a common wetland classification for the United Kingdom (Pickering *et al*, 1995) based on a consensus of needs between various organisations, and this may ultimately provide the basis for a nationally-agreed wetland classification system. In the interim, and to avert losing the impetus for closer cooperation, it is suggested that the Ramsar definition provides a suitable starting point to be supported in time by subsequent classification schemes relevant to day-to-day decision-making as they are developed, agreed and, where possible, harmonised with habitat definitions introduced by the *UK Biodiversity Steering Group* (DoB, 1995). Further benefits arising from selecting this definition are that it has not only been ratified by Ramsar Convention signatories (including the UK in 1976) but taken up by the European Union in its proposal for community legislation on wetlands (CEC, 1995a) and, to certain extents, taken forward in the draft *European Commission Proposal for a Council Directive Establishing a Framework for European Community Water Policy* (CEC, 1996). If the UK's approach is at least based on this definition, any subsequent revisions to global agreements and EU legislation will therefore have a basis of compatibility.

The present lack of consistency and compatibility between databases is wasteful in terms of data exchange and data collection; an expensive and commonly underestimated task. A common definition and classification scheme would facilitate the exchange of data between partner organisations, and/or the development of shared databases, providing a more holistic and efficient basis for assessment and management of the national resource. Government has identified the need for a network of key national datasets relating to target species and habitats, in agree protocols, in *Biodiversity: The UK Action Plan* (DoE, 1994a). The establishment of a network of such record centres, supported by consortium funding, therefore has implicit political support as well as offering many potential advantages, including principally the more cost-effectiveness deployment of existing resources. The consultation exercise has revealed current feasibility studies into a proposed shared data network (Richard Vivash, River Restoration Project, *Personal Communication*), proposals for Millenium Commission funding of a publicly-accessible biodiversity data network (Chris Newbold, English Nature, *Personal Communication*), and a standard data protocol for wetland information (Pickering et al, 1995), which together may form the basis for a distributed wetland data network were sufficient interest and support expressed by partner organisations.

Classification schemes appropriate for the many types of wetlands that exist across the UK must also recognise the differing ecological, economic and social values they confer. In the past, ignorance of the wider values of wetlands has undoubtedly contributed to their degradation. A parochial view of the benefits of a development decision, say for example a supermarket development on floodplain wetland, will fail adequately to balance the readily identified socio-economic benefits with wider environmental costs, for example the loss of conservation, landscape, wild-fowling and fishery recruitment values. To protect wetlands adequately, for present and future generations, it is essential that all costs and benefits - socio-economic, hydrological, physico-chemical and ecological - are taken into consideration in cost-benefit assessments, environmental statements and ultimate development and management decisions. Distinctions between man-made and natural wetlands, including former wetland areas of potentially significant value were they to be restored, must be recognised and accorded different priorities for protection and/or rehabilitation since, owing to their longevity and adaptation to local conditions, natural wetlands tend to support the greatest biodiversity, the most complex structure, and the greatest diversity of wetland processes (Denny, 1994). Remaining natural wetlands therefore represent a high priority for protection. Equally, not all human uses of wetlands destroy their inherent values. For example, some wetlands of high nature conservation value may be degraded by certain human uses (for example, drainage and conversion to intensive arable farming) whereas other uses may be less damaging or even beneficial (for example, seasonal grazing, hay-cropping or setting aside as floodwater detention basins, amenity areas or soak-aways for run-off). Other benefits arising from wetlands, such as the ability to desynchronise peaks of floodwater, may be largely unaffected by some uses (say, conversion to a sports field, or agricultural setaside) but degraded by other uses (such as the engineering of flood defence structures to protect new housing developments). Wetlands of the very highest quality deserve full-scale protection, whereas those that are less important may be suitable for non-damaging uses. The emerging science of wetland functional analysis (determination of functions performed by wetland systems) may ultimately provide the tools necessary for making these assessments (Maltby *et al*, 1995) within the context of integrated catchment management (Everard, *In Press b*), although the science remains immature and not yet available in an affordable and operationally-robust form (Everard, *In Press a*).

Despite the immaturity of the necessary tools, threats to the national wetland resource are real and present. Wise management decisions, that take account of the wide-ranging benefits

provided by wetlands, must therefore be guided by best currently-available information, where appropriate applying the Precautionary Principle to minimise the risk of compromising wetland values that will sustain future generations (Denny, 1995). Knowledge transfer from current scientific developments into practical "best practice" guidelines for development planners is a vital yet commonly-overlooked step in achieving effective wise use of wetlands, averting loss or degradation through unsound industrial, residential or highway developments. Local and highways authorities are required to balance the needs of the environment with those of the present human generation through various obligations, including The Town and Country Planning Acts, *Biodiversity: The UK Action Plan*, and Agenda 21. The Ramsar Convention has recently recommended that wetlands should be considered explicitly in all local, provincial and national plans, that closer synergy must be sought between the various nature conservation designations that affect wetlands, and that planning decisions should recognise the hydrological and physico-chemical values of wetlands (Ramsar, 1996). However, development planning decisions affecting existing or former wetland areas are generally taken by planning staff with little specialist knowledge about wetlands, nor the luxury of time and resources for detailed case-by-case study. Practical decision-support tools, applicable to day-to-day planning decisions by non-specialist staff, will therefore significantly contribute towards the achievement of wise use. Since benefits overlooked or regarded as "for free" will effectively be ascribed zero value in decision-making, it is therefore recommended that all future wetland research programmes pay greater attention to the vital final step of packaging knowledge into a form usable by non-specialists, maximising the efficient use and therefore the value of the research. The illustrative decision matrix reproduced as Table 5 provides a simple example of such a tool, albeit in illustrative form only at present. Decision-support tools must also be backed by appropriate education to promote a wider awareness of wetlands and an understanding of the benefits that they provide for nature conservation and for society. The Broads Authority has invested substantially in public education and found that simple messages, clearly expressed, can alter the public's perception of the value of their wetland environment (Jane Madgwick, Broads Authority, *Personal Communication*), which may be vital in engendering support for wise use decisions.

Agricultural practices, including for example land drainage or the use of fertilisers, have historically caused significant qualitative and quantitative damage to wetlands. Agri-environmental policy is therefore a key area for future attention in the achievement of wise use of wetlands. There are presently many areas of contention between the agricultural community, which seeks to meet the food demands of a dense population and to remain economically competitive, and those representing the interests of wildlife and other wetland values that are damaged by unsympathetic farming practices. Several agri-environment subsidy schemes are in operation to compensate farmers for the implementation or commencement of practices sympathetic to wetland integrity (see Table 1). However, to achieve the goal of sustainable development, it will become more important to develop environmentally sympathetic methods of farming that nevertheless remain economically attractive, rather than using ever more public money to subsidise taking land out of production (Everard, *In Press a*). This includes not merely extensification and a reversion to traditional farming methods, but also recent developments in new techniques and technologies in the areas of precision agriculture, integrated crop management, integrated pest management, and integrated farm systems. There is also a need to challenge perceptions of what constitutes successful farming operations. The compensation payments noted above offer cash incentives to farm land for the benefit of protecting or improving the nature conservation, natural beauty and/or amenity value of wetland areas. As the science develops sufficiently to quantify the wider range of benefits provided by present and historic wetland areas (including for example

functions such as flood storage, other ecological values, nutrient or suspended solid attenuation, etc), cost-benefit arguments may enable appropriate subsidies to be made available for the "farming" of these benefits.

The need to prioritise the protection and restoration of wetlands as a key aspect of wise use has recently been reinforced by the Ramsar Convention (Ramsar, 1996). Equally, the European Union's communication *Wise Use and Conservation of Wetlands* (CEC, 1995a) strongly favours a "no net loss" and "no quality deterioration" approach to the remaining wetland resource. Consultees expressed widespread support for the establishment of commonly-agreed priorities for wetland protection and restoration, enabling the effective targeting of resources and subsidies, although land-owning interests expressed concerns about the potential loss of the land rights of their members. As noted previously, there are clear contentions between the views of different interest groups which will need to be resolved through consensus. In addition to the need to protect remaining wetlands, the restoration of former wetlands and the creation of new ones is increasingly being viewed across Europe and the USA as a cost-effective "best management practice" approach to flood control, recharge of aquifers, source treatment of run-off from new developments, and the protection of hydrological regimes in local watercourses, with many peripheral benefits such as the creation of amenity and wildlife areas (IAWQ, 1996; CIRIA, 1996a). Man-made wetlands are also being applied widely to treat urban, highway and agricultural run-off, and as a "polishing" stage for effluent from more traditional wastewater treatment plants (CIRIA, 1996b). Likewise, the value of riparian buffer zones and other wetland areas in controlling diffuse inputs of various pollutants from agricultural areas, as well as directly providing habitat for wildlife, is achieving wider recognition (Haycock, 1995). As scientific understanding grows about the processes performed by wetland systems, and the benefits that they confer to society, arguments in favour of their protection and restoration are strengthened. This has led Main Roads Western Australia, the highways authority for the Australian state of Western Australia, to develop draft policy that recognises the need to avoid, restore or mitigate the hydrological, conservation and social values of wetlands in all new road developments including, for example, an intent for all new developments to be hydrologically neutral (Main Roads Western Australia, 1995). It is recommended that regulatory and planning authorities in the UK, and elsewhere, also commit themselves to these challenging targets, and adopt a presumption in favour of wetland protection, restoration, or construction as cheap, visually attractive and sustainable alternatives to more traditional "hard engineering" solutions.

The benefits of "packaging" research in the form of decision-support tools, as noted previously, is just one of the clear benefits to be derived from closer collaboration on research and development by partner organisations. These benefits also include maximising the value derived from limited resources through reduced duplication, avoidance of incompatible outputs, and a focus on wider rather than purely parochial goals. Indeed, examples of successful collaboration between organisations with apparently conflicting research needs (see Table 6) serve to identify the potential for achieving synergy of consensus between apparently disparate interests. As each agency has a stake in co-funded research, an improved framework of understanding and agreement about each other's needs will be developed, and the research outputs are likely to not only identify common ground but develop mutually acceptable protocols for decision-making. A forum for managing the integration of research programmes would clearly be advantageous.

Table 6: Examples of Collaboration Research between Partner Organisations in the UK

Research Programme	Description and Key Benefits
Water Level Management Plans (WLMPs)	The Ministry of Agriculture, Fisheries and Food (MAFF)-funded research programme underpinning the national strategy for WLMPs clearly demonstrates that such targeted research outputs can identify opportunities for synergy between interests as apparently disparate as intensive agriculture, nature conservation and flood defence. As each agency has a stake in collaborative research, an improved framework of understanding and agreement about each other's needs has been developed, and the research recommendations are identify common ground and mutually acceptable protocols for deciding on appropriate water levels.
Environmentally-conscious aspects of shooting	Various collaborative research projects, co-funded by nature conservation interests (particularly English Nature and the Royal Society for the Protection of Birds) and shooting interests (particularly British Association for Shooting and Conservation), have tackled issues of mutual concern such as lead shot alternatives, codes of best practice, and habitat improvement for mutual benefit. These have enabled cooperation in the protection and improvement of wetland areas, in addition to minimising the conservation impacts of shooting. Similar benefits have also been realised in the USA, where the Environmental Protection Agency and Ducks Unlimited (representing wildfowling interests) has co-funded research and restoration works to improve the quality and quantity of wetland habitats.
Biodiversity Action Plans	<i>Biodiversity: The UK Action Plan</i> (DoE, 1994a) and the <i>UK Biodiversity Steering Group</i> (DoE, 1995) identify a number of key species and habitats, including some wetland types, for which Action Plans are to be developed. A lead agency is nominated for each species or habitat, although the plans will be developed by consortia of interested organisations. The lead agency also has responsibility for leading any collaborative research projects deemed necessary to deliver effective protection.

The issues raised in the above recommendations are founded on the values of wetlands both to wildlife and society, and argue strongly in favour not only of the "no net loss" and "no quality deterioration" approach advocated by the European Union (CEC, 1995a) but, where possible, for the restoration of former wetland functions. Achievement of these goals will offer not only a more sustainable future but, in all probability, significant cost savings by averting the need for investment, for example, in flood defence structures lower in a catchment to compensate for the loss of flow-buffering effects of wetlands lost upstream. The influence of climate change, whilst not fully understood, is nevertheless likely to influence the water cycle (DoE, 1996), and therefore to amplify the need for wetland protection and the use of technologies such as infiltration drainage that mimic or restore some wetland functions (IAWQ, 1996). The current lack of close coordination between partner agencies has been a major obstacle to the formation of holistic policies, efficient use of available resources, and the protection and restoration of wider wetland benefits. Table 7 identifies a range of initiatives in the United Kingdom, and includes one "best practice" example from Canada, in which agencies have come together as consortia to address the needs of the aquatic environment on a local basis; these examples demonstrate the benefits of closer collaboration. Although consultation has gone some way towards building bridges between partner organisations at the national level, these are likely to be only short-lived. Consultees expressed a desire to achieve closer coordination of policy, agreement on a common wetland definition and classification scheme, sharing of data, consensus on priorities for the protection and rehabilitation, closer national collaboration on research, and the development of tools and subsidies to support "wise use" decisions. Since no single organisation has a remit covering all aspects of wetlands, it is therefore recommended that a National Wetland Forum be formed, to be constituted by representatives from all partner organisations; and that the Forum be recognised and supported by the Department of the Environment which has the lead role in the conservation of wetlands in the United Kingdom. Since the wetlands of Northern Ireland are best considered within the context of the biogeographical region within which they occur (i.e. the wetland resource of the island of Ireland), it is recommended that the Forum covers Britain only. The National Wetland Forum would serve not only as a vehicle for formulating coherent multi-functional policies and for seeking consensus on contentious issues, but can also play a key role in helping Government develop a British wetland strategy.

Conclusions

The consultation exercise has identified the need for wider awareness of the value of wetlands, and for the closer integration of policy if current losses are to be halted or reversed. Despite the widespread support of closer integration, much development work is required to achieve the goals set out in this paper. The establishment of the proposed National Wetland Forum, representing the interests of all sectors of British society and with the support of Government, is viewed as of the highest priority if obligations to the wise and sustainable use of the vulnerable national wetland resource are to be met. The Environment Agency is taking forward to Government recommendations for the establishment of a National Wetland Forum.

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Table 7: Examples of Local Coordination of Wetland Policy in the UK, and Including a "Best Practice" Example from Canada

<p>The Severn Estuary Strategy is an independent group set up by county councils, local authorities, the Environment Agency and statutory conservation agencies with the objective of establishing a coordinated approach to management of the estuary. Representatives of a range of interests, including local businesses and industry, ports and harbours, local authorities and a range of interest groups, are helping steer the production of a consultation report which seeks to establish consensus on key estuary management issues. The study includes mudflats, saltmarshes, grazing marshes and adjacent wetland habitats. (Severn Estuary Strategy, 1996).</p>
<p>A Strategy for the Restoration of the River Rother (Yorkshire) is being developed as a joint venture between Derbyshire County Council and the Environment Agency, with participation from wildlife groups, industry, local authorities and other interested parties, with the objective of improving the natural and built environment of the river valley (Dixon, 1994).</p>
<p>The River Restoration Project was established in 1991 to promote the restoration of streams and rivers, and their surrounding floodplain and wetland habitat, for conservation, recreation and amenity. In addition to contributing to the understanding of effects of conservation work and encouraging others to restore streams and rivers, it has also established international demonstration projects. Two of these projects are on stretches of river in England (River Cole at Coleshill, on the Wiltshire/Oxfordshire border, and River Skarne at Darlington, North Yorkshire) and entail seeking consensus between respective agencies and support from local people for the restoration of stretches of degraded river.</p>
<p>The Anglesey Wetland Strategy (North Wales) provides a forum for the exchange of knowledge and experience, and for testing ideas in a free and open manner between five constituent organisations: Countryside Council for Wales, Royal Society for the Protection of Birds, Environment Agency, North Wales Wildlife Trust, and Ynys Mon ESA (ADAS Aberystwyth). Although the Strategy does not have executive authority upon the actions or policies of participating organisations, it nevertheless provides a common forum for consensus and discussion on key issues and conservation priorities. These serve as the basis for consistent advice to land-owners and managers, and for targeting resources and subsidies (Anglesey Wetland Strategy, 1996).</p>
<p>Focus on Firths has the objective of putting in place management strategies for the Moray, Forth and Solway Firths (which are identified in <i>Biodiversity: The UK Action Plan</i>) by 1998, but also acts as a forum for research and for building awareness on wider issues affecting Firths generically. Wetland issues impinging on firths may be included as matters of concern for the groups. (Forth Estuary Forum, 1996; Solway Firth Partnership, 1996; Moray Firth Project, 1996).</p>
<p>The Tweed Forum is a large body comprising members from all statutory authorities (from both England and Scotland) with interests in the River Tweed. Although lacking executive powers, the group was established to compensate for the absence of a single co-ordinating water agency in Scotland, and acts as means of disseminating information and harmonising policies between the principal bodies with statutory interest in the river (Howell, 1994). Though currently dominated by issues relating to loughs and rivers, since the Forum exists to encourage a willing coordinated management approach amongst a wide variety of interests in the overall catchment (Tweed Forum, 1991), wetlands issues may also be put before the Forum for debate and consensus.</p>
<p>The Clyde Estuary Forum is a broad-based partnership with the objective of harnessing the economic and environmental advantages of the Clyde estuary, including the river and the firth (Clyde Estuary Forum, 1996).</p>
<p>Local Environment Agency Action Plans (LEAPS), successor documents to Catchment Management Plans (CMPs), provide a forum for raising issues of local environmental concern on a catchment basis, from which actions and collaboration with other agencies and land owners may be sought. At present, wetlands are not explicitly included in most LEAPs or CMPs, although many aspects of the water cycle affecting wetlands (river flows, water quality, conservation interest, groundwater, etc) are addressed. However, some CMPs have explicitly included wetland areas of national importance.</p>
<p>Biodiversity Action Plans are being developed for a number of vulnerable species and habitats, including some categories of wetlands, as specified in <i>Biodiversity: the UK Action Plan</i>. Habitat plans are being developed by consortia of interested organisations, seeking to set actions based on a consensus view of the conservation needs of these habitats. Further details of habitat types are provided in Table 2.</p>
<p>The Erewash Conservation Group established to assess opportunities and threats for the Erewash Valley, and comprises the Derbyshire and Nottinghamshire Wildlife Trusts, English Nature and Derbyshire and Nottinghamshire County Councils. The group was established to assess opportunities and threats for the Erewash Valley, initially through the production of a map-based document showing SSSIs, SINC, SAMS, floodbanks and floodplains.</p>
<p>The Fraser River Estuary Management Program (FREMP) has been funded and established by a consortium of regulatory and development planning authorities in the Fraser River Estuary in the Vancouver area, British Columbia, Canada. FREMP acts as a "one-stop shop" for development proponents, and FREMP officers ensure that relevant portions of a single application are disseminated to the appropriate planning agencies, and that all necessary permissions and consultations have occurred before a formal coordinated response is made to the proponent. Protection of wetlands (largely for their coastal and flood defence values) within the Fraser River Estuary is one of the factors taken into account as a matter of course during this consultation process. Continued funding of FREMP has been justified by the improved efficiency and consistency of policy implementation.</p>

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