Focus on

Biodiversity

Update 2001

ENVIRONMENT AGENCY

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CHAPTER 1 INTRODUCTION

Purpose of the report

1.1 This report summarises progress made by the Environment Agency in carrying forward its obligations under the UK Biodiversity Action Plan (UK BAP), for the period 1 January – 31 December 2001.

1.2 It is primarily an internal report aimed at our own staff, although relevant government departments, statutory and voluntary wildlife organisations, local government and professional and academic institutions will also have an interest in the contents. A summary version will be available on our internal Intranet and on our website, www.environment-agency.gov.uk

Background

1.3 In July 2000 we published "*Focus on biodiversity: the Environment Agency's contribution to wildlife conservation*"[1]. It set out comprehensively, our role, obligations and involvement in wildlife conservation, and in particular our actions under the UK BAP in the 5 year period 1995-99. We said that this would set the baseline reference document for tracking progress and that we would report annually to this effect, making more detailed appraisals every 5 years. This document is the second annual progress report covering the year 2001.

Structure and content

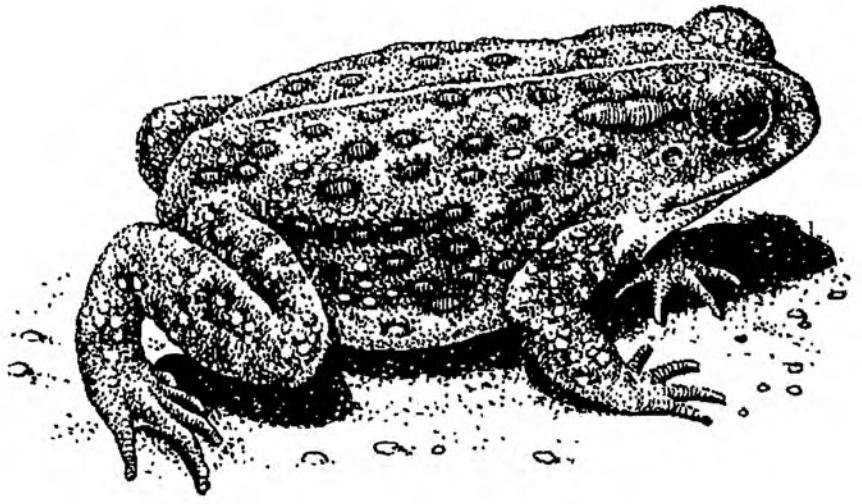
1.4 Feedback on *Focus on Biodiversity* was extremely good, both in terms of design and content and was given a Communications in Business (CiB) award. We have tried to repeat the presentational style by using a simple format with a minimum amount of jargon.

1.5 We concentrate largely on the 39 species and 5 habitats for which we have a lead role under the UK BAP. We identify progress on UK BAP actions for each species and habitat secured through promotional, project and research work. We also estimate, using broad categories, the amount of effort and resources used. A brief summary of intended action in 2002 is also included. Background technical information has been omitted because the ecology, distribution and main threats are all included in *Focus on Biodiversity.*

1.6 We also highlight actions undertaken for a selection of those species where we are not the UK BAP lead, but where we have specific actions to help.

1.7 An updated list of Agency co-ordinators is appended, and we also provide in subsequent appendices, lists of (i) partner organisations in 2001 (ii) abbreviations and acronyms and (iii) scientific names used in the text.

1.8 Thanks again to English Nature for permission to use again some of the line drawings that made *Focus on Biodiversity* so attractive.



CHAPTER 2 AN OVERVIEW OF 2001

LEGISLATION AND NATIONAL POLICY

2.1 During the year we consolidated our implementation of the Habitats Directive and the Countryside and Rights of Way Act and continued preparatory work for the EC Water Framework Directive (WFD).

Habitats Directive

2.2 We completed, with colleagues in English Nature (EN) and Countryside Council for Wales (CCW), "site issues briefings" for more than 400 Special Protection Areas and Special Areas of Conservation. This enabled us to prioritise our work programmes to review existing Agency consents adversely affecting the conservation status of SPAs and SACs. Analysis has confirmed that about a quarter of sites were either adversely affected or at high risk from Agency-regulated activities and operational work. However, the Agency was the sole cause of impact or high risk in only 10% of the total.

2.3 Land use, inappropriate site management and diffuse pollution were identified as major factors in many cases, none of which are under direct Agency control. We are now in a good position to target resources at the most urgent priority SPAs and SACs and take action where it will have maximum benefit for wildlife conservation. Regions have been progressing resource-based site action plans which identify what needs to be done, by when. We will be able to report on progress against our review timetable agreed with DEFRA and NAW.

CRoW Act

2.4 We arranged a special assignment nationally to ensure the new CRoW Act provisions on wildlife conservation are implemented. This has meant agreeing with EN and CCW amended procedures for authorisations and our own working practices to ensure they are CRoW compliant. Appropriate management of our own landholdings in SSSIs is also a major issue for us. Awareness-raising and training material have been prepared and briefing of staff under way.

Water Framework Directive

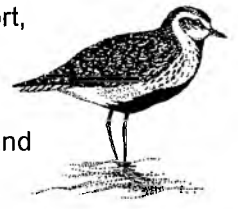
2.5 We have begun preparations for the WFD by involvement in several UK and EU technical groups which are preparing standards and procedures for implementing the Directive. We have also changed our sampling procedures to enable us to report annually to Government on biological water quality, and undertaken research on various aspects associated with the ecological and hydromorphological quality of rivers. Our 'Biology for Windows' database is being upgraded to improve its performance and in preparation for the broader requirements of the WFD. A lot more technical work is required to fill knowledge gaps in other types of surface water and we will be working with colleagues in EN, CCW, and SEPA to address this.

National Biodiversity Groups

2.6 We continued to play an active role in the National Biodiversity Network and started to develop our conservation web-site, which will highlight our activities, with links through to UKBAP partners. We are co-ordinating the "Water and Wetlands" theme for The England Biodiversity Strategy and are active members of the DEFRA Review Group on Invasive Species.

Ramsar

2.7 We were able to make a substantial contribution to the triennial UK Ramsar Report, highlighting Agency work on wetlands. This report can be seen on the JNCC website *www.jncc.gov.uk*. We hosted a visit by the Ramsar Advisory Mission to the Ouse Washes in early November which was investigating problems of summer flooding with its consequent impact on nesting waders, vegetation type and water quality. Their report is due out in the summer 2002 and will recommend management options for this internationally important wetland.



NATIONAL INITIATIVES

2.8 Our Regions and Areas have continued to help secure biodiversity benefits through implementation of the National Environment Programme of AMP3, Water Level Management Plans, Catchment Abstraction Management Strategies and Local Biodiversity Action Plans. We are confident that implementation of these, good preparatory work for AMP4 and development of River Habitat Objectives will secure long-term improvements in wildlife in both protected sites and the wider countryside with the river network acting as a wildlife link.

2.9 2001 also saw the first DEFRA high-level target report for biodiversity, which attempted to estimate the net efforts of flood and coastal defence works on UKBAP habitats. Nationally, it was estimated that there were significant net gains (>40ha) for saltmarsh, reedbeds and coastal grazing marsh, with minor gains (<6ha) for mudflats and chalk rivers. We hope to refine the reporting process, to improve our understanding of the impact

FOOT AND MOUTH DISEASE

2.10 Following the trauma and disruption caused by the autumn floods in 2000, there were no such weather-related dramas in 2001. However, our biodiversity-related work was severely curtailed in many parts of the country due to foot-and-mouth restrictions. This had a serious impact on several surveys. Luckily, the England Otter Survey was largely completed, but the start of the Wales survey had to be postponed until 2002. The EU-funded 'Life in UK Rivers' was severely disrupted in what was to be its most field-intensive year, and several other surveys of riverine species including breeding water birds had to be suspended. Our biological water quality sampling programme was severely curtailed in several Regions.

2.11 We were naturally very concerned about stream and river ecology in affected areas because of the potential impact of chemicals used to disinfect farms. Early indications are that disinfectants did not have a lasting impact on aquatic invertebrate life. We await the 2002 sampling results with anticipation in the light of (i) potential localised effects of pollutants leaching from burial sites, and (ii) potential improvements in biological quality in those catchments where there was little or no grazing, thereby allowing riverbank vegetation to recover and provide extra refuge for aquatic life and nesting birds.

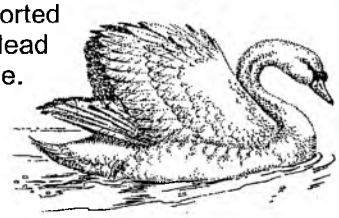
PROJECT WORK

Barn Owls

2.12 We have now established national co-ordination of the national Barn Owl nest box scheme run by the Hawk and Owl Trust. Early analysis indicated a very poor breeding year in 2001, possibly because of poor small mammal populations following the severe autumn 2000 floods.

Swans and Fishing Tackle

2.13 The four year study on The Impact of Lost and Discarded Fishing Line and Tackle on Mute Swans neared completion. Fishing tackle related incidents account for 30% of reported swan rescues in England and Wales. There is some evidence of continued lead poisoning in some areas and the Agency is funding further work on this issue. The study has resulted in the setting up of an Angling & Swans Liaison Group, comprising the National Federation of Anglers, the National Convention for the Welfare of Swans and Wildlife, and the Environment Agency to work together on ways of reducing the number of swan injuries.



Otter Survey of England

2.14 A total of 3327sites have now been surveyed with the last site completed in February 2002. Although results will not be published until later in 2002, the overall trend is encouraging.

EU LIFE Projects

2.15 The Agency continues to be the principal funding partner for a number of LIFE projects.

The Wise Use of Floodplains

2.16 This 3 year project will formally finish at the end of March 2002. Overall the project has been an enormous success in Somerset, helping stakeholders work towards sustainable solutions to the many problems that have dogged the area for decades. The Agency has recently presented to Michael Meacher our Parrett Catchment Water Management Strategy, the first such integrated strategy produced anywhere in the country. But the work goes on in Somerset in the form of a new partnership initiative – the Rural Environmental Facilitation Service. This will be hosted by the Levels & Moors Partnership and will be supported financially by DEFRA, the Environment Agency, English Nature and the Parrett Catchment Project.

LIFE in UK Rivers

2.17 The LIFE Project Officers are developing conservation strategies for seven SAC rivers, and the experience gained will assist in the production of guidance for use throughout the UK. Key issues have been identified in consultation with stakeholders; best practice management guidelines and action plans will be produced during 2003. Also due for completion in 2003 is the Handbook on the Ecological Requirements of Species, draft chapters have now been written for 12 out of the 14 species covered.

2.18 Good progress has been made on 5 conservation issues that the project is looking at: silt and suspended solids; the rehabilitation of rivers with *Ranunculus* plant communities; enhancing the conservation status of the freshwater pearl mussel; characterisation of otter breeding habitat and a re-introduction protocol for the white-clawed crayfish.

Wetlands for Wales

2.19 2001 could be considered as the first operational year of the Project given that the Agreement between the Partners and Heritage Lottery Fund (HLF) was signed in November 2000.

2.20 Project Managers have been appointed and there have been further land acquisitions at the RSPB's Malltraeth Marsh and Ynys Hir sites. Overall Capital expenditure was in the region of £110k. This expenditure was principally on the restoration of previous land acquisitions.

Living with the Sea

2.21 The production of the first three pilot Coastal Habitat Management Plans (CHaMPs) continued and will be completed by November 2002. The final Dungeness CHaMP is now complete and the dissemination meeting has been held. The Essex CHaMP has been delayed due to foot and mouth. An initial overview of the Solent CHaMP was produced in August 2001. The Suffolk, North Kent, North Norfolk and Winterton Dune CHaMPs are due to be completed in 2002. Another important element of the project is the production of a good practice guide for habitat creation, this work has begun and is due to be completed by April 2003.

NATIONAL BIODIVERSITY NETWORK

2.22 We store a lot of historic information about fauna and flora across England and Wales. For example, we have biological results from surveys of over 20,000 river sites, some covering thirty years. We are keen that these historic data are used for purposes other than our own. The public can get this information from us already, but how much better it would be if it could be retrieved alongside that held by other individuals and organisations. The NBN provides us with an opportunity to free up these data for others to use.

2.23 Of course, the gain will not be one-sided. Every year, we spend time and money getting information to assess the environmental effects of processes so we can regulate them better. We need to undertake biological surveys to get this information. There is already a lot of biological information out there, but it is difficult to know exactly where to find it. The NBN can provide us with information to plug holes in our knowledge and help us protect the environment better.

2.24 To ensure everyone knows we are talking about the same animal or plant whenever we report our findings, we intend to use the NBN taxon dictionary as a backbone to our biology data system.

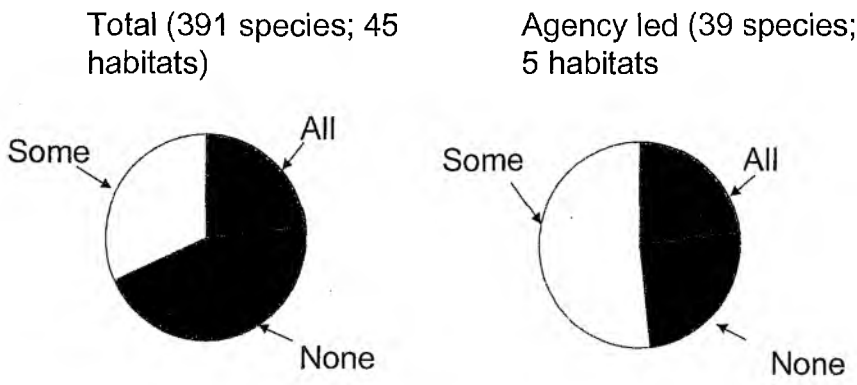
2.25 Our biology database is always in development, and part of that development is to provide the link to the NBN gateway. We have investigated how we can make the link and we plan to push this forward to ensure we get those links in place as soon as resources permit.

OVERALL MESSAGE

2.26 It is fair to say that despite our best efforts, and notwithstanding the effects of Foot and Mouth Disease in 2001, we are still not fulfilling all our obligations to those UK BAP species and habitats for which we have the lead role. Nevertheless, compared with the performance across all UK BAP species and habitats, we are not doing too badly (Fig 1).

Figure 1

UK BAP ACTIONS IN PROGRESS (1995-2001): SPECIES AND HABITATS WITH ACTIONS UNDER WAY, SOME UNDERWAY AND NONE UNDERWAY



2.27 Species and habitats where all outcomes are in progress are indicated in Table 1 as are those for which nothing has been progressed since 1995. We hope to tackle those neglected so far (e.g. stoneworts) from 2002, but a continuing shortfall in funding is hampering our ability to do so.

Table 1

All actions in progress	No actions
Marsh warbler	Burbot
Allis & twaite shad	Violet crystalwort
White-clawed crayfish	Freshwater bryozoan
Southern damselfly	Tiny fern moss
Shining ram's horn snail	Beaked beardless moss
Little whirlpool ram's horn snail	5 species of stonewort
Depressed river mussel	Cut grass
Water rock bristle	
Multi-fruited river moss	
Ribbon-leaved water plantain	
Chalk rivers	
Mudflats	
Salt marsh	

2.28 We have again asked Government, this time, as part of our 2002 Spending Review, submission for an additional amount (£500k a year) of funds to ensure we invest to gain knowledge about biodiversity requirements to save possible expensive errors in future. This is particularly pertinent in view of the forthcoming Environmental Liability Directive and its focus on biodiversity damage.

2.29 As we have said previously, a small amount of extra investment now will provide long-term savings by reducing the current uncertainties and risks associated with those species for which we have little or no ecological information and about which we are making, perhaps erroneous assumptions when determining environmental licences or carrying out our own operational works.

CHAPTER 3 PROGRESS IN 2001 – CATEGORY 1 & 2 SPECIES AND HABITATS

3.1 This chapter documents for each of the 39 species and 5 habitats for which we have the lead role, the UK BAP actions requiring Agency action and our contribution in 2001. This is summarised in broad categories: X. no action; one, two or three ticks representing some, moderate and good progress respectively. Columns for activity during 1995-99 and 2000 are also shown for comparison.

3.2 Some examples of project work in 2001 are listed along with estimates of resources invested. Where known, examples of activities planned for 2002 are included. In many instances however, lack of funding means that no activities can be taken forward.

3.3 Table 2 gives an overview of the Agency's contribution to actions since 1995.

Table 2

Species/habitat	Actions required by Agency	✓1995-99	✓2000	✓2001
Water Vole	15	13	13	12
European Otter	13	12	10	11
Marsh Warbler	3	3	3	3
Allis & Twaite Shad	4	4	3	1
Vendace	7	6	5	3
Burbot	8	0	8	0
Bidessus unistriatus	5	0	1	1
Bidessus minutissimus	5	2	4	4
Agabus brunneus	3	0	1	1
Anisodactylus poeciloides	2	0	0	1
Hairy click beetle	9	2	2	3
River Shingle Beetles (6 species)	10	4	3	0
Freshwater White-Clawed Crayfish	10	10	10	9
Southern Damselfly	4	4	4	4
Clorismia rustica	4	1	2	0
Spiriverpa lunulata	9	3	2	0
Glutinous snail	8	7	6	3
Shining ram's horn snail	4	4	4	3
Little whirlpool ram's horn snail	8	8	7	7
Freshwater Pearl Mussel	9	8	5	3
Depressed river mussel	3	3	3	1
Freshwater pea mussel	11	3	4	3
River Jelly lichen	8	5	5	4
Violet crystalwort	1	0	0	0
Freshwater Bryozoan	6	0	0	0
Multi-fruited river moss	2	0	0	2
Tiny fern moss	3	0	0	0
Beaked Beardless moss	3	0	0	0
Water rock bristle	1	1	1	1
Stoneworts (5 species)	7	0	0	0
Ribbon-leaved water plantain	2	2	2	0
Cut grass	5	0	0	0
Triangular club rush	9	7	7	2
Greater water-parsnip	4	0	1	3
Chalk Rivers	10	9	10	10
Fluctuating Water Bodies	13	7	4	5
Eutrophic Lakes	27	23	18	22
Mudflats	8	5	8	8
Saltmarsh	16	9	16	16
TOTALS	**279**	**165**	**172**	**146**

Water vole - *Arvicola terrestris*

Category: 1
Contact point: Environment Agency
Focus on biodiversity: pages 34-36

Agency co-ordinator: Alastair Driver
Lead partner: UK Water Vole Steering Group

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1	Ensure appropriate protection under the Wildlife & Countryside Act for the water vole and its habitat	X	✓✓✓	✓
5.2	Incorporate water vole conservation into relevant habitat policies and agri-environment schemes	✓✓✓	✓✓✓	✓
5.3	Identify large, viable breeding populations of water vole and retain these with appropriate management and monitoring, from which a series of "key areas" should be designated.	✓✓✓	✓✓✓	✓
5.4	Incorporate water vole conservation into integrated area management plans (eg local BAPs, Environment Agency LEAPs, integrated catchment management plans etc), initially targeting areas as identified in Action 3.	✓✓✓	✓✓	✓
5.5	Ensure that development schemes do not affect the integrity of water vole populations.	✓	✓	✓
5.6	Using survey information, identify sites which are suitable for re-establishing populations.	✓	✓✓✓	✓
5.7	Where necessary employ appropriate mink control as a conservation tool to protect large breeding water vole populations.	✓✓	✓✓✓	✓
5.8	Following relevant research, establish a co-ordinated programme of translocation and reintroductions of water voles with local provenance where it is deemed appropriate and effective.	✓✓	✓✓✓	✓
5.9	Ensure information on water vole conservation requirements and appropriate habitat management are available to all riparian owners, managers and advisers (through guidelines and a practical handbook of water vole conservation).	✓✓	✓✓✓	✓
5.10	Promote European co-operation in the study and conservation of threatened populations of water voles.	X	X	X
5.11	Ensure that the relative status and distribution of the water vole in Britain is monitored through repeats of the national baseline survey together with general catchment-based surveys in each region to determine the extent of the water vole populations and level of fragmentation of suitable habitat.	✓✓	✓✓✓	✓
5.12	Continue existing and establish new national research initiatives on the ecology and conservation requirements of water voles.	✓✓	✓✓	✓
5.13	Encourage the submission of data collated on a local level to LRC or BRC for incorporation into a national database, and to facilitate easier access to information.	✓✓	✓✓	✓
5.14	Encourage the publication of research papers and features in popular press, magazines and the broadcast media to raise the profile of the species.	✓✓✓	✓✓✓	✓
5.15	Prepare school education resource material for nation-wide distribution.	X	X	X

NB a reduction in numbers of ticks, does not necessarily mean less effort – often it means that an initiative which took a lot of effort to set up, is now up and running fairly smoothly.

Examples of project work

- Water voles translocation/introduction R&D progressing well with large numbers of animals successfully introduced to Kennet and Avon Canal near Bath and WWT Wetland Centre at Barnes. 147 animals were released in May/June at Barnes and breeding was confirmed in late summer.

- National key sites R&D progressing well. 15 discrete sites identified in England and Wales, and owners fully supportive. Surveys undertaken and management recommendations submitted to owners/ occupiers.

- Kennet Mink Control Project partially successful. 14 landowners participating. 54 traps distributed and 40 trapped mink recorded. Too early yet to determine impact on water voles. Other mink control initiatives underway in Suffolk and NW Wales and more being planned for Norfolk and North Wilts.

- Anglesey Water Vole Project progressing well, with numerous surveys and wetland management and enhancement initiatives underway in collaboration with Mentre Mon , RSPB etc.

- Water vole conservation fully integrated with the Chichester Coastal Plain management strategy in collaboration with EA Flood Defence, WildCRU and FWAG.

- Funding for a further 3 years of the Berks, Bucks and Oxon Water Vole Project secured.

- £100K over 3 years, funded by EA, Thames Water, BW and BBOWT, commencing in April 2001.

- Numerous catchment-wide water vole surveys completed across England and Wales.

- Contact Point Alastair Driver and Water Vole Conservation Advisor, Rob Strachan (employed by the EA and WildCRU), dealt with 2003 specialist enquiries on water voles in 2001!

Agency contribution in 2001 = £100k -£200k.

Action planned for 2002
- Further introductions at WWT Wetland Centre in May.
- Commencement of North Wilts Water Vole Recovery Project, focussing on strategic mink control.
- Updated water vole slide pack to be produced.
- Costed project proposal for UK-wide strategic mink control to be produced.
- Recommendation for full protection for water vole to be made through JNCC Quinquennial Review.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Otter - *Lutra lutra*

Category: 1
Contact Point: Environment Agency
Focus on biodiversity page: 37-39

Agency co-ordinator: Graham Scholey
Lead Partner: Environment Agency/The Wildlife Trusts

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.3	Seek to determine, by 2000, Statutory Water Quality objectives for standing and running in Britain which will sustain otters.	X	X	✓
5.1.5	Identify and resolve problems with existing legislation. Seek to clarify the definition of traps in WCA 1981 and resolve inconsistencies over the use of otter guards on fish traps.	✓✓	✓	✓
5.2.1	Seek to include action for otters in LEAPs for all areas by 2005, including "otter havens" in relevant areas.	✓✓✓	✓	✓
5.2.3	Produce catchment based local habitat management plans identifying key areas for restoration and enhancement.	✓	X	✓
5.3.3	Attempt to limit accidental killing or injury (eg by provision of road underpasses and fyke net guards) particularly on key catchments.	✓✓	✓✓	✓
5.4.1	Ensure the provision of information on otter requirements and conservation to key groups, to include landowners, through the publication of posters or guidelines.	✓✓	✓	✓
5.5.1	Collate information on prey productivity biomass and pollutions in occupied and likely recolonisation areas.	✓✓	✓	✓
5.5.2	Develop a standard methodology to analyse the level of pollution accumulation in otters.	✓	✓	✓
5.5.3	Investigate the effects of disturbance on otter populations.	X	X	X
5.5.4	Develop and implement methods to estimate otter numbers and permit population modelling.	✓✓	✓✓	✓
5.5.5	Monitor populations and distribution of otters throughout the UK, including local survey to monitor the expansion of fringe populations.	✓✓✓	✓✓✓	✓
5.5.7	Develop a methodology for identifying otter breeding areas and produce guidelines for the protection and creation of breeding habitat.	✓✓	✓	✓
5.6.1	Use this popular species to publicise the importance of water quality and riparian habitats to biodiversity	✓✓	✓	✓

Examples of project work

- The Agency produced an R&D Technical Report on fish prey availability and biomass to address whether food supply was likely to be limiting for the recolonisation of otters. The study concluded that, despite an inability to undertake large-scale comparative analyses of Agency fisheries data, it is highly likely that there is sufficient prey biomass on the majority of English river catchments to support otters.

- The fieldwork for the Fourth Otter Survey of England was substantially completed despite significant delays due to FMD. This survey has been co-ordinated by the Agency. Preliminary results confirm the continued expansion of the otter population, as expected.

- There has been good progress on the issue of roadkill mitigation, with the Highways Agency initiating a study to identify roadkill hotspots with a view to prioritise funding for a programme of mitigation works in England and Wales. An initial part of this study involved a detailed assessment of the roadkill potential on the trunk road network in part of South-west Region, which has identified priorities for mitigation which have already received commitment for funding. Good progress in Wales has seen the establishment of a 'roads and otters' steering group chaired by the NAW and some mitigation schemes already implemented.

- Research continues into the post-mortem and tissue analyses of dead otters from around the country, and also further research is ongoing into the use of DNA for the monitoring of otter populations.

Agency contribution in 2001 = £150K

Action planned for 2002

- Production of the report for the Fourth Otter Survey of England
- Otter Survey of Wales to be undertaken.

- Identification of monitoring protocol for otters under the Habitats Directive requirements for relevant SACs and for national status reporting.
- Progress is expected on discussions with DEFRA regarding stillwater fishery mitigation issues.
- R&D reports to be produced for the otter post-mortem and tissue analysis research.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Marsh warbler - *Acrocephalus palustris*

Category: 1
Contact point: Environment Agency
Focus on biodiversity page: 40

Agency co-ordinator: Philippa Harrison
Lead partner: RSPB/The Wildlife Trusts

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Incorporate riparian habitat management prescriptions into LEAPs to benefit the marsh warbler.	✓	✓	✓
5.2.1	Safeguard existing or recently abandoned breeding sites by carrying out appropriate habitat management, particularly scrub removal and maintenance of high water tables.	✓✓	✓✓	✓
5.4.1	Promote appropriate management of marsh warbler sites.	✓✓	✓✓	✓

NB – the project described below also directly meets action 5.3.1 – "Ensure that adequate wardening of occupied marsh warbler sites takes place to prevent undue disturbance and persecution by egg collectors".

Examples of project work

- The appointment of a marsh warbler species protection officer in spring 2001 to monitor and protect the main British breeding site for this species, in south-east Kent, identified egg theft as a major threat to this species and as a consequence, to the British breeding population. This project was a great success and forms a core part of the strategy for the conservation work for this species in the future.

- Small-scale habitat management work has continued at the main breeding site and nearby outlying areas.

Agency contribution in 2001 = £2.5k

Action planned for 2002

- It is proposed that the species protection project be continued for the next three years. The role of the project officer will be retained and expanded to formally encompass the following additional tasks:
  - monitoring surrounding sites that support breeding marsh warblers regularly or irregularly;
  - identifying and surveying sites which might support marsh warblers;
  - trialling monitoring methods for the species especially those of tape-induced feedback;
  - identifying areas where positive habitat management and/or creation could be carried out;
  - managing the County-wide surveys in Kent at least.

Was progress on the species affected by Foot and Mouth Disease?
No

Allis and twaite shad - *Alosa alosa & Alosa fallax*

Category: 2 *Agency co-ordinator:* Miran Aprahamian
Contact point: DEFRA *Lead partner:* DEFRA/Environment Agency
Focus on biodiversity: page 40-41

UK BAP Number	UK BAP action needed Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.1	Identify and characterise spawning sites for twaite shad and use this information to identify potential spawning sites for both species of shad.	✓	✓✓	✓
5.4.1	Arrange workshops as necessary for conservation staff, non-Government organisations (NGOs) and land managers to explain the ecology, distribution and known requirements of shad.	X	X	✓
5.5.1	Obtain quantitative information on spawning and nursery sites and relate these to habitat models such as RHS to aid in the prediction of potential spawning areas within catchments.	X	✓✓	✓
5.5.4	Investigate the use of hydroacoustic fish counters with shad recognition systems in rivers with known spawning populations as well as incidental catches by anglers and fishermen.	X	✓✓	✓

Examples of project work

- Very little work was carried out in 2001 – some work on egg distribution and analysis of video from the fish counter at Gunnislake and catch data was undertaken.
- Samples were obtained from the Tywi to complement those from the Wye, Usk and Severn for a genetic analysis of UK stocks – a collaborative project with EN and CCW.
- Some catch data were obtained from the Thames estuary.

Agency contribution in 2001 = £10K

Action planned for 2002

- Obtain quantitative information on spawning and nursery sites and relate these to habitat models such as RHS to aid in the prediction of potential spawning areas within catchments.
- Start monitoring programme - depending on output from LIFE project and money.
- Continue work on shad genetics
- Complete shad bibliography.
- Test new multi-frequency hydroacoustic system for estimating shad shoals.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Vendace – *Coregonus albula*

Category: 1
Contact point: Environment Agency
Focus on biodiversity: page 42

Agency co-ordinator: Cameron Durie
Lead partner: Environment Agency

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	In waters of high biodiversity interest including those inhabited by vendace, stocking should be limited by legislation.	X	✓	✓
5.2.1	In Bassenthwaite and Derwentwater ensure that water quality, physical habitat and spawning grounds are protected.	✓	✓	✓
5.3.1	Promote local byelaws to prevent the use of livebait and associated translocation of fish into vendace waters an their catchments.	✓✓✓	X	✓
5.5.1	Continue monitoring and research work on Bassenthwaite Lake and Derwentwater.	✓✓	✓✓	✓
5.5.2	Encourage periodic monitoring of populations that become established at other locations.	X	X	X
5.5.6	Assess the feasibility of establishing additional self-sustaining populations in other waters in Cumbria.	X	✓	✓
5.6.1	Prepare and distribute information on vendace to interested parties in catchments of existing populations or where introduction is in progress or proposed.	X	✓	✓

Examples of project work

Captive Rearing
In view of the poor status of the population in Bassenthwaite Lake attempts were made to run a captive rearing programme. Seine netting was trialled in neighbouring Derwentwater but failed to catch any vendace.

Gill nets set between December 10th and 19th caught large numbers of ruffe, roach, perch, pike, rudd, dace, salmon and trout but only 4 vendace. Of these 3 were female and 1 male. Due to the immature status of the male no fertilised ova could be obtained.

Local Byelaws
The Agency is promoting byelaws to prohibit the use of live or dead freshwater fish as bait on Bassenthwaite Lake and Derwentwater. Numerous objections have been received and these are currently being dealt with.

Agency contribution in 2001 = £10K

Action planned for 2002

- Building on the experience gained in 2001 it is hoped that captive rearing will again be attempted in 2002.
- It is not clear whether the proposed byelaws will be introduced and these will be progressed in 2002.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Burbot – *Lota lota*

Category: 2
Contact point: English Nature
Focus on biodiversity page: 43

Agency co-ordinator: Keith Easton
Lead partner: Environment Agency

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Consider the conservation justification of re-establishing the burbot as a viable component of UK biodiversity.	X	X	X
5.1.2	Take not of, and feed into, the review of fisheries legislation currently being undertaken by DEFRA, and the development of policies on species and habitat translocations being developed by the country conservation agencies.	X	X	X
5.1.3	Based on the outcomes of the above decide whether re-establishment of self-sustaining populations of the burbot to parts of the former range is desirable and feasible. If so indicate likely locations etc as precursors to the preparation of a detailed reintroduction plan.	X	X	X
5.5.1	Review theories expounded for the extinction of the species in the UK, and current expert opinion, to reach a consensus on the likely causes.	X	X	X
5.5.2	Assess the current relevance of the causes identified for extinction, to determine whether they would prevent successful re-establishment, or present any future threat.	X	X	X
5.5.3	Undertake reviews and further studies of the ecological requirements of burbot, and the nature of its niches in rivers.	X	X	X
5.5.4	Assess rivers within the historic range in England against the results of the above to ascertain whether the ecological requirements of the species can still be met in any of them.	X	X	X
5.6.1	Consider how to gain a broad constituency of views on the re-establishment of the burbot as a component of the UK biodiversity, and implement an appropriate strategy to that end.	X	X	X

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
None

Was progress with the species affected by Foot and Mouth Disease?
No

A diving beetle - *Agabus brunneus*

Category: 1
Contact point: Environment Agency
Focus on biodiversity: page 44
Agency co-ordinator: Francis Farr-Cox
Lead partner: Action for Invertebrates

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.2	Undertake a review of water abstraction policies within areas where the species occurs.	X	X	X
5.1.3	Address the requirements of this species in the LEAP process and in relevant WLMPs.	X	X	X
5.2.1	Where possible, ensure that all occupied habitat is appropriately managed by 2008.	X	✓	X

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
None, due to lack of resources.

Was progress on the species affected by Foot and Mouth Disease?
Yes (but not Agency funded work).

A ground beetle - *Anisodactylus poeciloides*

Category: 1
Agency co-ordinator: Phil Griffiths
Contact point: Environment Agency
Lead partner: Action for Invertebrates
Focus on biodiversity: page 45

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.2	Address the requirements of this species in the LEAP process and in relevant Shoreline Management Plans	X	X	X
5.2.3	Encourage the creation of suitable saltmarsh habitat by managed retreat where possible.	✓	X	X

Examples of project work

- Investigations into feasibility of two potential managed realignment sites on the Southern English Coast continued during 2001/02. These sites would have potential for recolonisation by *Anisodactylus* as it is found both to the west and east of these sites.
- Details of the colony at Dibden Bay (located in 1999) passed on to the appropriate conservation officers preparing responses to the proposals for a large port.
- A second colony under threat in the Swale Estuary may benefit from reversion of arable land to grazing marsh in the near vicinity as part of the development.

Agency contribution in 2001= £1K

Action planned for 2002

- Further survey at North Kent marshes by Alex Williams
- New survey at Lymington salterns
- Survey of the Essex coast by Peter Hammond

Was progress on the species affected by Foot and Mouth Disease?
Yes

A diving beetle - *Bidessus unistriatus*

Category: *1*
Agency co-ordinator: *Terry Clough*
Contact point: Environment Agency
Lead partner: Balfour-Browne Club
Focus on biodiversity page: 47

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Address the requirements of this species in the LEAP process and in relevant WLMPs.	X	X	X
5.1.2	Take account of the species' requirement in response to applications for water abstraction licenses.	X	X	X
5.5.1	Undertake further surveys to determine the status of the species.	✓✓✓	✓	X
5.5.2	Conduct targeted autecological research to inform habitat management.	X	X	X
5.5.3	Establish a regular monitoring programme for the species.	X	X	X

Examples of project work

- 24 historic *Bidessus unistriatus* sites were surveyed in the Brecklands, New Forest, the Broads, Cambridgeshire and Sussex.
- A comprehensive review of present and historic distribution was published (not including the above survey).

Agency contribution in 2001 = £4K

Action planned for 2002

- More surveys in February/March.
- Add 2001/2 survey results to distribution report.
- Begin a monthly monitoring study of one site in the New Forest to study the beetle's lifecycle.
- Carry out a laboratory study on larval development.

Was progress on the species affected by Foot and Mouth Disease?
Yes.

Hairy click beetle – *Synaptis filiformis*

Category: 1
Contact point: Environment Agency
Focus on biodiversity page: 48
Agency co-ordinator: Francis Farr-Cox
Lead partner: Invertebrate Action

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Address the requirements of the species in the LEAP process and in relevant WLMPs.	✓	X	X
5.1.2	Ensure that the habitat requirements of the species are taken into account in flood defence and channel maintenance activities in areas where the species occurs.	✓	X	X
5.2.1	Ensure that all occupied habitat is appropriately managed by 2008.	✓	✓	✓
5.2.2	Ensure that the habitat requirements of the species are taken into account in any development policies, plans and proposals likely to affect the River Parrett corridor.	X	X	X
5.5.1	Undertake surveys to determine the status of the species.	X	✓✓	✓
5.5.2	Conduct targeted autecological research to inform habitat management.	X	X	X
5.5.3	Establish a regular monitoring programme for populations along the River Parrett.	X	X	X
5.5.4	Pass information gathered during survey and monitoring of this species to a central database for incorporation in to national and international databases.	X	X	X
5.6.1	Promote opportunities for the appreciation of the species and the conservation issues associated with its habitat. This should be achieved via articles within appropriate journals as well as by a publicity leaflet.	X	X	X

Examples of project work

- Ensured appropriate staff are aware of the species.

Agency contribution in 2001 = £0

Action planned for 2002

- With major work likely to take place on tidal rivers for flood defence reasons we need to fund research to establish the life cycle requirements of the species. While the larval and pupal needs of the species remain unknown we cannot address the more complex actions required. More particularly we cannot objectively ensure that the requirements of the species are properly addressed in assessing the impact of flood defence works.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Various river shingle beetles and other invertebrates associated with ERS

A stiletto fly - *Cliorismia rustica*
Category: 1
Contact point: Environment Agency
Focus on biodiversity page: 55
Agency co-ordinator: Vacant
Lead partner: Environment Agency/ERS Group

Shingle beetles
Category: 2
Contact point: CCW
Focus on biodiversity page: 49-51
Agency co-ordinator: Vacant
Lead partner: Environment Agency/ERS Group

A stiletto fly - *Spiriverpa lunulata*
Category: 2
Contact point: CCW
Focus on biodiversity page: 56
Agency co-ordinator: Vacant
Lead partner: Environment Agency/ERS Group

A diving beetle - *Bidessus minutissimus*
Category: 2
Contact point: CCW
Focus on biodiversity page: 46
Agency co-ordinator: Vacant
Lead partner: Environment Agency/ERS Group

River shingle beetles – *Perileptus areolatus, Bembidion testaceum, Lionychus quadrillum, Hydrochus nitidicollis, Thinobius newberyi* and *Meotica anglica*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	*Agency action 1995-99*
5.1.2	Address the requirements of these species in the LEAP process, and in relevant catchment management plans.	X	✓	✓
5.1.3	Take account of the species' requirements in response to applications for water abstraction and discharge licenses.	X	✓	X
5.2.1	Where possible, ensure that all occupied sites are appropriately managed, including the maintenance or restoration of appropriate flow regimes.	X	X	X
5.2.2	Ensure that the habitat requirements of the species are taken into account in any development policies, plans and proposals, particularly in relation to river engineering.	X	✓	✓
5.4.1	Advise landowners and managers of the presence of these species and the importance of beneficial management for their conservation.	X	X	X
5.4.2	Ensure that all relevant agri-environment project officers, members of regional agri-environment consultation groups, relevant drainage engineers and waterways managers are advised of locations for these species, their importance, and the management needed for their conservation.	X	X	X
5.5.1	Continue to undertake surveys to determine the UK status of these species.	X	X	✓
5.5.3	Establish a regular monitoring programme for the species and their habitats.	X	X	X
5.5.4	Pass information gathered during survey and monitoring of these species to a central database for incorporation into national and international databases.	X	X	X
5.6.1	Promote opportunities for the appreciation of exposed riverine sediment species and of the conservation	X	X	✓

	issues associated with their habitats. This may be achieved by articles in conservation-related wildlife, environmental, and user-group (eg anglers) journals, by posters and leaflets, and by involving the media in a publicity campaign.			

Stiletto fly – *Cliorismia rustica*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	*Agency action 1995-99*
5.1.1	Address the requirements of this species in the LEAP process and in relevant WLMPs.	X	✓	✓
5.1.2	Take account of the requirements of this species in response to applications for water abstraction or sand extraction from rivers.	X	✓	X
5.2.1	Where possible, ensure that all occupied sites are appropriately managed by 2005, for example through site management agreements.	X	X	X
5.4.1	Advise landowners and managers of the presence of this species and the importance of beneficial management for its conservation.	X	X	X

Stiletto fly - *Spiriverpa lunulata*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	*Agency action 1995-99*
5.1.1	Address the requirements of this species through the LEAP process and in relevant catchment management plans and WLMPs.	X	✓	✓
5.1.2	Take account of the requirements of this species in response to applications for water abstraction or sand extraction from rivers.	X	✓	X
5.2.1	Where possible, ensure that all occupied sites are appropriately managed by 2010.	X	X	X
5.4.1	Advise landowners and managers of the presence of this species and the importance of beneficial management for its conservation.	X	X	X
5.5.1	Undertake surveys to determine the status of this species.	X	X	✓
5.5.2	Conduct targeted autecological research to inform habitat management.	X	X	X
5.5.3	Establish a regular monitoring programme for this species.	X	X	X
5.5.4	Pass information gathered during survey and monitoring of this species to a central database so that it can be incorporated in national databases.	X	X	X
5.6.1	Promote opportunities for the appreciation of this species and the conservation issues associated with its habitat. This should be achieved via articles within appropriate journals as well as by a publicity leaflet.	X	X	✓

A diving beetle – *Bidessus minutissimus*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Where appropriate, include the requirements of the species when preparing or revising prescriptions for agri-environment schemes and for river restoration schemes.	X	✓	✓
5.1.2	Take account of the species` requirements in response to applications for water abstraction and discharge licences.	X	✓	X
5.1.3	Address the requirements of this species in the LEAP process and in relevant catchment management plans and WLMPs.	X	✓	✓
5.2.1	Where possible, ensure that all occupied habitat is appropriately managed by 2010.	X	X	X
5.2.2	Ensure that the habitat requirements of this species are taken into account in relevant development policies, plans and proposals, particularly in relation to river engineering.	X	✓	X

Examples of project work
None

Agency contribution in 2001= £0

Action planned for 2002
None

Was progress on the species affected by Foot and Mouth Disease?
No

White-clawed crayfish - *Austropotamobius pallipes*

Category: 1 *Agency co-ordinator:* Julie Bywater
Contact point: Environment Agency *Lead partner:* vacant
Focus on biodiversity page: 52-53

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.3	The use of byelaws to control baiting with crayfish by anglers should be reviewed.	✓✓✓	✓	✓
5.2.2	Ensure appropriate habitat management is undertaken.	✓	✓✓	✓
5.3.1	Establish the feasibility of eradicating non-native crayfish populations from the wild where they threaten sensitive sites or important populations of native crayfish.	✓✓	✓	✓
5.3.2	If feasible, instigate and support re-introduction programmes to selected areas.	✓	✓✓	✓
5.4.1	Provide advice for those involved in the conservation of this species and management of non-native crayfish populations.	✓✓	✓	✓
5.4.2	Provide advice on disinfection procedures to prevent the transmission of crayfish plague.	✓	✓✓	✓
5.5.1	Make inventories of SSSIs/ASSIs which contain native crayfish populations. Monitor populations in protected areas. Maintain the detailed databases on the distribution of the native and non-native crayfish.	✓✓	✓	✓
5.5.2	Investigate the potential for recovery of native crayfish in areas affected by crayfish plague, and the feasibility of re-introducing the species to these areas.	X	✓	✓
5.6.1	Increase public awareness of the presence of this species and the threats to its existence. Publicise the need for conservation and how the public can help.	✓	✓	✓
5.6.2	Ensure that anglers and visitors to nature reserves containing crayfish are made aware of the risks of spreading crayfish plague and of the legislative controls on the release of non-native species.	✓	✓	✓

Examples of project work

- New byelaws created to prevent the use of crayfish as live-bait in Angling.
- Alien crayfish eradication R&D Phase II completed and final report produced.
- Paper concerning the distribution of crayfish in England and Wales presented at a European conference held in France. Paper subsequently submitted for publication.
- Investigations into the various possibilities for a national database initiated.
- Research into the restriction of fish movements from areas with signal crayfish to SACs with native crayfish initiated.
- National policy group looking at the control of harvesting alien crayfish from the wild.
- Habitat enhancement manual in production through Agency and EN jointly funded research.

Agency contribution in 2001 = £80K

Action planned for 2002

- Further investigation into the effects of harvesting crayfish from the wild to facilitate management of commercial fisheries for conservation.
- Investigate the population dynamics of alien crayfish species, their migratory patterns etc. to facilitate the search for a method of control or eradication.
- Investigate the potential for alternative means of eradicating alien crayfish species including the use of pheromones as attractants and repellents.
- Include the spiny cheek and red swamp crayfish in schedule 9 of the Wildlife and Countryside Act, 1981 as pest species.
- Continue to work towards the creation of a definitive crayfish distribution database.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Southern damselfly - *Coenagrion mercuriale*

Category: 1
Agency co-ordinator: Tim Sykes
Contact point: Environment Agency
Lead partner: The Wildlife Trusts
Focus on biodiversity page: 54

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Encourage the uptake of beneficial land management schemes on land adjacent to occupied sites, including design of drainage schemes and other agri-environmental measures.	✓	✓✓	✓
5.2.3	Ensure that, where possible, the hydrology of occupied sites remains favourable.	✓	✓	✓
5.4.1	Ensure relevant landowners, managers and all others involved in the management of sites which support the species are aware of its presence and rarity, and appropriate methods of habitat management for its conservation.	✓✓	✓✓	✓
5.5.2	Promote regular monitoring of extant sites, seeking to identify further threats to the species.	✓✓	✓✓	✓

Examples of action

- The Agency secured new resources from Southern Water (through the Itchen Sustainability Study) and a consortium of development companies to enlarge the scope of the Ph.D. work and increase the human resources available for fieldwork in the Itchen valley. This resulted in the largest ever mark-recapture study of its kind on a Damselfly species. The data will assist the Agency understand the ecological requirements of the species in empirical terms and hence guide our Water Level Management Plans as well as inform our views on various development proposals in the area.

- The Agency contributed to the UK Southern Damselfly Site Assessment Project. Commissioned by the UK Southern Damselfly SAP Steering Group, the project involved an expert visiting every extant southern damselfly site and a number of historical sites in the UK to record site characteristics and meet landowners/managers. This has resulted in the Group obtaining a single, up to date, and comprehensive database of UK southern damselfly sites and the condition of each site.

- The Agency has worked closely with the RSPB, National Trust, EN and MoD to implement practical management at several sites in Dorset. This has centred on scrub clearance but also involved monitoring. The Agency also commissioned a survey of historic and some potential southern damselfly sites in the Dorset Area. The local BAP group for the species, in which the Agency has played a key role, has established monitoring of all sites in Dorset.

- The Agency produced a comprehensive piece on the southern damselfly and the activities of the UK Southern Damselfly SAP Steering Group for the British Dragonfly Society website - www.dragonflysoc.org.uk

Agency contribution in 2001 = £43K

Action planned for 2002

- The outputs of the first Ph.D. investigating the ecological requirements of the species in its heathland habitats will be published in 2002. This will include an awareness raising leaflet, as well as the R&D Technical Report and the Ph.D. Thesis itself.

- The Agency will continue to be a major supporter of the on-going Ph.D. investigating the biology and ecological requirements of the species in its chalk stream and fen habitats. This includes working with Liverpool University to develop and apply a DNA Fingerprinting technique with which to study the southern damselfly.

- Practical habitat enhancement projects at various southern damselfly sites in England and Wales are planned.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Little whirlpool ram's-horn snail - *Anisus vorticulus*

Category: 1
Agency co-ordinator: Phil Griffiths
Contact point: Environment Agency
Lead partner: Environment Agency
Focus on biodiversity page: 57

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Identify water quality requirements and take account of these standards when setting standards in watercourses occupied by this species, seeking to restore clear, unpolluted water to ditches to provide opportunities for expansion or re-colonisation.	✓	✓	✓
5.2.2	Establish and implement a ditch management cycle that allows the recolonisation of cleaned stretches from adjacent sections, taking into account the length of rotation necessary to avoid the ditch becoming choked with emergent vegetation.	✓	✓	✓
5.2.3	Seek to ensure that WLMPs take into account the ecological requirements of this species, where appropriate.	✓	✓	✓
5.3.1	Following further research and monitoring, prepare advice on habitat management to favour this species, by the year 2000.	✓	✓	✓
5.4.1	Ensure that land managers are aware of the presence and vulnerability of this species, and appropriate methods of land and water management for its protection.	✓	✓	✓
5.5.1	Within a single season, undertake a survey of all post-1965 live recorded sites to establish an accurate distributional baseline for the species. Then monitor using fixed point monitoring stations at each of the existing sites.	X	X	✓
5.5.2	Promote further study on the ecological requirements of this species, including the effects of changes in water quality on survival and current management of habitats containing healthy populations.	✓	✓✓	✓
5.5.3	Survey poorly recorded areas to discover if further colonies exist.	✓	✓	✓

See *Segmentina nitida* for details

Freshwater pearl mussel – *Margaritifera margaritifera*

Category: 2
Agency co-ordinator: Anne Lewis
Contact point: SNH
Lead partner: Environment Agency/SNH
Focus on biodiversity page: 58

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Identify water quality requirements for the species and seek to ensure that these form the basis for setting Statutory Quality Objectives, including Special Ecosystem Standards for sites occupied by the pearl mussel.	X	✓	✓
5.1.2	Seek to ensure that CAMs, flood defence activities, WLMPs and freshwater fisheries management take account of the requirements of this mussel, where populations still occur.	✓	✓	✓
5.1.3	Encourage favourable land management within catchments, where the river supports major populations of the mussel, through appropriate land management and grant schemes.	✓	X	✓
5.4.1	Provide advice to river land mangers, water bailiffs and local police in relevant areas on the presence and legal status of this species, and appropriate methods of management for its conservation.	✓	X	✓
5.5.1	Identify catchments where there is the best chance of re-establishing this species.	X	X	X
5.5.2	Carry out research to investigate key threats, fish hosts, life cycle and life history in different places, tolerance to variation in acidity, genetic variation, viability of re-seeding populations, and the effects of commercial exploitation.	X	✓	✓
5.5.3	Establish the current status of populations throughout the UK.	X	✓✓	✓
5.5.4	Encourage regular monitoring of known populations and seek to identify further threats to the species.	X	✓✓	✓
5.6.1	Promote awareness of the threats to the species and publicise the legal protection afforded to it.	X	X	✓

Examples of project work

- Removal of fallen trees that were threatening a pearl mussel population.
- Riparian fencing was erected in a pearl mussel catchment that will benefit the species by silt reduction/ improved instream habitat.

Agency contribution in 2001 = <£10K

Action planned for 2002

- Further survey work.
- Meeting of Regional contacts to improve consistency/ share experience.
- Prepare possible R&D projects on water quality requirements and re-establishment of populations.

Was progress on the species affected by Foot and Mouth Disease?
Yes.

Glutinous snail – *Myxas glutinosa*

Category: 1
Contact point: Environment Agency
Focus on biodiversity: page 59
Agency co-ordinator: John Steel
Lead partner: Environment Agency

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.1	Encourage good water quality in the catchment area of the Kennington Pit site.	X	X	✓
5.2.2	Implement the management plan for Llyn Tegid.	✓	✓	✓
5.5.1	Undertake ecological studies to provide a description of current and desired water quality and flow and the physical habitat.	X	X	✓
5.5.2	Survey all sites where the species has been recorded in the previous 50 years by 2000.	(Completed 2000)	✓✓✓	✓
5.5.4	Continue monitoring existing populations.	✓✓✓	✓✓	✓
5.5.7	Survey of lakes in the vicinity of Llyn Tegid to see if other populations exist locally.	X	✓✓✓	✓
5.5.8	Assess risks to the population in Llyn Tegid.	X	X	✓
5.5.9	Undertake ecological studies to provide a description of the current and desired water quality and flow regime and the physical habitat required by the species in the Llyn Tegid site.	X	X	X

Examples of project work

- Surveys continued at Liyn Tegid to monitor the population.

Agency contribution in 2001 = £2.5K

Action planned for 2002

- Continue surveys on existing site to monitor population
- Assessment of water quality in the existing site

Was progress on the species affected by Foot and Mouth Disease?
Yes

Fine-lined pea mussel - *Pisidium tenuilineatum*

Category: 1 *Agency co-ordinator:* John Murray-Bligh
Contact point: Environment Agency *Lead Partner:* Environment Agency
Focus on biodiversity: page 60

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.3	When ecological understanding is improved, consider the development of specific site designation to safeguard selected sites where the species is present or likely to recolonise. Management of water quality is likely to be required.	X	X	X
5.4.2	When ecological understanding is improved, consider the development of a set of management guidelines to be made available to local site managers/land owners and appropriate local authorities.	X	X	X
5.4.3	Produce a short identification and background ecological leaflet for field workers and site managers to aid identification and help improve our knowledge of the species status and distribution.	✓✓	✓✓	✓
5.5.8	Exchange research and management information with European partners.	X	X	X
5.5.9	Undertake surveys of all historical locations within a single season to discover whether populations still remain in any of them.	✓✓	✓✓	✓
5.5.11	Plan and undertake periodic monitoring of populations, adopting standard practices, at selected sites in order to identify population trends and potential threats.	✓	X	X
5.5.12	Undertake further ecological research which may be undertaken partly in co-operation with European partners.	X	X	X
5.6.2	Consider promoting awareness of the situation regarding this species if early research suggests that a threat exists to the species.	X	X	✓

Examples of project work

- New sites in the South of England were surveyed to determine the extent of the species distribution in watercourses. A few sites where large populations had been found were re-surveyed to determine the stability of the populations and whether they were affected by the flooding in winter 1999/2001.
- Much of the photographic work for the guide to British freshwater bivalve molluscs (being produced in collaboration with field Studies Council and the National Museum of Wales) was completed (though photomontage work is still needed), as have species accounts for *Pisidium*.

Agency contribution in 2001 = £5K

Action planned for 2002

- Complete the survey work planned for 2001 that had to be postponed because of foot and mouth and produce a report of the survey work undertaken in 2000, 2001 and 2002 (£8752).
- Publish the test version of the identification guide, following scientific refereeing.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Depressed river mussel - *Pseudanodonta complanata*

Category: 1
Contact point: Environment Agency
Focus on biodiversity: page 61
Agency co-ordinator: Catrin Grimstead
Lead partner: Environment Agency

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Consider developing policy and legislation to ensure favourable biotic conditions are maintained at key sites	X	✓	✓
5.5.1	Undertake studies to identify the ecological requirements of this species.	✓	✓✓	✓
5.5.2	Carry out surveys to establish the distribution of the species and location of key populations by the year 2000.	X	✓✓	✓

Examples of project work

- Cambridge University carried out work on the River Brue, Somerset during summer 2001 investigating the impact of river management practises on mussel populations and how practises could be changed to benefit depressed river mussels. Work was funded by Wessex Water with in-kind support provided by local Environment Agency conservation officers and flood defence staff.

- Genetics work at Cambridge University (part funded by the Agency in 2000/1) continued in 2001/2. Results to date indicate little genetic variability between mussel populations however it is proposed to verify this using alternative techniques.

Agency contribution in 2001 = £500

Action planned for 2002

- Work is likely to include further investigations into river management impacts and depressed river mussel genetics.

Was progress on the species affected by Foot and Mouth Disease?
No

Shining ram's-horn snail - *Segmentina nitida*

Category: 1
Agency co-ordinator: Shelagh Wilson
Contact point: Environment Agency
Lead partner: Environment Agency
Focus on biodiversity: page 62

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Seek to maintain favourable water quality at current occupied, and any newly discovered sites.	✓	✓✓	✓
5.2.2	Develop a ditch management cycle that allows the re-colonisation of cleaned stretches from adjacent sections.	✓	✓✓	✓
5.4.1	Produce land and water management guidelines for site managers and land owners by the year 2000.	✓	✓	✓
5.5.1	Undertake a survey of all post- 1950 sites by the year 2000, to establish the current distribution of the species.	Completed	✓✓	✓

Examples of project work

- Co-funding of a Ph.D. continued. Work was undertaken on the microhabitat requirements to establish a link between the snail and light, depth, water chemistry and vegetation structure was completed, and a presentation given to interested groups and steering group members.

Agency contribution in 2001 = £4.5K

Action planned for 2002

- Complete Ph.D.
- Write management guidelines.
- Steering group to decide when and how to implement surveys to follow up on the current distribution of sites.

Was progress on the species affected by Foot and Mouth Disease?
No

A freshwater bryozoan – *Lophopus crystallinus*

Category: *1*
Agency co-ordinator: Daryl Buck
Contact point: Environment Agency
Lead partner: Invertebrate Action
Focus on biodiversity page: 63

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Address the requirements of this species in the LEAP process and in relevant WLMPs.	X	X	X
5.1.2	Take account of the species' requirements in response to applications for water abstraction.	X	X	X
5.2.1	By 2004, reduce water abstraction from Barton Blow Wells aquifer and Breck aquifers.	X	X	X
5.4.1	Advise landowners and managers of the presence of the species and the importance of beneficial management for its conservation.	X	X	X
5.5.2	Conduct targeted autecologcial research to inform habitat management.	X	X	X
5.5.3	By 2000 start long-term surveillance of one or mare populations, possibly using artificial substrata to allow quantitative population studies, in order to study natural fluctuations in population size.	X	X	X

Examples of project work
None

Agency contribution in 2001 =£0

Action planned for 2002
- Part-fund (£2.5K)a PhD study at Reading University to will give us better distribution data and ecological requirements of the species.

Was progress on the species affected by Foot and Mouth Disease?
No

Ribbon-leaved water plantain – *Alisma gramineum*

Category: 1 *Agency co-ordinator:* Gill Walters
Contact point: Environment Agency *Lead partner:* Environment Agency/English Nature
Focus on biodiversity: page 64

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Identify water quality requirements which will maintain population levels at all known sites, and use these as a basis for setting standards.	X	✓✓	✓
5.5.1	Investigate the source of enrichment at the Worcestershire site and monitor water quality at all extant sites.	X	✓	✓

Examples of project work

- Installed a gauge board and data logger.
- Contributed towards funding for consultants to visit sites in Europe

Agency contribution in 2001 = <£5k

Action planned for 2002

- Report on the European site visit published.
- Continued surveying (in collaboration with EN)
- Maintenance work will be carried out at Westwood – checking fences are secure and clearing reeds which are encroaching into the shallow bays.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Cut grass – *Leersia oryzoides*

Category: 2
Contact point: English Nature
Focus on biodiversity: page 65

Agency co-ordinator: Jason Lavender
Lead partner: Environment Agency

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.3	Ensure that land drainage work does not take place in the vicinity of extant wet grassland populations.	X	X	X
5.2.4	Ensure that watercourse management programmes at sites for cut-grass fully take into account the requirements of the species.	X	X	X
5.2.5	Ensure that Local Environment Agency Plans and Water Level Management Plans take full account of the requirements of this species.	X	X	X
5.2.6	Prepare watercourse management plans for all SSSIs with extant populations of cut-grass.	X	X	X
5.4.2	As far as possible, ensure that all relevant agri-environment project officers, relevant drainage engineers and waterways managers are advised of locations of this species and its management requirements.	X	X	X

Examples of project work

- None due to lack of time and resource.

Agency contribution in 2001 = £0

Action planned for 2002

- Money secured for work on Arun Valley SPA which is thought to be a stronghold for cut grass. Hopefully some surveys on cut grass will be carried out using this money.

Was progress on the species affected by Foot and Mouth Disease?

No

Triangular clubrush - *Schoenoplectus triqueter*

Category: 2 | Agency co-ordinator: Paul Smith
Contact point: English Nature | *Lead partner: Environment Agency*
Focus on biodiversity page: 66

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.2.1	Where possible, minimise hard engineering of river channels along which this plant has been recorded and continue to develop alternative river management techniques. Particularly for the Rivers Arun, Medway and Tamar.	X	✓	✓
5.2.2	Ensure that future habitat management within the River Tamas SAC is appropriate to the needs of this species.	X	✓	✓
5.5.1	Undertake a survey of the Rivers Tamar, Medway and Arun to look for any unrecorded clumps of triangular club-rush and to identify any suitable sites from re-introduction.	Complete	✓✓✓	✓
5.5.2	Undertake annual monitoring of the last remaining extant population and of any newly re-established populations.	✓✓✓	✓✓	✓
5.5.3	Assess the feasibility and desirability of deflecting the eroding force of the river away form the single extant population on the River Tamar.	N/A	X	X
5.5.4	Carry out a full autecological assessment of this species with a view to refining conservation action. Including investigations into the reason for its decline and identifying any threats.	X	✓✓	✓
5.5.5	Investigate seed production in triangular club-rush.	X	✓	✓
5.5.6	Consider investigating the impacts of nutrient enrichment and pollution on populations of triangular club-rush and consider the value of buffer strips alongside water courses in the vicinity of key sites.	X	X	X
5.6.1	Develop links with botanists in Ireland and elsewhere in Europe in order to understand the species biology and preferred conditions.	X	✓✓✓	✓

Examples of project work

- The Agency Research and Development project titled 'The re-introduction of triangular clubrush' is being completed this year. The Agency has been collating the various reports and information for its inclusion in the final R&D report. Due to the size and complexity of the various elements of this study a comprehensive Technical Summary will be widely distributed. It will outline the approach taken by this initiative and will help inform similar species reintroduction projects in the future.

- It is intended that copies of the reports gained through the R&D will have a limited distribution to the project partners and those with an interest in *S. triqueter.*

Agency contribution in 2001 = £3.2K

Action planned for 2002

- Continue undertake the annual monitoring of the last remaining extant population and the newly re-established populations.
- Ensure a reserve stock of *S.triqueter* is maintained as a contingency measure against significant losses at the Tamar.
- Meet and discuss with our professional partners and relevant experts whether re-introduction of *S. triqueter* at the rivers Arun and Medway based on the R&D studies recommendations is appropriate.

Was progress on the species affected by Foot and Mouth Disease?
No

Greater water parsnip - *Sium latifolium*

Category: 2 *Agency co-ordinator:* Lesley Saint
Contact point: English Nature *Lead partner: Environment Agency*
Focus on biodiversity page: 67

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Promote the restoration of more natural river dynamics on lowland rivers in Britain, including the restoration of alluvial floodplains, in order to create permanent or semi-permanent water habitats for this species.	✓	X	X
5.2.2	Ensure that LEAPs and WLMPs take full account of the requirements of this species.	X	X	X
5.2.3	Where possible, seek beneficial management for this species at extant sites. Ditches should not be cleaned out too regularly and sites should not be heavily grazed.	✓	✓	X
5.6.1	Use the conservation of greater water parsnip to help illustrate the need to develop natural river and flood dynamics for biodiversity.	✓	X	X

Examples of project work

- Minimal input to conservation in Rother Valley and Romney Marsh area by the Agency as newly developed weed cutting standards may benefit this species by default.
- The Agency in North East, Dale Area have part funded a project led by Ryedale District Council to establish greater water parsnip in the middle reaches of the River Derwent, North Yorkshire. Seeds of the species have been collected from plants in the Lower Derwent Valley National Nature Reserve and have been passed to a nursery for propagation. If sufficient seedlings can be propagated the plants will be re-introduced to the river and new habitat created by the flood relief scheme at Norton.

Agency contribution in 2001 = £200

Action planned for 2002

- Agency staff plan to take account of the needs of greater water parsnip in a structured way using recent survey data to identify where the plant occurs and then incorporating specific requirements in their response to the flood defence maintenance programme consultation.

Was progress on the species affected by Foot and Mouth Disease?
No

Multi-fruited river moss – *Cryphaea lamyana*

Category: 1 *Agency co-ordinator:* Ben Wilson
Contact point: Environment Agency *Lead partner:* Plantlife
Focus on biodiversity: page 68

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Any action 1995-99
5.1.1	Ensure that the requirements of this species are considered when developing Water Catchment Management Plans/Local Environment Agency Plans (LEAPs) for rivers where this species occurs.	✓	X	X
5.4.1	Advise all relevant Environment Agency staff and agri-environment scheme project officers working in south-west England and Wales of the locations of this species, its importance, and measures needed to ensure its conservation. They should be told of the need to avoid felling host trees and dumping dredgings on colonies of this species.	✓	X	X

Examples of project work

- Despite previous indications that the Teifi population is stable, recent site visits (2000) indicate a possible reduction in the distribution on the Teifi. As a result the EA have funded a survey of sites on the Teifi to be completed in the 2001/2 financial year. This survey will, if time allows, include exploratory searches for *Cryphaea* in other catchments. Plantlife (the BAP Lead Partner) & Countryside Council for Wales are running other exploratory surveys on rivers in SW Wales. Both EA and CCW surveys will be combined into a single report, which will inform an appraisal process for Agency flood defence works as well as consentable operations.

- Surveys of the Tamar, Dovey, Taw and Dart were conducted by Plantlife and English Nature in 2000/2001. The results of these surveys will be forwarded to the relevant EA area staff.

Agency contribution in 2001= £2700

Action planned for 2002

- Discussions on future work requirements.
- Dissemination of survey reports and G.I.S. layer showing distribution of *Cryphaea lamyana* to relevant area staff.

Was progress on the species affected by Foot and Mouth Disease?
No

Tiny fern-moss – *Fissidens exiguus*

Category: 1
Agency co-ordinator: Chris Formaggia
Contact point: Environment Agency
Lead partner: Plantlife
Focus on biodiversity: page 69

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.3	On streams with populations of tiny fern-moss, ensure that existing stream discharges and water quality are maintained.	X	X	X
5.2.5	Where possible, ensure that waterside trees are not removed from alongside those parts of streams with populations of tiny fern-moss.	X	X	X
5.4.2	Ensure that relevant waterway managers and agri-environment project officers are advised of locations for this species, its importance and the management needed for its conservation.	X	X	X

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
All action is on hold until work being carried out by Plantlife/EN determines whether this is a genuine species. Work published in 2001 strongly suggests that *Fissidens exiguus* may only be a dwarfed form of the much more common *Fissidens pusillus.*

Was progress on the species affected by Foot and Mouth Disease?
No

Water rock bristle - *Seligeria carniolica*

Category: 1 *Agency co-ordinator:* Jim Heslop
Contact point: Environment Agency *Lead partner:* Plantlife
Focus on biodiversity: page 70

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.3	Ensure that water quality and natural seasonal flow rates are maintained at the known site where this species occurs.	✓	✓	✓

Examples of project work

- Continued chemical and algal monitoring to progress site characterisation
- Scoping of potential further sites for *Seligeria carniolica* using geological, physical and hydrological criteria – subsequently surveyed by Plantlife. Unfortunately no further colonies found.

Agency contribution in 2001 = £1K

Action planned for 2002

- Further work on site characterisation.
- Continue to ensure that maintenance of existing site condition is the primary factor in determining any authorisations or activities that could affect the site.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Beaked beardless-moss - *Weissia rostellata*

Category: 1
Agency co-ordinator: Vacant
Contact point: Environment Agency
Lead partner: Plantlife
Focus on biodiversity: page 71

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.3	On sites where the moss is thriving, ensure that current management practices (especially water level management) are continued. On other sites where it has declined, undertake experimental management with the aim of enhancing the populations.	X	X	X
5.2.5	Where relevant, ensure that extant sites for the species are not threatened by land drainage activities or through increases in water abstraction. The requirements of this species should be considered when setting limits on water abstraction.	X	X	X
5.4.2	Ensure that all relevant people are advised of locations of this species, its importance and management needed for its conservation.	X	X	X

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
None

Was progress on the species affected by Foot and Mouth Disease?
No

Violet crystalwort – *Riccia huebeneriana*

Category: 1
Agency co-ordinator: Vacant
Contact point: Environment Agency
Lead partner: Plantlife
Focus on biodiversity: page 72

UK BAP Number	UK BAP Agency needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.4	Ensure that the habitat quality of extant sites is not adversely affected by land drainage activities	X	X	X

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
None

Was progress on the species affected by Foot and Mouth Disease?
No

Five stoneworts (*Chara connivens, Nitella gracilis, Nitellopsis obtusa, Tolypella intricata, Tolypella prolifera*)

Category: 1 *Agency co-ordinator:* Vacant
Contact point: Environment Agency *Lead partner:* Plantlife
Focus on biodiversity: page 73-74

Convergent stonewort - *Chara connivens*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Ensure that the LEAP process and Water Level Management Plans take full account of the requirements of this species. The findings of 5.5.3 should be used to set water quality objectives and nutrient standards within these plans.	X	X	X
5.2.4	Devise and implement measures to minimise the threats of boat traffic wash and, depending on the results of 5.5.3, phosphate pollution.	X	X	X
5.5.4	Commission research into the possibility of salinity levels rising in the Norfolk Broads as influxes of sea water become more frequent as a result of sea-level rise. The research should consider the need for measures to ensure that salinity levels do not increase further.	X	X	X

Slender stonewort - *Nitella gracilis*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.4	Promote schemes which facilitate the development of buffer strips along water-courses feeding into sites and around the edges of sites, where this will help to reduce pollution from agricultural run-off.		X	X

Starry stonewort - *Nitellopsis obtusa*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Review/establish water quality objectives and associated nutrient standards at all of the extant starry stonewort sites taking into account the requirements of this and other threatened aquatic species	X	X	X
5.2.3	Depending on the results of 5.5.3, devise and implement measures to minimise the threats of boat traffic wash and phosphate pollution.	X	X	X

Tassel stonewort - *Tolypella intricata*

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.2.5	Ensure that Local Environment Agency Plans and Water Level Management Plans take full account of the requirements of this species. In particular, ensure that no further tassel stonewort sites are lost through increases in levels of water abstraction. This action should take account of the research outlined under 5.5.5.	X	X	X

Great tassel stonewort - *Tolypella prolifera*

No actions

Examples of project work
None

Agency contribution in 2001 = £0

Action planned for 2002
None

Was progress on the species affected by Foot and Mouth Disease?
No

River jelly lichen - *Collema dichotomum*

Category: 1
Agency co-ordinator: Chris Formaggia
Contact point: Environment Agency
Lead Partner: Environment Agency
Focus on biodiversity: page 75

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2002	Agency contribution in 2000	Agency action 1995-99
5.1.1	Seek to eliminate the risk of water pollution, eg through the provision of advise on farm management where this species occurs.	✓	✓	✓
5.2.2	Ensure that LEAPs adequately reflect the water quality and quantity requirements for the river jelly lichen.	✓	✓	✓
5.3.1	Following feasibility studies and identification of appropriate sites, seek to restore 5 populations to unoccupied sites when suitable conditions have been provided.	X	X	X
5.4.1	Ensure land managers adjacent to extant sites, local planning authorities and water management authorities are aware of the presence, legal status and threats to the species and its community, and the importance of its conservation.	X	X	X
5.5.1	Undertake survey of potential sites to establish the distribution of the species.	✓	✓	✓
5.5.2	Encourage research into the ecological requirements of the species to determine the optimum conditions for growth and the feasibility of re-introduction.	X	✓	✓
5.5.3	Investigate further the effects of eutrophication and acidification of streams on this species and seek to reverse the impacts.	X	X	X
5.5.4	Establish a protocol for regular monitoring of this species and the water quality in the vicinity of known sites.	✓✓	✓✓	✓

Examples of project work
None carried out in 2001/02 as almost entire UK population was in Foot and Mouth high risk areas...no work on ground possible.

Agency contribution in 2001 = £2K for minor equipment purchases

Action planned for 2002
- Commencement of R&D project to establish long term monitoring protocol for this species and other aquatic bryophytes at a test-bed site in mid Wales.
- Development of underwater photography and videography techniques in riparian environment.

Was progress on the species affected by Foot and Mouth Disease?
Yes

Aquifer-fed naturally fluctuating water bodies

Category: 1 *Agency co-ordinator:* Pat Sones
Lead Agency: Environment Agency *Focus on biodiversity:* page 76

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Ensure that water abstraction and groundwater protection policies take into account the specific requirements of aquifer fed naturally fluctuating water bodies and where necessary introduce new controls.	✓	✓	✓
5.1.2	Ensure that fishery policy recognises the need to prevent introductions of fish to these water bodies.	X	X	X
5.1.3	Consider the designation of a Water Protection Zone to safeguard water quality in the Breckland Meres.	X	X	✓
5.2.1	Bearing in mind the possible effects of climate change, continue to review the use of water resources in the area affecting the hydrological balance of the Breckland meres. In the light of the monitoring programme (see 3.2) set consent levels and regimes for abstraction, which are compatible with maintaining the maximum nature conservation interest of the meres.	✓	✓✓	✓
5.2.2	Establish water quality objectives and associated nutrient standards for turloughs and Breckland meres by 2002 and aim to meet these targets by 2010.	X	X	X
5.2.4	Ensure that all SSSI/ASSI water bodies in this category have site management plans implemented by 2004, bearing in mind that activities well outside the SSSI/ASSI boundaries may affect the water bodies. Where necessary, offer long-term management agreements to protect these sites.	X	X	X
5.2.8	Contribute to the implementation of relevant species action plans for rare and declining species associated with aquifer fed naturally fluctuating water bodies in conjunction with the relevant species steering group.	✓	X	X
5.3.1	Continue to advise Government and landowners on measures to safeguard this fragile habitat.	✓	✓	✓
5.4.1	Contribute to knowledge of the status and importance of naturally fluctuating water bodies and of their effective management, by exchanging information gained in the UK with colleagues in other countries that contain similar sites.	X	X	✓
5.5.1	Carry out research to clarify the impacts of water abstraction, forestry and climate change on the hydrological regime of the Breckland meres. In particular, undertake groundwater modelling to increase understanding of the hydrological mechanisms in the aquifer and meres. Report on this by 2003.	✓✓	✓✓	✓
5.5.2	By 2000 characterise the quality of the groundwater supplying turloughs and the Breckland Meres.	X	X	X
5.5.4	Devise and initiate methods of biological and hydrological monitoring for all known aquifer fed naturally fluctuating water bodies by 2000. By 2015 consider whether, in the face of climate change, these sites are viable in the long term.	X	X	✓
5.5.7	Contribute information to a World Wide Web based catalogue of survey information as a means of improving access to information on aquifer fed naturally fluctuating water bodies.	X	X	X

Examples of project work

- No specific project work undertaken directly for this HAP, but there has been progress on a major project which will benefit the habitat in Norfolk, the Breckland Meres. This project is the Ely Ouse Groundwater Strategy Project, which covers part of Norfolk and Suffolk and includes the Breckland Meres area. The aim of the project is to understand and quantify the groundwater resources of the area, and provide guidance on the management of the groundwater, and the rivers that interact with groundwater, in an integrated and sustainable way. These outputs will deliver action 5.5.1 and contribute to actions 5.5.1, 5.2.1, 5.1. 3 and 5.5.2.

Agency contribution in 2001 = £0

Action planned for 2002

- Write Local HAP for the Breckland meres, as part of the suite of Norfolk County BAPs & HAPs.

- Further progress on the Ely Ouse project is dependant on 2 Agency approvals; approval of the project and raising the finance.

- Both these approvals will be sought during 2002.

Was progress on the habitat affected by Foot and Mouth Disease?
No

Chalk rivers

Category: 1
Lead Agency: Environment Agency
Agency co-ordinator: Lawrence Talks
Focus on biodiversity: page 77

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Review abstraction licences during LEAP production. Where abstraction is found to be damaging the quality of the chalk river habitat, consider amending of revoking the licence.	✓	✓	✓
5.1.3	Review licences for industrial/effluent discharge where these are found to damage the quality of chalk rivers.	✓	✓	✓
5.1.4	Seek to ensure that the environmental impact of development adjacent to and/or directly impacting on chalk rivers is minimised, particularly for SSSI and SAC chalk rivers.	✓	✓	✓
5.2.3	Develop conservation strategies for chalk rivers.	✓	✓	✓
5.2.4	Schemes to encourage sympathetic management of catchments and river corridors should be reviewed by 2000 and extended where appropriate in order to reduce the run-off of silt and enhance wildlife habitats.	✓	✓	✓
5.2.5	Water quality on SSSI rivers should be assessed against proposed Special Ecosystem Statutory Water Quality Objective targets and problem sources identified. Significant pollution on other rivers should be assessed. A plan for remedying water quality problems should be drawn up for each SSSI river by 1998 and the remaining chalk rivers by 2002. Where phosphate removal is required at sewage treatment works on SSSI rivers, it should be installed by 2000.	✓	✓	✓
5.3.1	Promote advice on the best approaches to river corridor and catchment management.	✓	✓	✓
5.5.1	Assess the nature conservation value and potential for restoration of chalk rivers other than those, which are SSSI/cSAC by 2001.	✓	✓	X
5.5.2	The feasibility of restoration on stretches of modified small chalk rivers should be established by 2001 using experimental approach to assess the wider applicability of physical restoration techniques.	✓	✓	✓
5.5.3	Initiate a study investigating the beneficial impact of the management of chalk rivers and adjacent land use on the aquatic plants and animals.	✓	✓✓✓	✓

Examples of project work in 2001

- BAP Ref. No. 5.1.1. A national Catchment Abstraction Management Strategy (CAMS) programme has been established to provide a framework for managing existing abstraction licences and designing a future licencing strategy on a catchment basis. Environmental, physical and socio-economic criteria will be used to determine resource availability. The timetable for the programme is 2001-2007. The national Chalk Rivers Habitat Action Plan group are concerned that CAMS is not sensitive enough to provide for the environmental needs of chalk rivers. Chalk rivers that are in the first tranche of CAMS are the Dorset Stour (S.Wessex), River Meon (Hampshire), River Stour (Kent), River Kennet (Thames) and River Loddon (Thames).

- BAP Ref. No. 5.1.1 & 5.1.4. The River Itchen Sustainability Study is a partnership between the Agency and the Water Companies with funding from AMP3. It's key objective is to provide the required information to review the impact of water company operations on the River Itchen candidate Special Area of Conservation (cSAC). Outputs so far include the status of the features of special interest, a review of models and methodologies, an analysis of land use, ecological investigations and a groundwater model. For more information go to www.riveritchensustainability.org.uk.

- The Agency's Kent Area is undertaking low flow studies on the Little Stour and the River Dour.

- BAP Ref. No. 5.1.1., 5.1.3. & 5.1.4. The Agency is required under the Habitats Regulations to review all licences and authorisations on all cSAC designated chalk rivers by 2004. Stage 2 and 3 of this process will be completed by March 2002. The cSAC designated chalk rivers in the UK are the River Itchen and the Hampshire Avon.

- BAP Ref. No.5.3.1. The Agency has produced a video and guidance on Sustainable Urban Drainage Systems (SUDS) which are designed to ensure that rain water stays within catchment and contributes to aquifer recharge.

- BAP Ref. No. 5.2.4 & 5.5.2. The Hampshire Area's Salmon Enhancement Programme has enhanced over 10,000m^2 of spawning and juvenile habitat. The work included adding 575 tonnes of gravel to recreate two spawning riffles, which had been removed by historical land drainage works. A project at Mottisfont on the River Test was carried out in partnership with the National Trust, Marley Tiles, and the Hampshire Rivers Trust and was an Entrust approved project funded by landfill tax from Viridor Waste Management.

- The Agency's Eastern Area in Anglian Region was recently awarded 1st place in a national habitat enhancement competition sponsored by the Wild Trout Trust and Scottish Malt Distillers. The winning project was jointly entered with Bintry Mill Trout Fishery and involved reinstatement of gravel riffles and associated marginal habitats along a stretch of the River Wensum in Norfolk.

- The River Restoration Centre convened a National River Restoration Workshop on Chalk Rivers in January 2001. Proceedings of the workshop are available from the RRC Tel 01525-863341 Internet: www.qest.demon.co.uk/rrc/rrc.htm.

- BAP Ref. No. 5.2.4. Drawing upon the excellent work achieved by the South Wessex LandCare Project similar initiatives are being set up for the Test and Itchen catchments in Hampshire.

- BAP Ref. No. 5.2.5. Funded by AMP3, under the Urban Waste Water Treatment Directive, phosphate stripping is required at Romsey Sewerage Treatment Works on the River Test by 31st March 2005. The Itchen is being proposed as a candidate "sensitive area". If successful phosphate stripping may be required which would be put forward under AMP4.

- BAP Ref. No. 5.3.1. The *Ranunculus* R&D project which has collated all known sources of information on the growth and distribution of *Ranunculus* in chalk rivers, has summarised and analysed this data and attempted to interpret the factors and drivers involved in promoting *Ranunculus*. The research has identified some gaps in our knowledge and has proposed a series of initiatives to increase our understanding and provide practical guidance to decision-makers and river managers. An informative leaflet has been produced, contact Alan Frake South Wessex Area. Tel 01258-456080.

- The Agency and the Wiltshire Fishery Association has recently produced a report on Chalk Stream Fly Trends over the last 60 years. The study was based primarily on questionnaire responses from river users. For a number of chalk rivers in southern England the general trend for many species was one of a disturbing decline over recent decades but particularly in the last ten years. An informative report has been produced, contact Alan Frake South Wessex Area. Tel 01258-456080.

Agency contribution in 2001 = >£1million

Action planned for 2002

- Production of National State of Chalk Rivers report.
- Establishment of a National Chalk Rivers Reference Collection.
- Creation of a national chalk rivers web site and discussion group.

Was progress on the habitat affected by Foot and Mouth Disease?
Yes

Coastal saltmarsh

Category: 1
Lead Agency: Environment Agency
Agency co-ordinator: Brian Empson
Focus on biodiversity: page 79

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.3	Promote awareness and uptake of agri-environment schemes which involve the management and creation of saltmarsh.	✓	✓✓	✓
5.1.4	Take account of available mechanisms for the management and creation of saltmarsh when developing Shoreline Management Plans and strategies for the management of coastlines,	✓	✓✓	✓
5.1.5	Initiate the preparation of strategic flood defence management plans in estuaries by 2003 which determine what could be achieved in terms of saltmarsh creation.	✓	✓	X
5.1.6	Investigate opportunities to incorporate the non-use value of saltmarsh into flood defence schemes.	✓	✓	X
5.2.2	Ensure that coastal defence or other construction works avoid any disruption of natural processes which might lead to the loss of saltmarsh.	✓	✓✓	✓
5.3.1	Promote and develop demonstration sites for the management and creation of saltmarsh and disseminate results.	✓✓	✓	✓
5.3.2	Encourage the appropriate management of saltmarsh through the production and dissemination of guidance material by 2005.	✓	✓	X
5.3.3	Establish a technical expert group by 1999 to collate and disseminate information relating to the relationship between saltmarsh, nature conservation and flood defence.	✓✓✓	✓✓✓	✓
5.3.4	Make use of the potential provided by existing estuary management partnerships in taking forward the actions of this plan.	✓✓	✓✓	✓
5.3.6	Implementation groups for relevant HAPs should be advised on how to make appropriate provision for compensatory habitat creation.	✓✓	✓✓	X
5.5.1	Put measures in place to clarify the current and future rates of saltmarsh loss enabling a review of the targets of this plan by 2004.	✓✓	✓✓✓	X
5.5.3	Continue development of the use of remote sensing for monitoring soft coast habitats to determine the extent and rate of change, including the identification of the highest priority areas for saltmarsh creation.	✓✓	✓✓	X
5.5.4	Investigate the beneficial use of fine dredged materials for promotion of saltmarsh accretion and disseminate the results.	✓✓	✓✓	✓
5.5.5	Continue research in to the factors influencing the establishment of saltmarsh vegetation, and use this to develop 'best practice' methods for management.	✓✓	✓✓	✓
5.5.6	Undertake research on estuary dynamics, including the effects of sediment removal in relation to its impact on saltmarsh.	✓✓	✓✓	✓
5.6.1	Raise public awareness of the essential mobility of saltmarsh and its value for a variety of interests including coastal processes, flood defence, fisheries, nature conservation, amenity and recreation.	✓	✓	X

Examples of project work

- Construction works have commenced at Thorngumbald on the north bank of the River Humber which involves the realignment of some 80ha of arable land. A new bank is to be built up to 500 metres behind the present line. Further sites are being explored in the River Humber with the possibility of a large scale managed realignment site at the head of the estuary.

- Good progress is being made at Abbotts Hall, which is situated within the upper reaches of Salcott Creek, north of the main Blackwater Estuary. Several breaches are planned along a 3km length of sea wall with work on the first breach planned for Spring 2002. Some 60ha of saltmarsh is expected to be created.

- At Freiston Shore, which is situated in the Wash near Boston some 70 ha of saltmarsh is to be created. Currently bank raising work is in progress and breaching of the old seawall is planned for 2002.

- The Agency and English Nature have agreed further guidance, for the next five years, before Coastal Habitat Management Plans are produced. This requires that all identified works, that may impact on a particular European Site shall be considered together. This includes both capital and maintenance works. Habitat compensation requirements for the five year programme are to be added together to make one Habitat Creation Compensation Programme. The guidance is currently being trialed in the Essex Estuaries.

- Four out of the six pilot Coastal Habitat Management Plans are now underway. The Dungeness CHaMP is nearing completion whilst work on the Solent, Essex and Suffolk CHaMPs are continuing.

- A joint DEFRA/Agency flood defence research project, Futurecoast, costing some £1 million, is expected to be completed in March 2002. This project will predict trends of future shoreline evolution for the entire coastline of England and Wales over the next 100 years. The results will feed into the second generation Shoreline Management Plans for which guidance was issued in June 2001.

- A joint Agency/English Nature project is being undertaken by the Agency's National Centre for Environmental Data and Surveillance on the development of marine SAC monitoring which includes both saltmarshes and mudflats.

- The Agency has developed a regional coastal partnership framework between conservation bodies in Anglian Region to explore co-operation on potential managed realignment sites and research projects.

Estimated Agency Contribution in 2001= £300k (both mudflats and saltmarsh)

Action planned for 2002
- Completion of six pilot CHaMPS.
- Implementation of further guidance on CHaMPS in key estuaries.
- Preparation of a programme for strategic flood defence management plans in estuaries
- Development of regional coastal partnerships in Southern and South West regions.

Was progress on the habitat affected by Foot and Mouth Disease?
Yes

Eutrophic standing waters

Category: 1
Lead Agency: Environment Agency
Agency co-ordinator: Simon Leaf
Focus on biodiversity: page 80

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	By 1999 establish agreed criteria to identify Tier 1, Tier 2 and Tier 3 eutrophic standing waters. By 2002 produce a list of sites comprising Tiers 1 and 2.	✓✓✓	✓	✓
5.1.2	By 2005 establish site-specific plans to achieve appropriate water quality, water resource use, fishery management and biological status for all important (Tiers 1 and 2) eutrophic standing water bodies. Within these tiers, assign priorities to the sites according to threat, vulnerability, potential for restoration and nature conservation interest. Issues raised in England and Wales to be addressed principally through LEAPs.	✓	✓	✓
5.1.3	Develop an integrated national approach to measuring environmental change in eutrophic waters and to solving problems affecting these habitats and resources.	✓✓	✓✓	✓
5.1.4	Seek to ensure that phosphorus stripping is instituted on all sewage works serving population equivalents of over 10,000 within designated sensitive areas (as specified in the EC Urban Waste Water Treatment Directive), where this would contribute to the control of pollution in eutrophic standing waters. Carry out a review of the sensitive areas, make further appropriate designations and implement the required measures by 2004.	✓✓	✓✓	✓
5.1.5	Consider modifying and expanding agri-environment measures further to protect eutrophic standing waters from agricultural contaminants. Produce any proposals by 2000.	✓✓	✓	X
5.1.6	By 2005 complete a review of the effectiveness of existing measures to control diffuse-source pollution, and where necessary introduce new controls.	✓✓	✓	✓
5.1.7	By 2005 complete a review of the effectiveness of existing measures to revoke existing damaging abstractions and if necessary introduce new controls.	✓	✓	✓
5.1.10	Review the efficacy of legislation on fish introductions and fishery management, particularly in relation to bottom-feeding fish and high stocking densities.	X	X	✓
5.2.1	By 2005 embark upon a nationwide programme of nutrient control, targeting sites in priority order according to the strategy in Section 4. Aim to maintain the condition of all Tier 1 eutrophic standing waters and to improve by 2020 the condition of at least 50% of Tier 2 sites. Continue the programme beyond 2020, to complete coverage of all Tier 2 sites.	✓✓	✓✓	✓
5.2.2	By 2004 complete the programme of notifying important eutrophic standing waters as SSSIs/ ASSIs. Prepare and where possible implement site management plans, taking special account of threats posed by pollution, water abstraction and recreational use.	X ✓	X ✓	✓ ✓
5.2.3	Maintain or introduce appropriate fishery management. Where appropriate, institute restorative measures such as phosphorus control, biomanipulation and species reintroduction.	✓	✓	✓
5.2.4	Prepare and by 2010 implement catchment management plans for Tier 2 eutrophic standing waters which are not SSSIs or ASSIs.	X	X	X
5.2.8	Ensure that local planning mechanisms (e.g. Local Authority Structure Plans) take account of the wildlife interest of all (Tiers 1, 2 and 3) eutrophic standing waters.	✓	X	✓
5.2.9	Contribute to the implementation of relevant priority species action plans for rare and declining species associated with eutrophic standing waters, in conjunction with the relevant	X	X	X

	species steering group.			
5.3.1	Provide advice for managers and users of eutrophic standing waters, to promote the conservation of biodiversity in this habitat.	✓	X	✓
5.3.2	Promote best practice in farming and encourage farmers to prepare and implement farm waste management plans in catchments of vulnerable eutrophic standing waters.	✓	✓	✓
5.3.3	Develop guidelines for best practice in fishery management.	Complete	X	✓
5.4.2	Promote the interchange of information between the UK and other countries on management techniques, conservation and research relevant to eutrophic waters.	✓	✓	✓
5.5.1	By 1999 develop a rapid screening system to assess the biological quality of eutrophic standing waters, in order to classify them (see 5.1.1) as Tier 1, Tier 2 or Tier 3 and to determine priorities within these categories.	✓✓	✓	✓
5.5.2	By 2000 complete current work on the development and testing of a water quality classification of lakes and produce systems for assessing the degree of past change and for monitoring lake water quality. Apply these schemes to all Tier 1 and Tier 2 eutrophic water bodies.	✓✓	✓	✓
5.5.3	Continue to develop techniques of eutrophication risk assessment and to investigate means of controlling enrichment. Promote research into the role and transport of phosphorus and nitrogen in fresh waters and into the quantification of risks posed by diffuse-source pollution, including atmospheric nitrogen.	✓✓	✓✓	✓
5.5.4	Continue experimental work on remedial action for nutrient-enriched standing waters and monitor the results of procedures already taken.	✓	✓	✓
5.5.5	Investigate the impact of introduced species on eutrophic standing waters and develop strategies to mitigate their effects.	X	X	✓
5.5.6	Promote research into the likely effects of climate change and sea level rise on eutrophic standing waters.	✓	✓	✓
5.5.7	Contribute information to a World Wide Web based catalogue of survey information as a means of improving access to information on eutrophic standing waters.	X	X	X
5.6.1	Ensure that information on well-studied eutrophic standing waters is made readily available and publish advice on good management practice, targeting site managers and policy makers.	✓	X	✓
5.6.2	Continue to contribute to symposia on the conservation of fresh waters and to encourage the publication of papers on issues relating to eutrophic standing waters in peer-reviewed scientific literature.	✓	✓	✓

Examples of project work

- The UK steering group, convened to jointly address work on the complementary Mesotrophic Lakes and Eutrophic Standing Waters HAPs has now met five times since the HAP was published in December 1998. A combined work programme was drafted this year. Also during 2001, an England group for the two HAPs was convened by the Agency (first meeting held November 2001). A related collaborative initiative with English Nature was also commenced, aimed at progressing action plans for priority sites, using funding secured by EN from the Government's Capital Modernisation Fund.

- Through collaborative R&D by UK group members, led by the Agency, a risk/harm-based protocol for prioritising standing waters (regardless of trophic category) is being developed. The project will also create a national inventory of standing waters. The outcome of the work will provide a firm basis for the subsequent targeting of actions to protect and/or rehabilitate priority waters through a range of national and local measures.

- The Agency's national strategy on aquatic eutrophication, published August 2000, moved into its initial stages of implementation. It is being progressed through a partnership approach and priority will be given to waters of high conservation status. An exercise to introduce a suite of 11 pilot eutrophication control action plans (ECAPs) is under way, to test and refine methods of assessing and controlling eutrophication at a local level. Five of the sites are lakes/reservoirs.

Agency contribution in 2001: approx £150K

Action planned for 2002

- The R&D project referred to above will produce an inventory of waters during 2001/02 and an initial set of priority waters for more detailed assessment.
- The new England Country Group for the two HAPs, together with the joint EN/EA action plan initiative, will provide a focus for HAP implementation at national level and help to establish links to LBAP groups.
- Implementation of the eutrophication strategy will continue to focus on the reduction of nutrient inputs to water (nationally) from the key sources (sewage effluents and agriculture), complemented by the local pilot ECAP initiative referred to above. Draft guidance for operational staff, on the development of local eutrophication action plans, is to be refined and extended.
- During 2002, the Agency will aim to influence the current review of agri-environment schemes to improve relevance of the schemes as regards diffuse nutrient pollution in priority catchments.

Was progress on the habitat affected by Foot and Mouth Disease?
Yes

Mudflats

Category: 1
Lead Agency: Environment agency
Agency co-ordinator: Brian Empson
Focus on biodiversity: page 81

UK BAP Number	UK BAP action needing Agency contribution	Agency contribution in 2001	Agency contribution in 2000	Agency action 1995-99
5.1.1	Provide a clear national policy by 2000 for SMPs, land use planning and development control policy which ensures that there is no net loss of tidal flats by development, from a 1992 baseline, and that provision is made for the restoration of natural losses over the longer term.	✓✓	✓	X
5.2.2	Ensure that wherever practicable coastal defence or other construction works avoid disruption of coastal processes that might lead to a loss of, or damage to, mudflats.	✓✓	✓✓	✓
5.2.3	Maintain and where possible improve estuarine and coastal water quality.	✓	✓✓	✓
5.3.1	Ensure that good-practice guidance is available to shoreline management authorities on how to plan for the maintenance of mudflats in a period of rising sea level by 2000. Particular attention should be given to the use of dredged material and the creation of new mudflats.	✓	✓✓	✓
5.5.1	Run field trials to refine and demonstrate techniques for habitat restoration and creation by 2002. Particular attention should be given to the use of dredged materials.	✓✓	✓✓	✓
5.5.2	Continue to develop an understanding of the value of mudflats for flood and coastal defence and the holistic management of these habitats in conjunction with flood risk management.	✓✓	✓✓	✓
5.5.4	Initiate research into sediment exchange processes between mudflats and other coastal habitats and on the dynamics of cohesive sediments in estuaries.	✓✓	✓	X
5.6.1	Educate planning authorities and developers on the important functions of mudflats in estuarine and coastal systems by the preparation and dissemination of a pamphlet by 2001.	✓	✓	X

See Coastal Saltmarsh for actions.

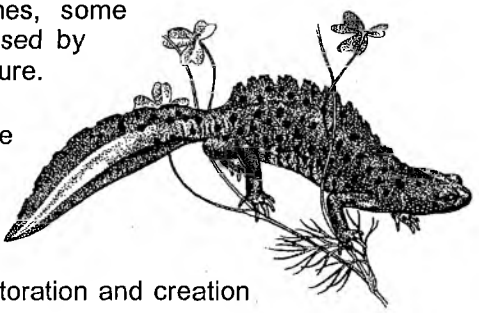
CHAPTER 4 PROGRESS IN 2001 – CATEGORY 3 & 4 SPECIES AND HABITATS

Great crested newt

Action in 2001

- The Agency has contributed advice to local authorities for the retention of river corridor habitats to safeguard great crested newt populations within areas designated for built development, e.g. at Swindon.

- The Agency has undertaken a number of pond creation schemes, some specifically to create amphibian habitat, these have not been colonised by great crested newt yet but hopefully we will see some success in the future.



- We have contributed towards surveys in Dorset, and have funded the clearance and creation of several ponds for great crested newts.

- We commissioned Froglife to undertake a desktop survey to identify and collate information on great crested newts in Essex. Using this information future survey areas will be targeted and sites for pond restoration and creation identified.

- Distribution atlases have been published by both Sussex and Surrey Amphibian and Reptile Groups with assistance from Environment Agency. The Sussex Atlas included the SAP and detailed planning guidance and 250 copies were distributed to all planning and conservation staff in East and West Sussex.

- The land part of the Preston East development site is owned by English Partnerships and is intended for unit based industrial development, although it contained a population of Great Crested Newts. Through consultation between the Environment Agency, English Nature, English Partnerships and their consultants TEP (Warrington) a strategy was agreed which incorporated the proposed development (which already had planning permission) with the needs of the great crested newts, including habitat corridors, and a nature reserve incorporating ponds and terrestrial habitat linked to the surrounding countryside. This all had to be done on a reactive basis as newts were only discovered at the site after planning permission had already been granted, therefore English Partnerships agreed the measures through good will. English Partnerships also agreed to follow the principles agreed in this strategy across all its land developments when Great Crested Newts are an issue.

- In spring of 2001, about 30 volunteers were trained in great crested newt survey techniques in Sussex. Also the Southern Water / BTCV Pond Wardens were trained by Environment Agency, Southern Water and Froglife staff .

- Midlands Region has supported surveys in Stoke on Trent, Birmingham, Staffordshire, Worcestershire, Gloucestershire and produced survey forms for use (by the public) in Shropshire and Montgomeryshire

Action planned for 2002

- The Agency is going to restore the wet areas at Romford Canal, London (one of the areas best sites for GCN) by re-digging the canal to create larger pools and reinstating the banks so it holds water more efficiently. There are plans to dig more scrapes in the adjacent fields in the future.

- The Agency is currently reviewing consents and authorisations under the HD Review process for potential impact on Little Wittenham cSAC, designated for great crested newt.

- This next financial year we are hoping to start taking forward some strategic work (training volunteer surveyors, tying in with LA surveys etc) with Froglife co-ordinating. Froglife are currently in the process of establishing an Essex ARG who we hope will take over the co-ordination of great crested newt work in the County.

- An Agency sponsored R & D project in 2002 will train in excess of 100 volunteer surveyors.

Marsh fritillary

- 'The Marsh Fritillary in England; A review of status and habitat condition' was published in 2001 by Butterfly Conservation and recognises the work done by the Agency. However there are only 108 sites in England. 74% are claimed to be managed inappropriately. There has been a 66% loss of population since 1990.

- Figures for 2001 will be incomplete due to the Food and Mouth Disease which has restricted much monitoring and maintenance of sites.

Starfruit - *Damasonium alisma*

At the last Starfruit national steering group meeting it was agreed that the Agency had completed its obligations under the UK plan to undertake water quality monitoring at all extant sites for starfruit. The monitoring results have been included in the individual site management plans for each pond.

- Beyond this, we contributed 45% to the production of the site management plans written for 10 ponds as part of a collaborative project. The total amount paid by the Agency was £7000 for the plans and £4000 for the water quality data spread over 2 years.

- The UK steering group has started to think about re-introductions and asked if the Agency is prepared to undertake WQ samples at a number of as yet unspecified sites in 2003. Bids will be made for 2003 \ 04.

Derbyshire feather moss

- The programme of water quality sampling initiated at the single world site in 1996 continues to yield relatively stable water chemistry results. The Agency is working with lead partner English Nature in fulfilment of the aims of the Species Action Plan.

Diving beetle - *Hydroporus rufifrons*
Mire pill beetle - *Curimopsis nigrita*
Ground beetle - *Bembidion humerale*

- The Agency is collaborating with a local entomologist to investigate potential sites in North Notts and West Lincolnshire for the presence of rare beetles. A number of sites have already been visited and a programme of survey work will continue in 2002. Advice and support have been received from English Nature, the Balfour-Browne Club and the Lincolnshire Trust for Nature Conservation.

Telford cranefly - *Lipsothrix nigristigma*

- An English Nature report on surveys carried out in 2000 notes that *Lipsothrix nigristigma* has been located at 8 (possibly 9) sites around Shropshire. Previous inconclusive surveys may be due to the short flight period of mid to late May. The importance for this species of coarse woody debris in watercourses has been confirmed, highlighting the need for sympathetic management of these areas.

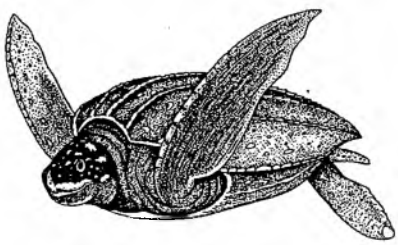
Wet woodland

- The Agency is on the advisory panel for an Aston University project which is undertaking experimental work on water budgets in wet woodland. There are several examples of new wet woodlands being created in floodplains.

Cetaceans and turtles

- The Agency has contributed to the formulation of the Species Action Plan for Cetaceans and Turtles. We seem to be meeting many of the requirements re: water quality.

- We are also trying to initiate a training course for cetacean identification and to ensure we contribute to a nationally recognised database set up by SeaWatch. We can quite easily contribute to the monitoring action as there are many individuals working in the marine environment for the Agency who regularly record sightings while out in their routine jobs. Furthermore, we have the resources to do this work which many other organisations do not i.e. survey vessels, ribs, patrols etc.



Slender naiad

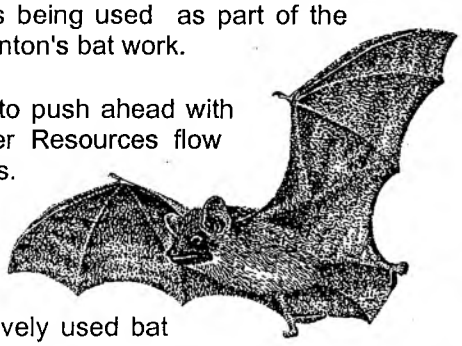
- Slender naiad has not been seen at Esthwaite Water since 1982, and this absence was confirmed by the 1999 survey carried out by Darwell for the Lake District National Park Authority and the Environment Agency. Thus it is reasonable to assume that it no longer occurs here, which means that it is extinct in England and Wales.

- There is a proposed English Nature Project entitled "Esthwaite Water Review of Impacts and Nutrient Budget" which will look at some of the problems that led to the disappearance of this plant and many of its associates. It is hoped this will take place between March and May 2002.

Bats

- The Agency continues to play an active role as a member of the UK BAP Steering Group for Bats.

- We are providing the Bat Conservation Trust with RHS data which is being used as part of the National Bat Monitoring Programme, and is especially useful for Daubenton's bat work.



- A number of regions, including Southern and Thames are continuing to push ahead with projects to adapt the walls and roofs of Environment Agency Water Resources flow gauging stations huts to provide additional riverside roost habitat for bats.

- In Southampton the Agency has collaborated with a number of partners and used 30 volunteers to carry out a survey of bat foraging habitat preferences in the city of Southampton. The results have shown that rivers and wetlands are by far and away the most intensively used bat foraging habitats in the City.

- In Yorkshire, as part of the Upper Wharfedale Best Practice Project, the Agency is taking account of the outstanding bat research work being carried out in Wharfedale by Professor John Altringham and his team at the University of Leeds, in the development of a long term management plan for the valley.

CHAPTER 5 FORWARD LOOK

Surveys and studies

5.1 2002 promises to be another busy year. With FMD now over, much needed survey and investigative work can resume, and the "Life in UK Rivers" project can get back on track. The national water shrew survey led by The Mammal Society will be starting, as will the Wales Otter survey. There will also be desk-based, laboratory-based and experimental work investigating environmental requirements and genetic variability in river jelly lichen, stoneworts, *Bembidion testaceum*, depressed river mussel and *Phytophthora* disease in riverside alders.

Promoting biodiversity

5.2 We are holding a special biodiversity seminar, primarily for our own UK BAP contacts, but also external partners. This will allow Barbara Young and others to reflect on progress made over the part two years and also to set out the national agenda for the future in the context of our new corporate strategy. We will be publishing the first leaflet in a new biodiversity technical series, featuring the southern damselfly. Our conservation web page will be developed significantly in 2002 and will feature the new leaflets. A special 'biodiversity' supplement in our Agency newspaper *Environment Action* will also be produced in the summer.

5.3 Biodiversity will have a high profile at the Agency Board in 2002, with a special update session on wildlife conservation in May and a follow-up in the autumn. There is also a joint Agency Board/English Nature Council meeting scheduled for mid-November.

Habitats Directive

5.4 Having largely completed the scoping stages of our review of consents programme, the focus from now will be the more detailed 'appropriate' assessment stage, supported by national research and local investigations work. The huge amount of effort made to develop procedures and technical guidance for all our activities has paid dividends and we are particularly pleased about the way the joint EA/EN/CCW technical advisory groups on water quality, air quality, water resources, flood defence, fisheries and waste have contributed to help resolve some complicated problems.

Databases

5.5 Our *Habitats Directive* database will be developed further, enabling our conservation and other staff easy access to relevant information and sharing best practice. We will also be developing links with the *JNCC biodiversity database*, allowing our BAP contacts access to the wealth of information held by JNCC and also to speed up reporting progress as requested by the UKBAP.

5.6 Our *River Habitat Survey* database is also being improved, and with over 17,000 RHS sites now included, this will provide a powerful source of information for a variety of purposes, including research, environmental appraisal and catchment reports. It is also crucial in the development of non-statutory River Habitat Objectives for rivers in England and Wales which is progressing well.

5.7 Our *Biology for Windows* database is also being upgraded in preparation for the wider requirements of the Water Framework Directive and will also be used in development of Biological Quality Objectives for water quality purposes.

AMP4

5.8 We will be putting a lot of effort into the AMP4 process to secure maximum biodiversity gains in the national environmental programme for water companies during 2005-2010. This represents our best chance of remedying damage to SPAs, SACs and SSSIs caused by water pollution and over-abstraction by water companies and also making sure UK BAP actions are taken on board.

BRITE

5.9 Internal reorganisation (BRITE) will affect almost everyone to some extent in 2002. There is bound to be some disruption and this may have an impact on some of our planned biodiversity work. Given the focus on environmental outcomes, the new ways of working are, in the short term, designed to provide more effort for local contributions to biodiversity.

5.10 One major advantage of BRITE will be that we will for the first time have full-time specialists at Head Office who will be able to dedicate their time to a range of policy areas where we have been able only to make a token contribution in the past.

5.11 Wetland and marine issues are two obvious areas that will benefit, particularly important in the light of (i) 'Making It Happen' and Corporate Strategy, (ii) the Marine Wildlife Conservation Bill, which should become law in the late summer. We can also implement our "biodiversity check" at policy level and CRoW Act obligations operationally.

5.12 We are also planning to increase our EIA, landscape assessment, geomorphology and archaeology resources to ensure that we get the best environmental solutions from our capital and revenue works undertaken by flood defence and water resources. A business case will be produced in time for the 2003/4 corporate planning round.

APPENDIX 1 AGENCY CO-ORDINATORS FOR UK BAP SPECIES AND HABITATS

Species/habitat	Category	Agency Co-ordinator	Phone	Email
Mammals				
Water vole	1	Alastair Driver	0118 953 5563	alastair.driver@environment-agency.gov.uk
European otter	1	Graham Scholey	01491 828346	graham.scholey@environment-agency.gov.uk
Birds				
Marsh warbler	1	Phillipa Harrison	01732 875587	phillipa.harrison@environment-agency.gov.uk
Fish				
Vendace	1	Cameron Durie	01768 866666	N/A
Invertebrates				
Agabus brunneus – a diving beetle	1	Francis Farr-Cox	01278 457333	N/A
Anisodactylus poeciloides - a ground beetle	1	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Bidessus unistriatus - a diving beetle	1	Terry Clough	01480 414581	terry.clough@environment-agency.gov.uk
Hairy click beetle	1	Francis Farr-Cox	01278 457333	N/A
White-clawed crayfish	1	Julie Bywater	01491 828386	julie.bywater@environment-agency.gov.uk
Southern damselfly	1	Tim Sykes	01962 713267	tim.sykes@environment-agency.gov.uk
Clorismia rustica – a stiletto fly	1	Vacant		
Little whirlpool ram's-horn snail	1	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Glutinous snail	1	John Steel	01491 828360	john.steel@environment-agency.gov.uk
Fine-lined pea mussel	1	John Murray-Bligh	01392 352225	john.murray-bligh@environment-agency.gov.uk
Depressed river mussel	1	Catrin Grimstead	02920 770088	catrin.grimstead@environment-agency.gov.uk
Shining ram's-horn snail	1	Shelagh Wilson	01732 223285	shelagh.wilson@environment-agency.gov.uk
Lophopus crystallinus – a freshwater bryozoan	1	Daryl Buck	01491 828354	daryl.buck@environment-agency.gov.uk
Plants				
Ribbon-leaved water-plantain	1	Gill Walters	01743 272828	gill.walters@environment-agency.gov.uk
Multi-fruited river moss	1	Ben Wilson		
Tiny fern moss	1	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Water rock bristle	1	Jim Heslop	0191 203 4068	jim.heslop@environment-agency.gov.uk
Beaked beardless-moss	1	Vacant		
Violet crystalwort	1	Vacant		
Five stoneworts	1	Vacant		
River jelly lichen	1	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Habitats				
Aquifer-fed naturally fluctuating water bodies	1H	Pat Sones	01480 483931	N/A
Chalk rivers	1H	Lawrence Talks	01962 713267	lawrence.talks@environment-agency.gov.uk
Coastal saltmarsh	1H	Brian Empson	01454 623500	brian.empson@environment-agency.gov.uk
Eutrophic standing waters	1H	Simon Leaf	01491 828545	simon.leaf@environment-agency.gov.uk
Mudflats	1H	Brian Empson	01454 623500	brian.empson@environment-agency.gov.uk
Fish				
Allis & twaite shad	2	Miran Aprahamian	01925 653999	miran.aprahamian@environment-agency.gov.uk
Burbot	2	Keith Easton	0115 945 5722	keith.easton@environment-agency.gov.uk
Invertebrates				
Bidessus minutissimus – a diving beetle	2	Vacant		
Six river shingle beetles	2	Vacant		
Spiriverpa lunulata - a stiletto fly	2	Vacant		
Freshwater pearl mussel	2	Anne Lewis	0191 203 4120	anne.lewis@environment-agency.gov.uk
Plants				
Cut-grass	2	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Triangular club-rush	2	Paul Smith	01903 703950	paul.smith@environment-agency.gov.uk
Greater water parsnip	2	Lesley Saint	01480 414581	lesley.saint@environment-agency.gov.uk
Mammals				
Baleen whales	3	Nicole Price	01258 483411	nicole.price@environment-agency.gov.uk
Barbastelle bat	3	Joe Stevens	01962 713267	joe.stevens@environment-agency.gov.uk
Bechstein's bat	3	Joe Stevens	01962 713267	joe.stevens@environment-agency.gov.uk
Harbour porpoise	3	Nicole price	01258 483411	nicole.price@environment-agency.gov.uk
Pipistrelle bat	3	Joe Stevens	01962 713267	joe.stevens@environment-agency.gov.uk
Lesser horseshoe bat	3	Joe Stevens	01962 713267	joe.stevens@environment-agency.gov.uk
Toothed whales (not small Dolphins)	3	Nicole Price	01258 483411	nicole.price@environment-agency.gov.uk
Birds				
Bittern	3	Judith Bennett	01768 866666	judith.bennett@environment-agency.gov.uk
Reed bunting	3	Judith Bennett	01768 866666	judith.bennett@environment-agency.gov.uk
Common scoter	3	Dermot Smith	01925 653999	
Amphibians and reptiles				
Pool frog	3	Wendy Brooks	01733 464403	wendy.brooks@environment-agency.gov.uk
Great-crested newt	3	Mark Elliott	01903 703850	mark.elliott@environment-agency.gov.uk
Marine turtles	3	Sonia Thurley	01208 78301	N/A
Fish				
Commercial marine fish	3	Sarah Peaty	0191 203 4140	N/A
Invertebrates				
Black bog ant	3	Ben Wilson	01554 757031	ben.wilson@environment-agency.gov.uk
Aphodius niger – a scarab beetle	3	Tim Holzer	01962 713267	tim.holzer@environment-agency.gov.uk
B.argenteolum – a ground beetle	3	Rob Pilcher	01732 875587	robert.pilcher@environment-agency.gov.uk
Tiger beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk

Species/habitat	Category	Agency Co-ordinator	Phone	Email
C.exigus – a leaf beetle	3	Wendy Brooks	01733 464403	wendy.brooks@environment-agency.gov.uk
Mire pill beetle	3	Pete Sibley	0115 945 5722	peter.sibley@environment-agency.gov.uk
Donacia aquatica – a reed beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Donacia bicolora – a reed beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Spangled diving beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Helophorus laticollis – a water beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Lesser silver water beetle	3	Francis Farr-Cox	01278 457333	N/A
Hydroporus rufifrons – a diving beetle	3	Pete Sibley	0115 945 5722	peter.sibley@environment-agency.gov.uk
Laccophilus poecilus – a diving beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Melanotus punctolineatus – a click beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
O.oculata – a longhorn beetle	3	Martin Slater	01480 483880	martin.slater@environment-agency.gov.uk
Paracymus aeneus – a water beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Pterostichus aterrimus – a ground beetle	3	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
P.crux major – a ground beetle	3	Ben Wilson	01554 757031	ben.wilson@environment-agency.gov.uk
Rhynchaneas testaceus – a jumping weevil	3	Wendy Brooks	01733 464403	wendy.brooks@environment-agency.gov.uk
Mole cricket	3	Francis Farr-Cox	01278 457333	N/A
Large marsh grasshopper	3	Francis Farr-Cox	01278 457333	N/A
Brachyptera putata - a stonefly	3	Vicky Ellis	02920 770088	vicky.ellis@environment-agency.gov.uk
Eristalis cryptarum – a hoverfly	3	Francis Farr-Cox	01278 457333	N/A
Lipsothrix nervosa – a cranefly	3	Cathy Beeching	01684 850951	cathy.beeching@environment-agency.gov.uk
Lipsothrix nigristigma - a cranefly	3	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Odontomyia hydroleon – a soldier fly	3	Eleanor Andison	0113 231 2084	elly.andison@environment-agency.gov.uk
Sandbowl snail	3	Paul Green	01925 840000	paul.green@environment-agency.gov.uk
Narrow-mouthed whorl snail	3	Daryl Buck	01491 828513	daryl.buck@environment-agency.gov.uk
Geyers whorl snail	3	Daryl Buck	01491 828513	daryl.buck@environment-agency.gov.uk
Round-mouthed whorl snail	3	Daryl Buck	01491 828513	daryl.buck@environment-agency.gov.uk
Desmoulin's whorl snail	3	Daryl Buck	01491 828513	daryl.buck@environment-agency.gov.uk
Netted carpet moth	3	Brian Ingersent	01768 866666	brian.ingersent@environment-Agency.gov.uk
Starlet sea anemone	3	Nicole Price	01258 483411	nicole.price@environment-agency.gov.uk
Rossers sac spider	3	Sue Hogarth	01480 483844	sue.hogarth@environment-agency.gov.uk
Fen raft spider	3	Alan Hull	01473 727712	alan.hull@environment-agency.gov.uk
Medicinal leech	3	Bryan Jones	01248 670770	bryan.jones@environment-agency.gov.uk
Fungi				
Armillaria ectypa – an agaric fungus	3	Paul Green	01925 840000	paul.green@environment-agency.gov.uk
Royal bolete	3	Fran Bayley	01276 454501	fran.bayley@environment-agency.gov.uk
Date-coloured wax cap	3	Fran Bayley	01276 454501	fran.bayley@environment-agency.gov.uk
Hydnoid fungi	3	Fran Bayley	01276 454501	fran.bayley@environment-agency.gov.uk
Plants				
Creeping marshwort	3	Lesley Sproat	01491 828480	lesley.sproat@environment-agency.gov.uk
True fox sedge	3	Phil Griffiths	01903 703851	jason.lavender@environment-agency.gov.uk
Starfruit	3	Chris Catling	01707 632370	N/A
Rock sea lavender	3	Mair Rees	01792 645300	N/A
Floating water-plantain	3	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Slender naiad	3	Liz Oliver	01228 25151	liz.oliver@environment-agency.gov.uk
Holly-leaved naiad	3	Jo-Anne Pitt	01493 488515	jo-anne.pitt@environment-agency.gov.uk
Pillwort	3	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Grass wrack pondweed	3	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Yellow marsh saxifrage	3	Roger Martin	01904 692296	roger.martin@environment-agency.gov.uk
Dune thread moss	3	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Long leaved thread moss	3	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Sea bryum	3	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Prostrate feather moss	3	Carri Lane	01248 670770	carri.lane@environment-agency.gov.uk
Baltic bog moss	3	Vacant		
Derbyshire feather moss	3	Pete Sibley	0115 945 5722	peter.sibley@environment-agency.gov.uk
Yorkshire feather moss	3	Vacant		
Marsh earwort	3	Trevor Renals	01208 78301	trevor.renals@environment-agency.gov.uk
Atlantic lejeuna	3	Trevor Renals	01208 78301	trevor.renals@environment-agency.gov.uk
Norfolk flapwort	3	Amanda Elliott	01473 706734	N/A
Veilwort	3	Vacant		
Petalwort	3	Bryan Jones	01248 670770	bryan.jones@environment-agency.gov.uk
Lesser bearded stonewort	3	Vacant		
Habitats				
Blanket bog	3H	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Coastal sand dunes	3H	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Coastal vegetated shingle	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Fens	3H	Wendy Brooks	01733 464033	wendy.brooks@environment-agency.gov.uk
Grazing marsh	3H	Martin Fuller	01904 692296	martin.fuller@environment-agency.gov.uk
Lit & sub lit chalk	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Lowland calcareous grass	3H	Phil Griffiths	01903 832267	phil.griffiths@environment-agency.gov.uk
Lowland dry acid grass	3H	Vacant		
Lowland hay meadow	3H	Cathy Beeching	01684 850951	cathy.beeching@environment-agency.gov.uk
Lowland raised bog	3H	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Maerl beds	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Maritime cliffs & slopes	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk

Species/habitat	Category	Agency Co-ordinator	Phone	Email
Mesotrophic lakes	3H	Simon Leaf	01491 828545	simon.leaf@environment-agency.gov.uk
Modiolus modiolus beds	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Reedbeds	3H	Judith Bennett	01768 866666	judith.bennett@environment-agency.gov.uk
Sabellaria alv reefs	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Saline lagoons	3H	Nicole Price	01258 483411	nicole.price@environment-agency.gov.uk
Seagrass beds	3H	Nicole Price	01258 483411	nicole.price@environment-agency.gov.uk
Sheltered muddy gravels	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Sublittoral sands & gravels	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Tidal rapids	3H	Sarah Peaty	0191 203 4140	sarah.peaty@environment-agency.gov.uk
Upland hay meadow	3H	Vacant		
Wet woodland	3H	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Birds				
Aquatic warbler	4	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Fish				
Houting	4	Miran Aprahamian	01925 653999	miran.aprahamian@environment-agency.gov.uk
Amphibians and reptiles				
Natterjack toad	4	Steve Garner	01768 866666	steve.garner@environment-agency.gov.uk
Sand lizard	4	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Invertebrates				
Armara stenua - a ground beetle	4	Vacant		
Badister collaris – a ground beetle	4	Vacant		
Badister peltatus – a ground beetle	4	Vacant		
Bembidion humerale – a ground beetle	4	Pete Sibley	0115 945 5722	peter.sibley@environment-agency.gov.uk
Dune tiger beetle	4	Vacant		
Dromius sigma – a ground beetle	4	Vacant		
Dyschirius angustatus – a ground beetle	4	Vacant		
Hydrophorus cantabricus - a diving beetle	4	Vacant		
Octhebius poweri – a beetle	4	Francis Farr Cox	01278 457333	N/A
Marsh fritillary	4	Andy Fraser	01768 866666	andrew.fraser@environment-agency.gov.uk
Lipsothrix errans – a cranefly	4	Andrew Heaton	0121 711 5834	andrew.heaton@environment-agency.gov.uk
Rhabdomastrix laeta – a cranefly	4	Vacant		
Heptagenia longicauda – a mayfly	4	Vacant		
Native oyster	4	Vacant		
Euophrys browningi – a jumping spider	4	Vacant		
Aphrodes duffieldi – a leafhopper	4	Vacant		
Lesser water measurer	4	Vacant		
Orthotylus rubidus - a plant bug	4	Vacant		
Prostoma jenningsi – a freshwater nemertean	4	Vacant		
Fungi				
Devil's bolete	4	Vacant		
Plants				
Three lobed crowfoot	4	Mike Williams	01392 444000	mike.williams@environment-agency.gov.uk
Shore dock	4	Martin Rule	01208 78301	
Matted bryum	4	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Pear fruited bryum	4	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Cernous bryum	4	Neil Guthrie	01772 339882	neil.guthrie@environment-agency.gov.uk
Silky swan neck moss	4	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Glaucous beard moss	4	Vacant		
Clustered earth moss	4	Vacant		
Millimetre moss	4	Vacant		
Spruce's bristle moss	4	Vacant		
Spreading-leaved beardless moss	4	Vacant		
Anotrichium barbatum	4	Chris Formaggia	02920 770088	chris.formaggia@environment-agency.gov.uk
Starry Breck-lichen	4	Vacant		
Orange-fruited elm-lichen	4	Vacant		
Pseudocyphellaria norvegica – a lichen	4	Vacant		

APPENDIX 2 PARTNERS IN 2001: ORGANISATIONS THAT WE SUPPORTED OR WERE IN PARTNERSHIP WITH TO BENEFIT BIODIVERSITY

Action for the River Kennet
Basingstoke and Deane Borough Council
Basingstoke Canal Society
BBC Wildlife Magazine
Berks, Bucks & Oxon Naturalists Trust
Biffa
Birmingham/Black Country Wildlife Trust
Blackpool Zoo
Blackwater Valley Countryside Management Service
Blenheim Park Estate
British Butterfly Conservation Society
British Dragonfly Society
British Trust for Ornithology
British Waterways
Bucks County Council
Central Rivers Project
Centre for Aquatic Plant Management
Cheltenham Borough Council
Cherwell District Council
Chilterns Chalk Stream Project
Chilterns District Council
Cotswold Fly Fishers
Countryside Agency
Countryside Council for Wales
Coventry City Council
Creekside Ecology Group
Creekside Education Trust
Crown Estate
Dartford Borough Council
DEFRA
Derbyshire Wildlife Trust
Durham Biodiversity Partnership
Durham Wildlife Trust
East Hants District Council
Elmbridge District Council
Energis
English Heritage
English Nature
Esmee Fairbairn Foundation
Essex Wildlife Trust
Farming & Rural Conservation Society
Farming & Wildlife Advisory Group
Fleet Pond Society
Forest Enterprise
Foster Wheeler
Froglife
FWAG
Glamorgan Wildlife Trust
Glaxo Wellcome
Gloucester City Council
Gloucestershire Wildlife Trust
GONE
Greater London Authority
Groundwork Trust
Gwent Wildlife Trust
Hampshire Wildlife Trust
Hart District Council
Hawk and Owl Trust
Hepworth Minerals and Chemicals
Heritage Lottery Fund
Hertfordshire & Middlesex Wildlife Trust
Hertfordshire Countryside Management Service
Hertfordshire County Council
Highways Agency
Kennet Valley Countryside Project
Kent County Council
Kew Gardens
Landowners
Leatherhead Society
Lee Valley Regional Park
Leicestershire and Rutland Wildlife Trust
Llanover and Coldbrook Estates
Local Authorities
London Borough of Bexley
London Borough of Brent
London Borough of Bromley
London Borough of Hammersmith and Fulham
London Borough of Havering
London Borough of Houndslow
London Borough of Lambeth
London Borough of Lewisham
London Borough of Redbridge
London Borough of Richmond
London Borough of Wandsworth
London Development Agency
London Waterways Project
London Wildlife Trust
Lower Mole Project
Ludlow Millennium Green Project
Macdonalds
Mammal Society
Ministry of Agriculture, Fisheries and Food
Ministry of Defence
Mole Valley District Council
Monmouthshire County Council
Montgomeryshire Barn Owl Group
Montgomeryshire Wildlife Trust
National Forest Company
National Trust
North Lincolnshire Council
North Warwickshire District Council
North Yorkshire Moors National Park
Northumberland National Park
Northumberland Wildlife Trust
Nottinghamshire Wildlife Trust
Nuneaton and Bedworth District Council
Onyx Environmental Trust
Oxfordshire County Council
Oxfordshire Woodland Project
Oxon Bat Group
Pang Valley Countryside Project
Peak District National Park
Pentex Oil and Gas
People's Trust for Endangered Species
Phillimore Farms
Plantlife
Plantlife
Ponds Conservation Trust
Port of London Authority
Rail-link Engineering
Reading Borough Council

Redditch Borough Council
Riparian owners
River Restoration Centre
River Severn Otter Project
Robert Stebbings Consultancy
Royal Borough of Kingston-upon-Thames
Royal Parks Agency
Royal Society for the Protection of Birds
Rydale District Council
Severn Otter Project
Severn-Trent Water
Sheffield environment Week
Sheffield Wildlife Action Partnership
Shropshire County Council
Slade Green Community Forum
Smith's Aggregates
Solihull Borough Council
South Holderness Countryside Society
South Tyneside MBC
Staffordshire Widlife Trust
Stratford on Avon District Council
Surrey Amphibian and Reptile Group
Surrey Biodiversity Partnership
Surrey County Council
Surrey Mammal Project
Surrey Otter Project
Surrey Water Vole Project
Surrey Wildlife Trust
Swansea Council
Teesdale Wildlife Trust
Telford and Wrekin Council
Thames 21
Thames Water
The Otter Trust
The Wildlife Trusts
Three Valleys Water
Trent Otter Project
University of East London
University of Wales
Warwickshire County Council
Warwickshire Wildlife Trust
Water UK
Watford Borough Council
West Berkshire Council
West London Rivers Group
West Midland Bird Club
Western Riverside Environment Trust
Whale and Dolphin Society
White Peak Crayfish Action Group
Wild Trout Trust
Wildfowl and Wetlands Trust
Wildlife Conservation Research Unit
Wiltshire Wildlife Trust
Woking Borough Council
Wokingham District Council
Woodland Trust
Worcester City Council
Worcestershire County Council
Worcestershire Wildlife Trust
Wycombe District Council
Yorkshire Dales National Park
Yorkshire Otters and Rivers Project
Yorkshire Water
Yorkshire Wildlife Trust

APPENDIX 3 ABBREVIATIONS AND ACRONYMS USED IN THE TEXT

AMP -	Asset Management Plan, Periodic Review of Water Company Prices
ASSI -	Area of Special Scientific Interest
BAP	Biodiversity Action Plan
BBOWT-	Berks, Bucks and Oxon Wildlife Trust
BRC -	Biological Records Centre
BRITE -	Better Regulation Improving The Environment
BW -	British Waterways
CAMS	Catchment Abstraction Management Strategy
CCW	Countryside Council for Wales
CHaMP-	Coastal Habitat Management Plan
CiB -	Communication in Business
CRoW -	Countryside and Rights of Way
DEFRA -	Department for the Environment, Food and Rural Affairs
DNA -	Deoxy-ribose Nucleic Acid
EA -	Environment Agency
EC -	European Commission
EC -	European Commission
ECAP -	Eutrophication Control Action Plan
EIA -	Environmental Impact Assessment
EN -	English Nature
EU -	European Union
FMD -	Foot and Mouth Disease
FWAG -	Farming and Wildlife Advisory Group
GCN -	Great Crested Newt
GIS -	Geographic Information System
HAP -	Habitat Action Plan
HD -	Habitats Directive
HLF -	Heritage Lottery Fund
JNCC -	Joint Nature Conservation Committee
LA -	Local Authority
LBAP -	Local Biodiversity Action Plan
LEAP -	Local Environment Agency Plan
LIFE -	Financial Instrument for the Environment
LRC -	Local Records Centre
MoD -	Ministry of Defence
NAW -	National Assembly Wales
NBN -	National Biodiversity Network
NGO -	Non-Governmental Organisation
Ph.D -	Doctor of Philosophy
R&D -	Research & Development
RHS -	River Habitat Survey
RRC -	River Restoration Centre
RSPB -	Royal Society for the Protection of Birds
SAC -	Special Area of Conservation
SAP -	Species Action Plan
SEPA -	Scottish Environmental Protection Agency
SPA -	Special Protection Area
SSSI -	Site of Special Scientific Interest
SUDS -	Sustainable Urban Drainage Systems
UK -	United Kingdom
WCA -	Wildlife and Countryside Act
WFD -	Water Framework Directive
WLMP -	Water-Level Management Plan
WQ -	Water Quality
WWT -	Wildfowl and Wetlands Trust
WWW -	World Wide Web

APPENDIX 4 A LIST OF SPECIES MENTIONED IN THE TEXT

Agabus brunneus	A diving beetle
Allis shad	
Anisodactylus poeciloides	A ground beetle
Barn owl	
Beaked beardless moss	
Bembidion humerale	A ground beetle
Bembidion testaceum	A river shingle beetle
Bidessus minutissimus	A diving beetle
Bidessus unistratus	A diving beetle
Burbot	
Clorismia rustica	A stiletto fly
Common reed	
Convergent stonewort	
Cut grass	
Dace	
Daubenton's bat	
Depressed river mussel	
Derbyshire feather-moss	
European otter	
Fine-lined pea mussel	
Fissidens pusillus	A fern moss
Freshwater pearl mussel	
Freshwater white-clawed crayfish	
Glutinous snail	
Great crested newt	
Great tassel stonewort	
Greater water-parsnip	
Hairy click beetle	
Hydrochus nitidicollis	A river shingle beetle
Hydroporous rufifrons	A diving beetle
Lionychus quadrillum	A river shingle beetle
Little whirlpool ram's horn snail	
Lophopus crystallinus	A freshwater bryozoan
Marsh fritillary	
Marsh warbler	
Meotica anglica	A river shingle beetle
Mink	
Mire pill-beetle	
Multi-fruited river moss	
Mute swan	
Perch	
Perileptus areolatus	A river shingle beetle
Pike	
Ribbon-leaved water plantain	
River jelly lichen	
Roach	
Rudd	
Ruffe	
Salmon	
Shining ram's horn snail	
Slender naiad	
Slender stonewort	
Southern damselfly	
Spiriverpa lunulata	A stiletto fly
Starfruit	
Starry stonewort	
Tassel stonewort	
Telford cranefly	
Thinobius newberyi	A river shingle beetle
Tiny fern moss	
Triangular club rush	
Trout	
Twaite shad	
Vendace	
Violet crystalwort	
Water rock bristle	
Water shrew	
Water vole	