Habitat Action Plan for Sussex

Standing Fresh Waters

1. Habitat Definition

This plan covers all standing fresh waters from ponds of one square metre up to large lakes. Two main categories of standing fresh waters exist in Sussex:

- The smaller water bodies (less than 1ha) include millponds, dew ponds and field ponds. Temporary ponds that dry up for part of the year are included in this group, as are garden ponds and ponds in public parks which are both now recognised as valuable refuge habitats for amphibians.
- Larger areas of standing fresh water (over 1ha in size) in Sussex include reservoirs, canals, flooded gravel pits and some fishing lakes and hammer ponds. These waters are nutrient rich (eutrophic) and support quite different ecosystems to the much smaller ponds, sustaining large populations of fish and waterfowl. Eutrophic standing waters have been identified as a priority habitat by the UK Biodiversity group (see Tranche 2 Action Plans Vol. II, p31).

The plan covers the open water zone, which may contain submerged, free floating or floating-leaved vegetation, and also water fringe vegetation and adjacent land.

Although they are ecologically similar, ditches with open water are not included in this plan as they are covered by the Floodplain Grasslands HAP for Sussex.

2. Current Status and Distribution

2.1 National Status

The Countryside Survey 2000 (reported in *Accounting for nature: assessing habitats in the UK countryside*) found that while the area of standing fresh water in the UK has changed little since 1990, the actual number of inland water bodies increased by about 24,000 (ca. 4%) between 1990 and 1998. Detailed analysis of the new standing water bodies recorded in CS2000 suggests that the bulk of the change was due to an increase in water bodies that were less than 20m x 20m in area.

The Lowland Ponds Survey 1996 found evidence for a high turnover of ponds between 1990 and 1996 with over 7% of pond stock lost and gained. More than one third of the ponds identified in the survey were temporary and were dry in the summer of 1996, and of the remaining ponds more than 40% were very shallow, having average water depths of less than 25cm. Standing fresh waters are a highly fluctuating resource, both over the course of a year and over the longer term. The aim of conservation must therefore be not to conserve each site as we find it, but to conserve the collective resource across Sussex and the natural processes and systems that allow these habitats to form.

Nationally approximately 200 sites of standing open water have SSSI status. Many more lie within SSSIs scheduled for other reasons.

2.2 Status in Sussex

The first systematic survey of ponds in Sussex is now underway with the creation of the Sussex Ponds Inventory at the Sussex Biodiversity Record Centre (SxBRC). Smaller ponds are very important features of the Sussex landscape. In the past these would have been created through seasonal flooding and meandering of natural river systems. However neither of these processes is now permitted to take place. Today, most if not all ponds are man-made, such as the dew ponds of the Downs, ponds formed in marl pits after the extraction of clay, the hammer ponds constructed for the iron industry in the High Weald and the increasing number of garden ponds. However, all are influenced by natural processes. A few pond sites such as Burton Pond in West Sussex are now protected and managed as nature reserves.

Larger bodies of fresh water (over 1ha in size) cover about 2,200ha in Sussex. These are mainly reservoirs, fishing lakes and flooded gravel pits. Some are managed as nature reserves.

2.3 Legal Status:

Species protected by the Wildlife and Countryside Act 1981 and present at standing fresh water sites in Sussex includes the great crested newt *Triturus cristatus*, the natterjack toad *Bufo calamita* and the water vole *Arvicola terrestris ssp amphibius*. Certain sites are protected through SAC (Special Area for Conservation) or SSSI (Site of Special Scientific Interest) status, such as Burton Pond - a list of all these sites in Sussex is currently being created and will be available in August 2001. The importance of other sites is recognised through designation as SNCIs (Sites of Nature Conservation Importance).

3. Importance of Habitat

Standing fresh waters are a rich wildlife habitat and as such are an important resource for biodiversity. Different sites can support quite distinct communities, according to geology and surrounding habitats. The Lowland Ponds Survey of 1996 found over half of all Britain's wetland plant species in the ponds that they surveyed and in addition 2% of those ponds supported at least one Red Data Book species. Ponds are one of the stronghold habitats for the increasingly endangered water vole *(Species Action Plan for Sussex - Water vole).* In Sussex several ponds provide important breeding sites for large colonies of common frogs and toads. Standing open water sites are also important for many dragonfly and damselfly species - the Downy Emerald, Brilliant Emerald and Hairy dragonflies (*Cordulia aenea, Somatochlora metallica,* and *Brachytron pratense*) are all found at sites in Sussex. The legally protected great crested newt occurs in many ponds throughout Sussex and is a high conservation priority as Sussex has an internationally significant population of this species. The great diving beetle (*Dytiscus marginalis*) is currently present in Sussex but is becoming increasingly scarce due to habitat loss.

The large sites of eutrophic standing waters support very different ecosystems from the smaller ponds: bottom dwelling invertebrates are abundant, and the plentiful supply of food can support large populations of waterfowl.

Standing fresh waters are an important habitat for a number of priority species. The following table includes those that are present on the UK Biodiversity list of species prioritised for nature conservation concern, and are associated with standing open water and its margins in Sussex.

Table 1 UK Biodiversity Priority Species that are Associated with Standing Fresh Water in Sussex.

Common Name	Species Name	Associated Habitat	National BAP
water vole*	*Arvicola terrestris*	Occurs mainly on well-vegetated banks of	Priority Species

		ponds, rivers, canals and drainage ditches.	
great crested newt*	*Triturus cristatus*	Occurs in ponds and small lakes, occasionally in dew ponds.	Priority Species
smooth newt	*Triturus vulgaris*	Occurs in ponds, ditches and lakes.	Species of Conservation Concern
palmate newt	*Triturus helveticus*	Occurs in lakes, ponds and canals.	Species of Conservation Concern
common toad	*Bufo bufo*	Breeds in ponds and lakes, away from water at other times of year.	Species of Conservation Concern
natterjack toad	*Bufo calamita*	Breeds in shallow pools on sandy heathland and dunes.	Priority Species
common frog	*Rana temporaria*	Breeds in ponds, lakes, streams and drainage ditches.	Species of Conservation Concern
grass snake	*Natrix natrix*	Occurs near ponds, drainage ditches and canals, in damp grassland and heathland.	Species of Conservation Concern
a ground beetle	*Badister anomalus*	Found amongst vegetation on the margins of freshwater.	Priority Species
a ground beetle	*Badister peltatus*	Found on mud amongst vegetation on the margins of standing fresh water.	Priority Species
a ground beetle	*Panagaeus cruxmajor*	Occurs amongst vegetation at the margins of standing or slow flowing water.	Priority Species
mole cricket	*Gryllotalpa gryllotalpa*	Found in meadows and floodplains near to ponds, rivers, streams, canals and drainage ditches.	Priority Species
freshwater crayfish	*Austropotamobius pallipes*	Occurs in rivers, streams and standing waters.	Priority Species
medicinal leech	*Hirudo medicinalis*	Found in shallow ponds and lakes.	Priority Species
a pea mussel	*Pisidium tenuilineatum*	Found in canals and rivers and occasionally ponds.	Priority Species
a ramshorn snail	*Segmentina nitida*	Occurs in ponds and drainage ditches.	Priority Species
convergent stonewort	*Chara connivens*	Occurs in permanent alkaline waterbodies.	Priority Species
starry stonewort	*Nitellopsis obtusa*	Occurs in calcareous lakes.	Priority Species

The value of temporary ponds, which contain water for only part of the year, has only recently been recognised and the habitat has previously been very undervalued resulting in serious losses due to "improvement" - either drainage for agricultural purposes or excavation to create permanent water. Though they tend to support fewer plant species than permanent ponds, many of our rarest wetland plant species are found only in temporary ponds (*Lowland Ponds Survey 1996*). Several rare animal species are also found exclusively in temporary ponds, such as the fairy shrimp *Chirocephalus diaphanus.*

There is also increasing recognition of the importance of the immediate surroundings of ponds and lakes. The management of the water catchment area plays a key role in determining the biodiversity value of standing waters. Drainage and irrigation schemes affect water levels, and agricultural chemicals such as fertilisers and pesticides can enter ponds and lakes through run-off from surrounding land. Shrubby cover around the pond is an essential part of the habitat for amphibians and dragonflies, both of which breed in ponds but spend most of their lives on land. A semi-natural buffer zone greatly increases the value of ponds in agricultural areas for many species.

4. Importance for People, Local Community and Cultural Significance

Ponds and other areas of open water are valuable to local communities for various recreational and educational purposes:

- Use of village ponds for informal recreation – fishing, etc. At least one in seven ponds is used for leisure activities *(Lowland pond survey 1996).*
- Education - both formal and informal.
- Boating.
- Fishing.
- Reservoirs for water supply.
- Historical/heritage value – dew ponds, hammer ponds, mill ponds.
- Over one third of ponds can be viewed from a public right of way or area of open access and therefore provide scenic value in the landscape. *(Lowland pond survey 1996).*
- Enthusiasm of community groups and gardeners for pond creation and management and also for surveying existing ponds.

5. Benefits to Local Business

The potential benefits to local businesses lie mainly in the scenic/tourism value of attractive wetland sites, the management of open water for angling and in providing work for those involved in the management of standing open water areas. This includes garden centres, involved with the sale of wetland plants and pond construction materials.

Storage ponds are increasingly being used by the horticultural industry on the coastal plain to retain glasshouse run-off for use in irrigation. Standing open waters can also provide reservoirs for firefighting and play a vital role in flood defence - especially temporary ponds, balancing ponds, and ditches. Farm ponds provide water for stock.

6. Trends and Threats

6.1 Management Issues

A shift is occurring in current thinking about the appropriate degree of management for ponds. Until now it has been commonly assumed that positive management is necessary for ponds to continue to be considered a valuable resource for wildlife and the human community. The trend has been to maintain ponds at a mid-successional stage of development, as this is often perceived to be the most attractive type of pond. Management has meant intervention, either to prevent change or to implement it in a desired direction.

However the opposite idea is gaining force – that ponds are better left to evolve naturally because ponds at different stages of succession favour different natural communities. In particular, ponds at the later stages of succession can be very diverse and are most likely to support unique communities, though their scenic and amenity value may be at a low ebb. If a pond requires major intervention to maintain its previous wildlife and/or amenity value, conservation interests may be better served by allowing natural succession to take place and creating a new pond instead. Clearly this approach will not always be practicable but it should be seriously considered wherever possible.

In the Sussex context various trends in land management practices pose a threat to the quality and the existence of standing fresh waters:

- the infilling of unwanted stock ponds with waste material.

- decreasing use of ponds for watering stock, poaching (disturbance by trampling, essential to provide sites for seed germination of some plant species) no longer occurs.
- the end of traditional use of dew ponds and of dams at hammer ponds.
- inappropriate management such as over-zealous clearance/de-silting.
- changes in management of waterside habitats, especially the removal of waterside vegetation and the encroachment of agricultural planting.
- lowering of water levels caused by over abstraction and drainage schemes can lead to the disappearance of shallow ponds (eg Swanbourne Lake at Arundel) and a loss of biodiversity in other ponds where enrichment occurs due to lowered throughflow of water.
- isolation of the remaining ponds in the countryside, reducing the size of breeding populations and the potential for colonisation of new ponds and recolonisation of existing ponds after local population crashes.
- as outlined above, small ponds naturally become overgrown and eventually dry out in many cases, unless a stable temporary pond status is reached. While these habitats are valuable in their own right, supporting a separate set of species, the disappearance of these ponds is no longer balanced by the creation of new ponds in farmland.
- loss of semi-natural areas to development.
- flood defence works and the maintenance of canalisation of rivers.
- drawing down of reservoirs and of lakes (for maintenance such as desilting) during the nesting season can mean that nesting birds are left high and dry, leading to nest abandonment. Sensitive timing of maintenance works and sympathetic design of reservoirs could reduce this problem.

6.2 Invasive Alien Species

The threat to native biodiversity posed by invasive alien species of plants and animals in standing fresh waters is now becoming a major issue. Problem plant species in Sussex include water fern *Azolla filiculoides*, New Zealand stonecrop *Crassula helmsii*, parrots feather *Myriophyllum aquaticum*, floating pennywort *Hydrocotyle ranunculoides* and Canadian pondweed *Elodea canadensis*. Several of these species continue to be sold in garden centres and are often released into standing fresh waters in the countryside when garden ponds become overcrowded.

Alien animal species are also causing problems in a few cases. For example the red-eared terrapin *Trachemys scripta* has been widely released by the general public into village ponds and other sites with good public access as individual animals outgrow their pet status. It now survives on a diet of fish, small waterfowl and amphibians and is suspected of also consuming large quantities of invertebrates. As yet there are no confirmed records of it breeding in this country, but it has the potential to become a serious problem. The American Bullfrog (*Rana catesbiana*) was discovered to have successfully bred in Sussex for the first time in 1999. These large frogs prey on smaller amphibian species, and if they were to become established in Sussex on even a local scale, would represent a significant negative impact on pond ecology. A concerted attempt was made by English Nature, the Environment Agency and the Herpetological Conservation Trust to eradicate this colony through the removal of tadpoles and froglets from the site. This work is ongoing to ensure the complete eradication of the bullfrog population in the area. Marsh frogs *Rana ridibunda* are established at several sites East Sussex but it is not yet clear whether they pose a serious threat to native wildlife.

6.3 Fish

Large natural areas of eutrophic standing water can be expected to support populations of native fish as part of a functioning ecosystem. However management for angling can mean fish populations are maintained at unnaturally high levels, which the native biota of the pond cannot support - this can result in the decimation of populations of other species. Large fish, most frequently carp, are a particular problem in this context. Heavy stocking of bottom feeding fish can cause turbidity and

accelerate the release of nutrients into the water, which causes major problems of enrichment, leading to algal bloom and loss of biodiversity. Clearance of bankside habitats to allow access for angling also reduces cover for amphibians and birds.

The release of excess fish stocks from fishing lakes and from garden ponds into countryside ponds is becoming a problem in Sussex and in some areas is having a serious effect on populations of great crested newt due to predation of newt larvae.

The creation of large lakes for fishing is becoming increasingly common as part of farm diversification schemes. There is potential for future colonisation of these lakes by toads. Fish predation has a far lesser effect on toad populations than on newts due to the distasteful skin of toad tadpoles.

6.4 Boating

The re-opening of canals for boating poses a potential threat to biodiversity if banksides clearance is done unsympathetically. Use of boats at larger areas of open water such as Bewl Water, Chichester gravel pits and some of the larger reservoirs is also a potential issue in terms of disruption caused to wildlife.

6.5 Pollution

The Oxford based Ponds Conservation Trust have suggested that pollution through dumping/chemical seepage is the most important and widespread threat to ponds today (Williams et al 1997). In particular, nutrients leaching into ponds after application on neighbouring farmland can be a serious problem. These problems are also common in larger bodies of standing water.

6.6 Funding

Although some funding is available for small scale pond restoration and creation, and also for ponds where recreation and fishing are significant, there is a gap in the funding picture for larger scale engineering projects. In particular the maintenance of hammer ponds can be very expensive if works are necessary to maintain the stability of dams or to remove and dispose of silt.

The Reservoirs Act (1975) covers all reservoirs that are capable of holding more than 25,000m^3 of water above natural ground level, which includes many sites in Sussex. The Act requires annual inspection by engineers and assigns liability to the landowner for potentially extensive maintenance works to meet stringent safety criteria. The potentially very high costs entailed in meeting these requirements can directly affect management decisions by landowners. For example in some cases economics dictate that water bodies be allowed to silt up rather than being dredged, in order that they remain under the size limit laid down by the Act. The financial implications can also act as a strong disincentive to reserve purchase by voluntary agencies.

6.7 Public Awareness

There is some public concern about the safety of small children around ponds in urban areas. However, not all current trends have a negative implication for ponds. The recent rise in public interest is a very positive one. There is a very high level of interest in the creation and management of ponds both in private gardens and in public spaces and the open country. For example, one third of all grants awarded by the Rural Action scheme were for the creation of ponds. Many agencies are also receiving increasing numbers of requests for advice on the creation and planting of garden ponds. In some instances planning permission from the local authority may be required, if pond creation is defined as an engineering operation

7. Potential

There is great potential for the protection, restoration and enhancement of standing fresh waters in Sussex.

It is hoped that the Ponds Conservation Project, who will be looking to expand their Ponds for People project in 2002, may choose the south east as the next area. This project, funded by lottery money, empowers community groups to restore ponds in their local areas by providing advice and funding. The project places a strong emphasis on ecological and archaeological sensitivity in restoration work and presents a great opportunity for valuable work to be done on ponds across Sussex. The creation of a new South Downs National Park will also offer many opportunities for pond creation, especially dew pond creation.

The severe flooding of parts of Sussex in autumn and winter 2000-2001 has meant many people are demanding action to reduce future damage. This is likely to lead to much stronger legislation preventing development in floodplains - this will also provide protection to areas of open standing water in floodplains. Widespread ditch clearance is also likely to occur, with mixed results-clearance can be expected to be positive for toads, but if unsympathetically done, detrimental to water voles.

There is a possibility of using legislation prohibiting damage to flora or fauna through the disposal of waste to prevent the infilling of ponds. However the definition of waste is often open to interpretation. In some districts planning permission is already required for the infilling of ponds using machinery. The extension of this interpretation across Sussex could encourage greater protection of ponds.

Moves are underway to restore the Wey & Arun and Chichester canals as working waterways. This presents an opportunity to work with the local canal restoration groups to combine a return to the canals' original function with retaining and enhancing the gains for biodiversity that have occurred while they have been disused. Particular issues will be the potential for retaining or replacing overgrown bankside habitats, and ponds that have formed in the line of the old canals. Deepening of canals and the wash created by large numbers of boat movements will also pose a threat to biodiversity

Local interest in wildlife gardening is growing fast and represents a chance to disseminate ideas about good practice in the creation and management of both private and public ponds. There is an opportunity to work with garden centres and landscapers to promote the idea of wildlife friendly ponds. Public enthusiasm for surveying and monitoring the local environment can also be harnessed to gather detailed and highly valuable data on the location and condition of the counties' standing water bodies.

8. Current Action

Members of PondNet include Arun DC, BTCV, EA, EN, Horsham DC, SWT, SDCB, WSCC. PondNet acts as a driving force for co-ordination of pond related activities in Sussex which include:

- BTCV/Southern Water Pond Warden Scheme.
- Great crested newt monitoring project (now planned for spring 2002).
- Pond Inventory at the Sussex Biodiversity Record Centre (SxBRC).
- Responding to enquiries from the public, for example Conservation Careline, leaflets, SxBRC.
- Survey and monitoring programmes have been undertaken by various groups including the volunteer Pond Wardens, SDCB volunteers, Sussex Amphibian and Reptile Group, Trevor Beebee and students at Sussex University, Adeline Wong and students at University College Chichester.

- Work on wetlands for example Arun DC, BTCV, EA, EN, ESCC, FWAG, Lewes DC, RSPB, SDCB, SWT, WSCC.
- Education work which includes ponds: HWU, RSPB, SWT, WSCC, Wildfowl and Wetlands Trust.
- Work of Sussex Amphibian and Reptile Group in monitoring and producing a report on the status of amphibians in Sussex and the great crested newt Species Action Plan.
- Community groups looking after ponds in their area.

9. Existing Funding Schemes

- Countryside Stewardship Waterside Landscape option and capital payments for pond creation, pond restoration and scrape creation.
- The Arable Payments Scheme has specific rules for the protection of water features on cropped and set-aside land.
- Under the Environmentally Sensitive Areas (ESA) scheme capital funding is available for conservation plans including work on ponds and other water bodies.
- County Council grants.
- English Nature Wildlife Enhancement Scheme.
- Local Nature Reserve funding is available in some areas.

10. Objectives

10.1 **National Conservation Direction** (as set out in *Biodiversity:* The UK Steering Group Report Volume 2: Broad Habitat Statement pp289-90)

- Maintain and improve the conservation interest of standing open waters, through the use of integrated management plans, and the sensitive management of adjacent land.
- Create new standing open waters, of maximum wildlife benefit, where possible.
- Introduce Statutory Water Quality Objectives where appropriate.
- Prepare water level management plans for the benefit of wildlife, particularly with respect to key sites where appropriate.
- Develop integrated catchment management plans.
- Use existing measures such as the Countryside Stewardship Waterside Landscape option to support the appropriate management of open waters and their associated habitats.
- Reduce acid emissions to reduce damage to open waters from acid rain.
- Carry out Environmental Assessments of developments which will have an impact on open waters and their associated habitats.

Also see appendix for the national objectives and proposed targets for eutrophic standing waters

10.2 Objectives for Sussex

- No net loss of ponds.
- Increase our understanding of standing fresh water distribution and biodiversity value.
- Maintain and enhance the quality of our standing fresh water resource through appropriate management.

11. Targets

This Habitat Action Plan has now been archived

12. Action plan

This Habitat Action Plan has now been archived

The Standing Fresh Waters Habitat Action Plan should be considered in conjunction with a number of other Sussex Action Plans:

a) Great Crested Newt SAP
b) Floodplain Grassland HAP
c) Water Vole SAP
d) Urban HAP
e) Rivers and Streams HAP
f) Reedbeds HAP

13. Monitoring/Review

This plan is a working document. It is proposed that PondNet meet on an annual basis to assess and monitor the implementation of this plan. Concurrent with this annual meeting the plan will be reviewed by the lead agency (EA) in conjunction with the Sussex Biodiversity Partnership and updated and amended as necessary.

14. References

Barker, M. and Elliott, M., 2000 Sussex Amphibian and Reptile Group Millennium Report Incorporating the Great Crested Newt Species Action Plan and Detailed Planning Guidance.

UK Biodiversity Group, 1995 Biodiversity: The UK Steering Group Report Volume 2.

Bramley, J., 2001 Species Action Plan for Sussex -Water Vole (3rd Draft)., Sussex Otters and Rivers Partnership.

Haines-Young, R.H. *et al,* 2000 Accounting for nature: assessing habitats in the UK countryside, DETR, London .

UK Biodiversity Group, 1998 Tranche 2 Action Plans Volume II - terrestrial and freshwater habitats English Nature, Peterborough.

Williams *et al,* 1997 Designing New Ponds for Wildlife *British Wildlife* 8:3 137-150.

Williams *et al,* 1998 Lowland Ponds Survey 1996 – Final Report. Department of the Environment, Transport and the Regions, London.

15. Consultation

The first and second drafts of this HAP were circulated to: Arun District Council, British Trust for Conservation Volunteers, East Sussex County Council, English Nature, Environment Agency, Farming and Wildlife Advisory Group, Horsham District Council, Pond Conservation Trust (Oxford), Southern Water, Sussex Biodiversity Partnership, Sussex Biodiversity Record Centre,

Sussex Downs Conservation Board, Sussex University, Sussex Wildlife Trust, West Sussex County Council. Comments received on the first two drafts have been incorporated into this final draft.

The consultation draft has been circulated to all recipients of the first drafts and in addition to:
Basil Lindsay
Brighton and Hove Unitary Authority
Chichester District Council
Countryside Landowners Association
CPRE
Dolphin Ecological Surveys
Rural Development Service of DEFRA (Department for Environment, Food and Rural Affairs)
Hastings Borough Council
National Trust
RSPB
Simon Curson
South East Water
Sussex Amphibian and Reptile Group
Sussex Botanical Recording Society
Sussex Otters and Rivers Partnership
Wildfowl and Wetlands Trust
Worthing Borough Council

16. Appendix

16.1 National Habitat Action Plan Objectives and Proposed Targets for Eutrophic Standing Waters (*Tranche 2 Action Plans Volume II - terrestrial and freshwater habitats):*

It is proposed that eutrophic water bodies in the UK should be classified into three tiers distinguished on grounds of naturalness, biodiversity and restoration potential. The exact criteria for these categories have yet to be agreed and the total number of sites falling into each Tier confirmed

1 Ensure the protection and continuation of favourable condition of all Tier 1 eutrophic standing waters

2 By 2005 take action to restore to favourable condition (typical plant and animal communities present) Tier 2 eutrophic standing waters that have been damaged by human activity

3 Ensure that no further deterioration occurs in the water quality and wildlife of the remaining Tier 3 eutrophic standing water resources.