



Species and Habitat Action Plan Assessment Form

Please refer to the accompanying guidance for information about how to complete this form and an explanation of terms used

Field 1: Action Plan details

Species/Habitat Action Plan	Freshwater pearl mussel <i>Margaritifera margaritifera</i>
Lead Partner/Agency	Scottish Natural Heritage/Environment Agency
Steering Group/Other organisations	Yes: Aberdeen University, Countryside Council for Wales, English Nature, Joint Nature Conservation Committee, National Museums and Galleries of Wales, Environment Agency, Environment and Heritage Service, Scottish Environment Protection Agency and Scottish Natural Heritage.
Work programme in existence?	Yes: Draft Work Programme under review by Steering Group (May 1999).

Field 2: Objectives and targets overview

Please list the targets for the action plan, indicating in which country/region the target is applicable, and additional comments including the rationale for new targets. For each new target please add new sequential paragraph numbers and target text. Please provide information about progress and country disaggregation in Table A for all targets.

Number and text	UK	E	NI	S	W	Comments
4.1 Establish the current status of the mussel throughout the UK, and its ecological requirements at all stages of the life cycle.	X					
4.2 Maintain, and where possible increase, the size of <u>viable</u> populations.	X					Revised target. Underlined text indicates modification as approved by UK Biodiversity Targets Group. Viable populations should be the focus of conservation attention since it is impossible to put into place conservation measures to try to maintain all UK populations.
4.3 Encourage re-colonisation of this species into at least 10 suitable former areas by 2005.	X					
4.4 Establish educational and monitoring programmes.	X					
4.5 Determine the effects of controlled exploitation in fished rivers, and enforce legislation on pearl fishery practices.	X					Species now has full protection under the Wildlife and Countryside Act. Pearl fishing is consequently an illegal activity and to determine the effects of controlled exploitation no longer relevant. Still a need to enforce the revised legislation.

Field 3: Proposed actions overview

Please list the proposed actions for the action plan, indicating in which country/region the action is applicable.

For each new action please add new sequential paragraph numbers and action text. If the action is regarded as significant (please see guidance) indicate this in the box and provide further details in Table B. For actions not regarded as significant simply state if the action is ongoing or complete. Remember any action which is being dropped from the workplan will be regarded as significant for the first round of reporting.

Number and text	UK	E	NI	S	W	Action significant?	Action complete or ongoing? (Please state yes, not started, or ongoing.)
5.1 Policy and legislation							
5.1.1 Identify water quality requirements for the species and seek to ensure that these form the basis for setting Statutory Water Quality Objectives including Special Ecosystem Standards for sites occupied by the pearl mussel.	X					Yes	Ongoing
5.1.2 Seek to ensure that catchment management plans, flood defence activities, water level management plans and freshwater fisheries management take account of the requirements of this mussel, <u>where populations still occur</u> .	X					Yes	Ongoing
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					Yes	Ongoing
5.2 Site safeguard and management							
5.2.1 Consider designating centres of large, self-sustaining populations as SSSI/ASSI, and designate SACs for the most important ones.	X					Yes	Ongoing
5.3 Species management and protection							
5.3.1 Review the protection given to the species under the WCA 1981.		X		X	X	Yes	Yes
5.3.2 Consider re-introduction into formerly occupied areas if conditions become ecologically suitable, using appropriate stock to maintain regional genetic variation.	X					Yes	Ongoing
5.3.3 Review the protection given to the species under the Wildlife (Northern Ireland) Order 1985.			X			Yes	Ongoing
5.4 Advisory							
5.4.1 Provide advice to river and land managers, 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					Yes	Ongoing
5.5 Future research and monitoring							
5.5.1 Identify catchments where there is the best chance of re-establishing this species.	X					Yes	Not started
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					Yes	Ongoing

5.5.3 Establish the current status of populations throughout the UK.	X					Yes	Ongoing
5.5.4 Encourage regular monitoring of known populations and seek to identify further threats to the species.	X					Yes	Ongoing
5.5.5 Pass information gathered during the survey and monitoring of this species to JNCC or BRC so that it can be incorporated in national databases.	X					No	UK - Ongoing Scotland - Complete
5.5.6 Provide information annually to the World Conservation Monitoring Centre on the UK status of the species to contribute to maintenance of up-to-date red lists.	X					No	Not started
5.6 Communications and publicity							
5.6.1 Promote awareness of the threats to the species and publicise the legal protection afforded to it.	X					Yes	Ongoing
5.6.2 Consider convening a conference on the conservation of freshwater mussels in the UK, to promote co-ordination of effort.	X					Yes	Not started

Field 4: Assessment of status

Please tick the appropriate category to indicate the assessment of status of the species or habitat, for each country/region where appropriate, and provide a statement supporting the category selected.

	Not appropriate	Recovered	Signs of recovery	No change	Declining	Lost	Insufficient information
<i>UK</i>					X		
<i>England</i>					X		
<i>Northern Ireland</i>					X		
<i>Scotland</i>					X		
<i>Wales</i>					X		
Brief text description justifying assessment of status: (~ no more than 100 words for each country/region)							
<p>Virtually all UK rivers that are known to have historically supported populations of the freshwater pearl mussel have been surveyed. These surveys have indicated that the majority of historical populations are now either extinct or are not currently viable (<i>i.e.</i> consist of senescent individuals with no evidence of recruitment for several decades). In Scotland there is clear evidence that the rate of loss has been increasing.</p>							

Field 5: Summary statement

Please provide an overview of plan implementation, including new factors affecting the species or habitat which will accelerate or constrain progress towards meeting of the targets. Where a factor results in new action(s) please cross-reference back to the relevant numbers under Field 3 and Table B.

<p>The first Steering Group meeting identified an urgent need to determine the current UK distribution of the freshwater pearl mussel and consequently effort and resources have been mainly concentrated on survey work. Now that the status of almost all historical sites is known, progress is being made towards the encouragement of sympathetic catchment/land/fisheries management practices where populations occur. In Scotland, these consultations are in their preliminary stages, initial discussions having taken place with a number of relevant organisations. The aim is to promote the dissemination of distribution data within such organisations (supported by information and advice) to inform activities which may impact adversely on existing populations. In Cumbria, where poor water quality is considered to be one of the major threats to the species, land management practices sympathetic to the requirements of the freshwater pearl mussel have been encouraged as part of a programme of consultation with local land managers (the Sustainable Rivers Project) undertaken by FWAG and the EA. In Scotland, pearl fishing has been identified as greatest immediate threat to the freshwater pearl mussel. A first step to addressing this problem was a joint publicity exercise 'Operation Necklace' which was undertaken when non-</p>
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destructive pearl fishing was a legal activity. Following the 1998 review of the Wildlife and Countryside Act the species is now fully protected and a priority is to publicise this fact to encourage enforcement of the legislation. Research effort has been concentrated in a few projects (postgraduate studies at Aberdeen University, the National Museum of Wales and Queen's University Belfast). The results of these projects will inform the planning of a wider, integrated programme of research. An application to the EU Life-Nature programme 'Safeguarding Natura 2000 Rivers in the UK' proposes a four-year project of practical actions on seven UK cSACs and includes specific projects for the freshwater pearl mussel (four cSACs were proposed on the basis of their freshwater pearl mussel interest). If successful, this project will provide for the implementation of a number action plan targets.

Four freshwater pearl mussel sites have been proposed to the European Commission as candidate SACs (Rivers Borgie, Ehen, Kerry and Moidart). These proposals, together with those from the UK and other Member States for all habitats and species of European importance, were considered at an Atlantic Biogeographical moderation meeting in Kilkee, Ireland, between 6-8 September 1999. The view of that meeting was that the four sites did not sufficiently represent the geographic range of the species in the UK. The DETR is to review the sites selected and the process of identifying sites as potential SACs to address this concern.

Field 6: Signing off

Please 'sign off' the form below to confirm that steering group members or key contacts have been consulted and agreed the information provided.

Contact details	Lead Partner	Contact Point
Name	Martin Gaywood/Steve Garner	Martin Gaywood
Organisation	SNH/EA	SNH
Assessment date (dd/mm/yy)	25/9/99	25/9/99

Completed forms should be submitted to JNCC

Biodiversity Information Service

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Table A: Action Plan objectives and targets (Copiable table)

For each target please state how, if applicable, it has been disaggregated to the country level. Please insert the paragraph number, UK target and country-specific disaggregated target(s) into the table. Please tick the appropriate category to indicate progress against published and disaggregated targets. For each target please copy the table and detail the (existing or new [new paragraph numbers should run sequentially, under relevant headings in the published volumes]) paragraph number, target text and an assessment of progress.

Objective/target <i>(For new or revised targets please provide the new paragraph number and target text.)</i>	4.1 Establish the current status of the mussel throughout the UK, and its ecological requirements at all stages of the life cycle.				
Country	Not appropriate	Target achieved	Some progress	No progress	Insufficient information
<i>UK</i>			X		
<i>England</i>					
<i>Northern Ireland</i>					
<i>Scotland</i>					
<i>Wales</i>					
Text description of target progress (separate for each country/region):					
<p>Virtually all UK rivers that are known to have historically supported populations of the freshwater pearl mussel have been surveyed, although some work is still required to complete this assessment. In Scotland in particular there are a number of rivers and burns for which there are no historical records of freshwater pearl mussel populations but which have areas of suitable habitat; these are worthy of survey.</p> <p>Some research into the ecological requirements of the species has been undertaken (postgraduate studies at Aberdeen University, the National Museum of Wales and Queen's University Belfast). The habitat requirements of juvenile mussels and their interactions with host fish remain poorly understood.</p>					

Objective/target <i>(For new or revised targets please provide the new paragraph number and target text.)</i>	4.2 Maintain, and where possible increase, the size of <u>all viable</u> populations.				
Country	Not appropriate	Target achieved	Some progress	No progress	Insufficient information
<i>UK</i>					X
<i>England</i>					
<i>Northern Ireland</i>					
<i>Scotland</i>					
<i>Wales</i>					
Text description of target progress (separate for each country/region):					
<p>Maintenance/increase of existing viable populations requires (in combination):</p> <ol style="list-style-type: none"> 1) Protection from pearl fishing: it has yet to be seen whether the recent change in legislation in England, Scotland and Wales will be sufficient to curb pearl fishing activity. 2) Protection from destructive river engineering: consultations with fisheries managers, hydro-electric companies, water authorities, the Forestry Commission and local authorities have yet to be undertaken (in preliminary stages in Scotland). 3) Recovery of salmonid populations: some joint research with fisheries biologists is planned. 4) Improvements and maintenance in water quality : some progress has been made in Cumbria. SEPA and EA consider presence of the freshwater pearl mussel in consultations on discharges/abstractions. <p>The effects of these recent and ongoing measures on this target have yet to be evaluated.</p>					

Objective/target (For new or revised targets please provide the new paragraph number and target text.)	4.3 Encourage re-colonisation of this species into at least 10 suitable former areas by 2005.				
Country	Not appropriate	Target achieved	Some progress	No progress	Insufficient information
<i>UK</i>				X	
<i>England</i>					
<i>Northern Ireland</i>					
<i>Scotland</i>					
<i>Wales</i>					
Text description of target progress (separate for each country/region):					
It is unrealistic to expect re-colonisation of the species in this timescale. Therefore in the short term, re-introduction, not re-colonisation, should be the aim of this target. A modified target 'Encourage re-introduction of this species into at least 10 suitable former areas by 2010 once feasibility of the exercise has been established' was rejected by the Biodiversity Targets Group because the proposal was based on 'recorded difficulty'. Re-introductions must be informed by detailed habitat studies (in particular the habitat requirements of juveniles are poorly understood) and genetics work. Although research in these fields is ongoing further studies will be required. A SNIFFER project entitled 'Culturing freshwater pearl mussel <i>Margaritifera margaritifera</i> in Northern Ireland. A first step towards the reintroduction of a threatened species' is currently underway					

Objective/target (For new or revised targets please provide the new paragraph number and target text.)	4.4 Establish educational and monitoring programmes.				
Country	Not appropriate	Target achieved	Some progress	No progress	Insufficient information
<i>UK</i>			X		
<i>England</i>					
<i>Northern Ireland</i>					
<i>Scotland</i>					
<i>Wales</i>					
Text description of target progress (separate for each country/region):					
<p>A publicity exercise (Operation Necklace) undertaken by SNH in collaboration with police forces, to did much to raise awareness of the threat posed by pearl fishing to freshwater pearl mussel populations in Scotland. It is a priority to undertake consultations with land owner/managers both to highlight the current threats to the species, to encourage improved fisheries and land management practises and to encourage reports of new sites.</p> <p>There is an urgent need for dissemination of detailed site locations, complemented by information, advice and contact points, within a number of organisations (e.g. Forestry Commission, hydro-electric and water companies, fisheries managers) to guide the developments they undertake. Local Authorities, SEPA and EA will also be offered, or have, access to the information in order to inform regulatory decisions on such activities. Since pearl fishing is still a threat to the pearl mussel, the need to make details of site locations more widely available must be balanced against the need to restrict the availability of the data.</p> <p>Full datasets of site details are, or will be, held by the country conservation Agencies. In Scotland, SNH has compiled an electronic dataset of freshwater pearl mussel survey sites which presents information such as grid references, transect counts, identified threats in a GIS format. These data have been distributed on compact disk to local SNH Area Offices and will be available to anyone with a legitimate requirement or interest. However, due to the confidential nature of the data, written guarantees regarding its distribution will be required prior to its release.</p> <p>Public awareness of the species is being promoted by the publication of articles and the production of a 'river mussels' leaflet by the EA.</p> <p>Monitoring programmes have yet to be established for most populations identified in the baseline surveys, however, some monitoring is underway.</p>					

Objective/target <i>(For new or revised targets please provide the new paragraph number and target text.)</i>	4.5 Determine the effects of controlled exploitation in fished rivers, and enforce legislation on pearl fishery practices.				
Country	Not appropriate	Target achieved	Some progress	No progress	Insufficient information
<i>UK</i>			X		
<i>England</i>					
<i>Northern Ireland</i>					
<i>Scotland</i>					
<i>Wales</i>					
<p>Text description of target progress (separate for each country/region):</p> <p>Controlled exploitation is no longer applicable to England, Scotland and Wales since the legislation was changed in 1998. However, surveys had previously established that destructive pearl fishing had been widespread, particularly in Scotland.</p> <p>The enforcement of the current legislation is being encouraged locally by exercises to raise awareness of the threat of pearl fishing with river users and Police WLOs.</p>					

Table B: Proposed actions (Copiable table)

For each significant action please copy and complete the table below.

(NOTE: The original published action plan lists organisations which have now been superseded as follows: DoE now DETR, NRA now EA, RPBs now SEPA, SOAEFD now SERAD, WO now NAW, WOAD now NAWAD)

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.1.1 Identify water quality requirements for the species and seek to ensure that these form the basis for setting Statutory Water Quality Objectives, including Special Ecosystem Standards for sites occupied by the pearl mussel. DETR, EA, DoE(NI), SEPA, SERAD, NAW	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed – Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work undertaken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	An EC LIFE bid has been put together for a project on ‘Safeguarding Natura 2000 Rivers in the UK’. The bid includes specific projects for the pearl mussel, including investigations into water quality requirements.	<i>Action by</i> EN, SNH, CCW, EA, SEPA, SNIFFER,
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	<p>Statutory Water Quality Objectives are not being progressed in England and Wales and will therefore not provide the mechanism to support compliance with the water quality requirements of the species. Once the water quality requirements of the species are known, however, these can be incorporated into the River Quality Objectives published in LEAPs (Local Environment Agency Plans) in England and Wales. Consultation is required before such objectives can be changed.</p> <p>Statutory Water Quality Objectives are not currently in the Scottish legislative framework.</p> <p>The EC Water Framework Directive may provide a stronger legislative mechanism in the future through out the UK.</p> <p>Currently awaiting outcome of EC LIFE bid for ‘Safeguarding Natura 2000 Rivers in the UK’. The bid includes specific projects for the pearl mussel, including investigations into water quality requirements.</p>	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999 :</p> <ul style="list-style-type: none"> - Collate and review current information on the water quality requirements of the species and, in collaboration with water chemists, undertake further research in this field. <p>2000 :</p> <ul style="list-style-type: none"> - Coordinate the collection and analysis of water quality information, which could be used to identify requirements for the pearl mussel (e.g. through support of SNIFFER project). - Collaborate to undertake comparisons of freshwater pearl mussel distribution data and water chemistry data using existing data sets. <p>Ongoing:</p> <ul style="list-style-type: none"> - Continue to assess applications for consent to discharge on a case by case basis, taking freshwater pearl mussel requirements into account where populations are known to occur. <p>Timescale unknown:</p> <ul style="list-style-type: none"> - Legislate to ensure the water quality requirements for the species 	<i>Action by</i>

	(when identified) are used in setting River Quality Objectives for sites occupied by the freshwater pearl mussel in England and Wales.	
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<p>Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i></p>	<p>5.1.2 Seek to ensure that catchment management plans, flood defence activities, water level management plans and freshwater fisheries management take account of the requirements of this mussel, <u>where populations still occur</u>. DoE(NI), EA, IDBs, MAFF, SEPA, SERAD, NAWAD</p>	
<p>Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i></p>	<p>Work plan to be agreed – Steering Group</p>	
<p>Action/workplan undertaken? <i>(Please state yes or no.)</i></p>	<p>Yes</p>	
<p>Description of work taken and organisation responsible.</p>	<p><i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i></p>	
<p>Output and timescale</p>	<p>Ongoing :</p> <ul style="list-style-type: none"> - This action covers a wide range of activities, many of which are a routine part of the work undertaken by statutory bodies based on best available information. - SEPA has disseminated to its staff the pearl mussel distributional information provided by SNH, along with guidance on pearl mussel ecology and management. 	<p>Action by EA, SEPA SEPA</p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>Still have incomplete survey information on location of freshwater pearl mussel populations.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Ongoing</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999 :</p> <ul style="list-style-type: none"> - Local Authorities to take account of the pearl mussel interest when assessing river engineering work projects or plans . - Incorporate advice relevant to the freshwater pearl mussel into advice literature relating to the management of watercourses - Ensure that regulatory bodies are aware of freshwater pearl mussel interests in their areas and are provided with guidance / training re. the ecology, habitat requirements and legal status of the species. <p>2000 :</p> <ul style="list-style-type: none"> - Review legislation relating to river engineering to ensure that such developments regulated sufficiently to ensure freshwater pearl mussel requirements are taken into account. - Promote the dissemination of information on the relevant legislation and contact points where advice may be sought to a regional / local level within relevant bodies. - Promote the dissemination of such information to fisheries proprietors re. best practices for fisheries management where the freshwater pearl mussel is present. - Circulate advice, relating to the management of watercourses for freshwater pearl mussel, within relevant bodies and to catchment management projects. - Ensure that designation of VSAs/SAs for fish farm development take account of the proximity of freshwater pearl mussel populations. - Assess freshwater pearl mussel sites which have already been identified as having potential for hydroelectric developments to pre-empt conflicts. 	<p>Action by</p>

<p>Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i></p>	<p>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. (ACTION: DANI, FA, MAFF, SERAD, NAWAD)</p>	
<p>Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i></p>	<p>Work plan to be agreed – Steering Group</p>	
<p>Action/workplan undertaken? <i>(Please state yes or no.)</i></p>	<p>Yes</p>	
<p>Description of work taken and organisation responsible.</p>	<p><i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i></p>	
<p>Output and timescale</p>	<p>1997 - SO published revised edition of the PEPFAA code (Prevention of Environmental Pollution from Agricultural Activity) which highlights potential environmental problems associated with agricultural practices and provides a practical guide to farmers in ways of eliminating or or minimising problems</p> <p>1998 - EA Sustainable Rivers Project paid for 50 farm visits in the River Ehen catchment, by FWAG advisors targeting freshwater pearl mussel requirements in their advice on a whole farm scale.</p> <p>Ongoing - SERAD encourages favourable land management practices by farmers and crofters through the availability of the ESA and CPS conservation grant schemes. In particular the elements relating to the management of water margins should be of benefit in areas where the freshwater pearl mussel is present. - Similar habitat enhancement schemes are run by MAFF and NAWAD - FC have adopted the 'Forest and Water Guidelines', 3rd edition, published 1993. Their use is virtually mandatory both directly in relation to the activities of the FC on its own land (by FE) and indirectly through the regulation of privately owned woodlands via the Woodland Grant Scheme.</p>	<p><i>Action by</i> SO EA SERAD MAFF/ NAWAD FC</p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>The difficulties of achieving favourable land management on a river catchment scale must not be underestimated.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Ongoing</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999 - Inform FC of the locations of freshwater pearl mussel catchments and the implications of the current legislation that protects the species. Site specific information to be disseminated to District Managers. - Review 'Forests and Water Guidelines' for inclusion of provisions that safeguard freshwater pearl mussel interests.</p> <p>2000 - Incorporate freshwater pearl mussel interests into adviser training programmes and the conservation audits undertaken by agricultural</p>	<p><i>Action by</i></p>

	<p>advisory bodies.</p> <ul style="list-style-type: none">- Ensure that modifications that benefit the freshwater pearl mussel are incorporated into the review of CPS and ESA schemes.- Where appropriate, undertake targeted consultations with land managers to promote freshwater pearl mussel advice.- Consider the presence of freshwater pearl mussel when prioritising for CPS.- Set up informal catchment management forums for the cSACs designated for the freshwater pearl mussel.	
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<p>Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i></p>	<p>5.2.1 Consider designating centres of large, self-sustaining populations as SSSI/ASSI, and designate SACs for the most important ones. (ACTION: CCW, DETR, DoE(N_r), SERAD, NAW, SNH, JNCC, EN)</p>	
<p>Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i></p>	<p>Work plan to be agreed – Steering Group</p>	
<p>Action/workplan undertaken? <i>(Please state yes or no.)</i></p>	<p>Yes</p>	
<p>Description of work taken and organisation responsible.</p>	<p><i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i></p>	
<p>Output and timescale</p>	<p>1998 - The Rivers Kerry, Moidart and Borgie (Scotland) and the River Ehen (England) were notified as SSSIs and submitted as cSACs.</p> <p>- The River Spey has been notified as a SSSI, partly for its freshwater pearl mussel interest</p> <p>1999/ongoing - The three remaining, viable populations in Northern Ireland are currently being notified as ASSIs (two in 1999, one in 2000)</p>	<p><i>Action by</i> SNH, EN, JNCC, DETR, SERAD</p> <p>SNH</p> <p>EHS</p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>SAC status yet to be confirmed.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Ongoing</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>2000 - Four freshwater pearl mussel sites have been proposed to the European Commission as candidate SACs. These proposals, together with those from the UK and other Member States for all habitats and species of European importance, were considered at an Atlantic Biogeographical moderation meeting in Kilkee, Ireland, between 6-8 September 1999. The view of that meeting was that the four sites did not sufficiently represent the geographic range of the species in the UK. The DETR is to review the sites selected and the process of identifying sites as potential SACs to address this concern</p>	<p><i>Action by</i></p>

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.3.1 Review the protection given to the species under the WCA 1981. (ACTION: DETR, JNCC)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Action completed in 1998	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	1998 - Following a Quinquennial Review of the Wildlife and Countryside Act (1981) the freshwater pearl mussel was given full protection in Britain. .	Action by DoE / JNCC
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	WCA (1981) only applies to England, Scotland and Wales, NOT N Ireland.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Yes	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	Action completed in 1998 Also, in concert with the JNCC, DETR is reviewing the effectiveness of listing species under the schedules of the Wildlife and Countryside Act (1981)	Action by DETR/ JNCC

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.3.2 Consider re-introduction into formerly occupied areas if conditions become ecologically suitable, using appropriate stock to maintain regional genetic variation. (ACTION: CCW, EN, SNH)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed – Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	Ongoing: A SNIFFER project entitled ‘Culturing freshwater pearl mussel <i>Margaritifera margaritifera</i> in Northern Ireland. A first step towards the reintroduction of a threatened species’ is currently underway	Action by SNIFFER, EHS
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	Little baseline information, required to take this action forward, is available at present. The outputs of the Northern Ireland project will be made widely available.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing (in NI, although not started in Britain)	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions): 2000 - Develop and promote programme of research which will address the issues of possible re-introductions following IUCN guidelines. - Where <i>M.margaritifera</i> is present, consider including <i>S.salar</i> and <i>S.trutta</i> in LBAP where appropriate. 2002 - Undertake pilot re-introduction projects (which should include long term monitoring programmes).	Action by

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.3.3 Review the protection given to the species under the WO (NI) (ACTION: DoE (NI), JNCC)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed – Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	- This is a new action proposed by the Steering Group to ensure that full protection is given to the freshwater pearl mussel in Northern Ireland. A review has been carried out but changes in legislation are currently stalled.	<i>Action by</i> DoE (NI)/ JNCC
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	No agreed timescale at present.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing (N Ireland)	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions): - Follow up review of the protection given to the species under the WO(NI) to place it on Schedule 5.	<i>Action by</i>

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.4.1 Provide advice to river and land managers, 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. (ACTION: CCW, DoE(N ₁), EN, EA, SEPA, SNH)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed – Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	<p>1995</p> <p>- SNH published Information and Advisory Note on 'The distribution, ecology and conservation of the freshwater pearl mussel <i>Margaritifera margaritifera</i> L. in Scotland.</p> <p>1997</p> <p>- SNH produced leaflet on legal status of pearl mussel during 'Operation Necklace'</p> <p>1998</p> <p>- EA published Species Awareness Leaflet No 1 on River Mussels which includes information on freshwater pearl mussel.</p> <p>1999</p> <p>- Guidance issued to SEPA staff within the SEPA Natural Heritage Handbook on freshwater pearl mussel issues</p>	<p>Action by SNH</p> <p>SNH</p> <p>EA</p> <p>SEPA</p>
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	Incomplete lists of relevant contacts (Police wildlife liaison officers, LBAP coordinators etc) in freshwater pearl mussel catchments.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999</p> <p>- Produce / update and disseminate advisory publications.</p> <p>2000</p> <p>- Area staff with pearl mussel interests in their area, to be provided with detailed distribution data, advice literature for distribution and details of contact points in partner organisations.</p> <p>- Circulate advice and information notes to PWLOs, Fisheries Trusts, Fisheries biologists, DSFBs, landowners, local estate managers, ghillies, stalkers, water bailiffs etc. and where appropriate, promote freshwater pearl mussel information at meetings of these groups by providing speakers, presenting posters etc.</p>	Action by

<p>Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i></p>	<p>5.5.1 Identify catchments where there is the best chance of re-establishing this species. (ACTION: CCW, DoE(NI), EN, EA, SEPA, SNH)</p>	
<p>Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i></p>	<p>Work plan to be agreed - Steering Group</p>	
<p>Action/workplan undertaken? <i>(Please state yes or no.)</i></p>	<p>No</p>	
<p>Description of work taken and organisation responsible.</p>	<p><i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i></p>	
<p>Output and timescale</p>		<p><i>Action by</i></p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>Insufficient information available as yet, to progress this action.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Not started</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>2000- Collaborate to undertake a project to cross reference data sets that exist with a view to identifying catchments with healthy populations of salmonids, suitable substrate, 'natural' water quality AND where the cause of decline is believed to be physical destruction.</p> <p>- Undertake research to fill in the gaps in these date sets.</p>	<p><i>Action by</i></p>

Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	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. (ACTION: CCW, EN, DoE(NI), EA, SEPA, SNH)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed - Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	<p>1995 :</p> <ul style="list-style-type: none"> - SNH funded a PhD study entitled 'The conservation and ecology of the freshwater pearl mussel'. This is being undertaken by Lee Hastie at the University of Aberdeen and is due for submission in 1999. - EN produced a Species Action Plan for England. <p>1997 :</p> <ul style="list-style-type: none"> - EN commissioned a detailed comparison of populations of the freshwater pearl mussel in the Rivers Ehen and Irt. - SNH produced a draft Species Action Plan for Scotland. - MSc thesis on the habitat characteristics of the freshwater pearl mussel completed at University of Aberdeen <p>1998 :</p> <ul style="list-style-type: none"> - A translocation and monitoring programme was undertaken on the River Conon as mitigation for the development of a sewage outfall by NOSWA. - An application to the EU LIFE- Nature programme entitled 'Safeguarding Natura 2000 Rivers in the UK' was made by EN (in partnership with SNH, CCW, EA, SEPA, SNIFFER, The British Dragonfly Society and Eastleigh Borough Council). This application proposes a four year project of practical actions on seven of the rivers which the UK has submitted as cSACs (four of which have been submitted as pearl mussel rivers), and will include specific projects for the freshwater pearl mussel. A decision on the application is expected in mid-1999. <p>1999 :</p> <ul style="list-style-type: none"> - EA aim to undertake infection work in the River Tyne. If successful, captive rearing of the young mussels will be attempted at the EA hatchery at Keilder (ongoing). - EA are currently trying to establish River Flow Objectives for the River Ehen in response to potential changes to the management of water levels in Ennerdale (ongoing). - EN commissioned a project on the conservation objectives for freshwater pearl mussel, on behalf of the Rivers LIFE Project partners. <p>Ongoing:</p> <p>A SNIFFER project entitled 'Culturing freshwater pearl mussel <i>Margaritifera margaritifera</i> in Northern Ireland. A first step towards the reintroduction of a threatened species' is currently underway</p>	<p>Action by</p> <p>SNH</p> <p>EN</p> <p>EN</p> <p>SNH</p> <p>AU</p> <p>NOSWA</p> <p>EN,SNH, CCW,EA, SEPA, SNIFFER.</p> <p>EA</p> <p>EA</p> <p>EN</p> <p>SNIFFER, EHS</p>
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	Limited funding (have concentrated on distribution and population surveys). Lack of strategic research framework.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	

<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999 :</p> <ul style="list-style-type: none"> - Steering group to draw up a research programme to identify specific information needs and to coordinate effort. - Consider undertaking RHSs on selected rivers with functional populations (prioritise cSACs). <p>2000 :</p> <ul style="list-style-type: none"> - Undertake research programmes to address these questions. 	<p><i>Action by</i></p>
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Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.5.3 Establish the current status of populations throughout the UK. (ACTION: CCW, DoE(N _I), EN, SNH)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed - Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	<p>1994 :</p> <ul style="list-style-type: none"> - Nine sites judged to represent 'top' freshwater pearl mussel rivers in Scotland were surveyed and assessed for SNH. - SNH commissioned a feasibility study for a full scale survey of the freshwater pearl mussel throughout Scotland. <p>1995 :</p> <ul style="list-style-type: none"> - EN produced a Species Action Plan for the English populations of freshwater pearl mussel. This document summarized historical records for England, identifying seven priority rivers which historically supported populations and recommended that current information on distribution and status were required urgently. - EN commissioned surveys of these seven priority rivers (plus one small stream). The river Ehen was found to support the largest population, having some evidence of recent recruitment. - SNH commissioned a survey of the freshwater pearl mussel in the River Borgie. <p>1996 :</p> <ul style="list-style-type: none"> - A recruiting population numbering c5000 individuals (the largest population known in Wales) was destroyed by dredging work in the Afon Ddu. Following this incident, Snowdonia National Park Authority supported a survey of potentially suitable streams and rivers within the Park to determine the presence of other unknown populations: this revealed two further populations (Afon Eden and Afon Dwyfach) neither of which was as strong as the destroyed Afon Ddu population. - CCW commissioned NMGW to evaluate the strength of the two recently discovered populations in the Snowdonia National Park. A number of streams in adjacent areas were also surveyed, following the chance discovery of the Pembrokeshire population. The Afon Eden population was estimated to number c3000 individuals and had evidence of some recent recruitment: the other two populations were senescent, having no evidence of recruitment in the last 50 years. - The EA in Northumberland commissioned a general survey. One population was discovered in the River Rede/ North Tyne. - The EHS resurveyed all previously known sites, extending the survey in rivers found to support populations of freshwater pearl mussel. Although the survey revealed a number of extinctions, it also confirmed a number of populations, the largest population being c20000 in the Broughderg River. - In collaboration, EN and EA commissioned a more detailed survey of the river Ehen and the development of a management plan for its population. Population estimated at c250000. - SNH commissioned the collation of historical records in Scotland and a two year survey was undertaken to establish the current status of freshwater pearl mussel in these rivers. <p>1997 :</p> <ul style="list-style-type: none"> - CCW, the EA and NMGW undertook a collaborative project to survey all major rivers in Wales that had historical records for the species. Small populations were found in several of these rivers but these had no evidence of recent recruitment. Thus the Afon Eden remains the only river known in Wales that supports a viable population. 	<p>Action by</p> <p>SNH</p> <p>SNH</p> <p>EN</p> <p>EN</p> <p>SNH</p> <p>Snowdonia National Park</p> <p>CCW</p> <p>EA</p> <p>EHS</p> <p>EN,EA</p> <p>SNH</p> <p>CCW,EA, NMGW</p>

	<p>- The EA undertook a total count of the Rede/ North Tyne: this estimated a total of c12000 individuals. No juvenile mussels were discovered.</p> <p>- EHS commissioned surveys of the Rivers Ballinderry and Swanlibar to inform cSAC proposals.</p> <p>- On behalf of the EA, EN undertook a strandline survey of the River Tweed (in England) but found no mussel shells.</p> <p>- The Scottish National Survey was completed. Of the 148 rivers surveyed, 56 were extinct and 40 were 'not currently viable'. 49 rivers supported functional populations, however only 10 of these had both evidence of recent recruitment and common/abundant mussel numbers.</p> <p>1998 :</p> <p>- CCW, EA and NMGW collaborated on surveys on the Afon Tywi and Afon Taf.</p> <p>- Other surveys in Scotland included: River Spey at Kincaig; tributaries of the River Spey; Oldany Burn; River Kerry; tributary of the River Kerry; River Moidart.</p> <p>- SNH commissioned a collation of historical records for the River Spey to inform a full survey to be commissioned in 1999.</p> <p>1999 :</p> <p>- SNH have produced an Information Pack and database on the freshwater pearl mussel, including information on the status of the mussel in all known Scottish historical sites. This has been passed onto SEPA.</p> <p>- SNH have commissioned a full survey of the River Spey (ongoing).</p> <p>- EA, EN and NMGW have collaborated in a wide ranging survey of Cumbrian Rivers with historic and anecdotal records of freshwater pearl mussel. This will include a genetic study of any populations found (ongoing).</p> <p>- EA have commissioned surveys of the Taw, Mole and Dart in Devon and the River Esk in Yorkshire (ongoing).</p> <p>- EA have bid for budgets to undertake further survey work on the Cleddaus in Wales.</p>	<p>EA</p> <p>EHS</p> <p>EA,EN</p> <p>SNH</p> <p>CCW, EA, NMGW</p> <p>SNHand AU</p> <p>SNH</p> <p>SNH</p> <p>SNH</p> <p>EA,EN, NMGW</p> <p>EA</p> <p>EA</p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>Survey work has concentrated on historical sites'. It is possible other unknown pearl mussel sites have been missed. Some further survey of possible, unknown populations will be undertaken but this will be limited by funding. Survey information for parts of some rivers will be incomplete since standard survey techniques are limited in deep water situations.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Ongoing (but nearing completion for historical sites)</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>2000 :</p> <p>- Complete surveys of sites with previous records of the freshwater pearl mussel using existing mussel databases for prioritising search areas.</p> <p>- Undertake surveys which will concentrate on the sites with suitable habitat for which there are no records previously held in databases (prioritise rivers for which anecdotal information suggests the presence of populations, in particular the Rivers Spey and Inverie)</p> <p>- Examine kick sampling data for records of mussels</p>	<p><i>Action by</i></p>

	<p>- Examine salmonids caught during routine electrofishing exercises for the presence of glochidia and submit records (including negatives for known freshwater pearl mussel catchments) to relevant conservation agency.</p> <p>2001 :</p> <p>- Seek to obtain information from organisations such as diving, angling or kayaking clubs.</p> <p>- Consider OS maps as a source of references to pearl mussel sites (e.g.Gaelic river names).</p>	
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Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.5.4 Encourage regular monitoring of known populations and seek to identify further threats to the species. (ACTION: CCW, DoE(<i>N_t</i>), EN, SNH)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed - Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	Yes	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale	<p>1994 :</p> <p>- SNH commissioned the development of a monitoring protocol for freshwater pearl mussel populations.</p> <p>1999 :</p> <p>- Monitoring by EA of ongoing mortality of River Rede / Tyne populations.</p>	<p>Action by SNH</p> <p>EA</p>
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	<p>Lack of funding (have concentrated on distribution and population surveys).</p> <p>Lack of effective monitoring protocols.</p>	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Ongoing	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions):</p> <p>1999 :</p> <p>- Agree first cycle date of regular monitoring to synchronize data collection.</p> <p>2000 :</p> <p>- Review guidelines for condition assessment of pearl mussels in cSACs.</p> <p>- Promote awareness of standard monitoring protocols and ensure these are used in all monitoring exercises.</p> <p>Ongoing:</p> <p>- Monitor important populations (cSACS plus other functional populations) at 5 year cycles. Monitoring of cSAC populations will be an element of the Conservation Objectives defined for each site.</p> <p>- Monitor other populations at 10 year cycles.</p>	Action by

<p>Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i></p>	<p>5.6.1 Promote awareness of the threats to the species and publicise the legal protection afforded to it. (ACTION: CCW, EN, DoE(N₁), EA, SEPA, SNH)</p>	
<p>Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i></p>	<p>Work plan to be agreed - Steering Group</p>	
<p>Action/workplan undertaken? <i>(Please state yes or no.)</i></p>	<p>Yes</p>	
<p>Description of work taken and organisation responsible.</p>	<p><i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i></p>	
<p>Output and timescale</p>	<p>1997 : - A two day awareness and enforcement campaign (Operation Necklace) to publicise illegal pearl fishing on the Rivers Spey and Glen Lyon was held by SNH, Tayside Police and Northern Constabulary. 1998 : - EN and EA had a joint training day on the Ehen. - EA published Species Awareness Leaflet No 1 on River Mussels which includes information on freshwater pearl mussel. 1999: - SNH and EA joint funded a short-term post. The post-holder collated and disseminated information, drafted a work programme for the UKBAP and established links with potential partners.</p>	<p><i>Action by</i> SNH, TPNC EN,EA EA SNH, EA</p>
<p>Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i></p>	<p>Any awareness raising runs the risk of unintentionally increasing interest in illegal Pearl fishing. Incomplete lists of relevant contacts (Police wildlife liaison officers, LBAP coordinators etc) in freshwater pearl mussel catchments.</p>	
<p>Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i></p>	<p>Ongoing</p>	
<p>Next steps</p>	<p><i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i></p>	
<p>Output and timescale</p>	<p>(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions): 1999 : - Provide LBAP coordinators with freshwater pearl mussel distribution data, details of the status of these populations, the threats to them and contact points in partner organisations. Consult with them re specific actions in their area and the dissemination of advice and information. 2000 : - Repeat Operation Necklace to maintain the profile of the issue in the public domain. - Encourage the production of scientific papers based on contract reports, PhD study etc. and promote the popularisation and interpretation of the salient points of these publications by the media and scientific press. - Encourage and coordinate the production of articles for magazines of groups with related interests, e.g. angling societies, kayaking clubs, diving clubs, Wildlife Trusts etc. to encourage submission of pearl mussel records and to publicise its legislative protection. - Provide advice on legislation to targeted river managers, PWLOs, ghillies, water bailiffs and landowners. - Provide appropriate staff with site locations, advice notes and Agency and PWLO contacts.Ongoing:</p>	

	- All partners to take opportunities to publicise their contribution to freshwater pearl mussel conservation measures.	
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Published action/organisation(s) responsible <i>(For new or revised actions please provide the new paragraph number and action text.)</i>	5.6.2 Consider convening a conference on the conservation of freshwater mussels in the UK, to promote co-ordination of effort. (ACTION: JNCC)	
Work plan/organisation(s) responsible <i>(Summary of work plan agreed by the steering group, broken down by year if possible.)</i>	Work plan to be agreed - Steering Group	
Action/workplan undertaken? <i>(Please state yes or no.)</i>	No	
Description of work taken and organisation responsible.	<i>Please provide details of progress to date, including information about outputs, deadlines, which organisations and where action is being undertaken</i>	
Output and timescale		<i>Action by</i>
Constraints to action <i>(Please provide an explanation of the significant issues or difficulties encountered and how they have been or will be resolved. Any constraints which the steering group are unable to resolve should also be detailed.)</i>	Steering group have not discussed yet.	
Action complete or ongoing? <i>(Please state yes, not started, or ongoing.)</i>	Not started	
Next steps	<i>Please outline future action/work including an indication of expected output, timescale and organisation responsible.</i>	
Output and timescale	(Work plan in draft form, therefore future actions are liable to change. The Steering Group will be inviting partner organisations to contribute towards the actions): 2000 : - steering group to discuss at next meeting	<i>Action by</i>

AU	Aberdeen University
CCW	Countryside Council for Wales
DETR	Department of the Environment, Transport and the Regions
EA	Environment Agency
EHS	Environment and Heritage Service
EN	English Nature
FA	Forestry Authority
FC	Forestry Commission
FWAG	Farming and Wildlife Advisory Group
IDBs	Internal Drainage Boards
JNCC	Joint Nature Conservation Committee
LAs	Local Authorities
MAFF	Ministry of Agriculture Fisheries and Food
NMGW	National Museums and Galleries of Wales
NOSWA	North of Scotland Water Authority
NAW	National Assembly for Wales
NAWAD	National Assembly for Wales Agriculture Department
QUB	Queens University Belfast
SEPA	Scottish Environment Protection Agency

SNH	Scottish Natural Heritage
SERAD	Scottish Environment and Rural Affairs Department
SNIFFER	Scotland and Northern Ireland Forum for Environmental Research