



Conservation Access Recreation

Annual Report 95-96



NRA

National Rivers Authority



ENVIRONMENT AGENCY

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introduction

In this, the final year of the NRA, the enthusiasm and commitment to protecting and enhancing the water environment was stronger than ever.

It has been almost seven years since the NRA was established and in that time much has been accomplished. This is witnessed in the completion of some exciting and imaginative Conservation and Recreation projects in 1995/96.

However, it is not possible to describe all these projects in any detail and therefore we have selected six topics which reflect some areas of our work and highlighted some examples of projects undertaken within these topics for this report.

It is important to recognise that many of these projects did not happen in isolation. The involvement of others including landowners, private business, wildlife trusts and local authorities to name a few, particularly at a local level, was positively encouraged and their contribution to the resulting success is gratefully acknowledged. However, in many cases, the commitment by the NRA gave others the confidence to become project partners. This deliberate policy was designed to encourage consensus amongst a wide variety of people and organisations with different interests.

Partnership offers many benefits and this theme provides the focus for this Annual Report.

The Environment Agency inherits a legacy of worthwhile achievement in Conservation and Recreation and we look forward to the challenge of a new era as 'guardians of the environment'.



Ed Gallagher

Chief Executive

ENVIRONMENT AGENCY



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recreation

Our database of recreation sites has been reviewed in further detail this year and the national database has been updated. We will continue to update this information regularly and use it to guide future policy development and our investment in a site management programme.

summary

We have to deal with many different interests at our sites including flood defence, conservation and recreation. We have developed a site management plan methodology which aims to balance all these interests. This was successfully field tested this year and will be implemented next year.

Following advice from an overseas consultant, we are in the process of producing visitor health and safety guidelines for the management of our recreation sites. These will be incorporated in our site management plans.

Last year we initiated a campaign targeted at young canoeists. A leaflet, detachable card and poster were designed and, with the endorsement of the British Canoe Union (BCU) and the Welsh Canoe Association, aimed at the 15-25 age range. The campaign provided information about access, environment and safety and was designed to encourage careful and considerate use of rivers. The leaflet was mailed to 13,000 BCU instructors and over 100 trade organisations, it was advertised in various educational magazines and promoted at national exhibitions. An exhibition stand was produced following the designs of the leaflet and poster and we attended the International Canoe Exhibition in February. This campaign was heralded a great success and it is intended to undertake a second phase next year with an updated and reprinted Environment Agency leaflet, card and poster.

We continue to support the Countryside Recreation Network (CRN) which provides a means of exchanging information research and discussing policy. We helped to organise a series of collaborative workshops and seminars. We have also made contributions to conferences where our staff have attended or given presentations.

Having undergone a review of how we promote our recreation activities we have now developed a system of screening and prioritising collaborative projects. We have also designed a training programme for our recreation staff and will continue to develop their skills.

Key statistics

- During 1995 2,500 responses were prepared with respect to requests for detailed recreational advice.
- We completed 192 recreation projects, 173 of which involved external collaboration.

conservation

During the year we have continued to develop our river classification system using River Habitat Survey (RHS). The RHS has provided us with a national computer database, a scheme for grouping river types, and a method of classifying site quality. Over 3000 reference sites throughout England and Wales have now been surveyed by NRA staff with the assistance of the Institute of Freshwater Ecology. A further 1500 sites will be surveyed in 1996. Our aim is to make this a national scheme and we have been collaborating with colleagues in Scotland and Northern Ireland to set up a UK-wide network. We produced the first RHS Newsletter for users in February, and the Environment Agency will provide progress updates every four months. We also published "River Habitats in England and Wales; a national overview" in March this year. This is the first national picture of the state of river habitats, produced using the results of RHS.

Summary

Key statistics:

- Conservation staff looked into almost 10,000 applications for land drainage, fisheries, discharge and abstraction purposes.
- Conservation staff looked at almost 9,000 planning applications.
- We received conservation advice on all our projects requiring a formal Environmental Statement.

Under the regulations implementing the European Union Habitats Directive we have a major responsibility for helping to protect river, wetland and coastal Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). We have signed an agreement with English Nature and plan to do the same with the Countryside Council for Wales to establish a common purpose and understanding regarding the management of river Sites Of Special Scientific Interest (SSSIs). This will apply to SACs once they have been designated. By March 1998 we will have a conservation strategy which will include jointly agreed objectives and a 10 year action plan for the management of each of 27 river SSSIs in England and Wales. We will also agree our respective responsibilities in order to simplify procedures for landowners and occupiers of such areas and to reduce bureaucracy.

We have had an important role in identifying species and habitat targets for the UK Biodiversity Action Plan. The Government's Steering Group Report published in December included several of the species we had identified through our research and development programme as being of special importance to the NRA. We have major responsibilities for implementing the action plans for some of the 116 species identified in the report. These include otter, water vole, vendace, crayfish and southern damselfly.

We are continuing to work with the Countryside Council for Wales and English Nature to produce a management strategy for allis and twaite shad, two types of rare fish.

conservation

summary

As part of our contribution to the national otter strategy we continue to support survey work and construction of otter holts, often working with specialist groups such as the Wildlife Trusts and also commercial sponsors.

We are supporting a joint research project with Oxford University on the interaction between mink and water voles ("ratty" of Wind in the Willows) in the Upper Thames catchment. We are producing habitat management guidelines for water voles.

There has been a noticeable increase in the distribution and numbers of signal crayfish which carry the crayfish plague. We will contribute to the national crayfish strategy which will include the establishment of "no-go" areas for crayfish farming in an attempt to protect our only native crayfish from this lethal disease.

The common alder tree is under attack from a fungal disease. We are working with the Forestry Authority, and surveys have been carried out for a second year to assess how many trees have this terminal disease.

The giant hogweed, one of several foreign types of plant introduced to Britain, is the cause of much concern. The sap can produce severe blisters on the skin. We are also continuing to promote our publicity leaflet which gives advice on how to deal with this and other problematic plants.

We are the main partner in the River Restoration Project. Two demonstration sites on the River Skerne at Darlington and the River Cole in Wiltshire have had meanders put in where they had previously been removed. The aim is to assess the cost-effectiveness and feasibility of river rehabilitation on a larger scale and this will help us to determine the effort needed for other schemes.

As part of our work on classifying and managing wetlands we will be publishing a layman's guide to wetland types in our Conservation Technical Handbook Series. Water level management plans are being prepared as part of a four-year programme. Priority is being given to wetland Sites of Special Scientific Interest (SSSIs).

Key statistics:

- 191 new capital works schemes incorporated conservation enhancements or mitigation.
- Completed 293 conservation projects, of which 201 involved external collaboration.

fisheries

We continued to make sure that salmon, trout, freshwater fish and eel fisheries in England and Wales are regulated by a sound system of licensing. A marketing and enforcement plan was introduced in 1995 to try to increase rod licence sales by 15%. The 1 day licence which was introduced in 1994 was aimed at younger anglers and those just starting fishing. Sales of the daily licence doubled in 1995 showing its success in encouraging people to purchase a licence. Since the successful switch to selling rod licences through the Post Office in 1994, this year saw nearly 2000 outlets selling licences in the evenings and on weekends and this will have contributed to the increase in sales of the short term licence.

summary

We increased the price of the salmon and sea trout licence by £10 to £55. The new duty will be introduced in April 1996 to help pay for work on migratory salmonids following a decrease in Government grants. The cost of the coarse and trout licence remains unchanged.

Our review of net licensing continued in 1995/96. Each net has been allocated to a licence duty band depending on their average catch during the previous 5 years. It is our aim that each net will pay the same duty in a particular band. In order to reduce unnecessary hardship to fishermen any rises in duty will be phased over the next 5 years. The minimum duty payable was raised to the same level as the salmon rod licence, ie. £55.

Key statistics:

- *During the year we checked over 170,000 licences.*
- *We prosecuted 5,868 people for licence offences, of which 5,397 were successful and resulted in fines of £227,000. A further 729 prosecutions were taken for byelaw and other offences of which 690 were successful, resulting in fines of over £34,000.*

We have been progressing our review of fisheries byelaws. The following issues were identified as national and of high priority:

- annual close season for non migratory trout (rod and line);
- use of the gaff;
- design and construction of keepnets and landing nets;
- number of fishing rods to be used;
- rod and net migratory salmonid catch returns.

Our aim is to standardise these byelaws throughout our regions. We asked for the views of people from organisations and our own advisory committees, and are planning to introduce the new byelaws in 1996.

fisheries

Following the changes in the coarse fish close season last year, we were asked to review the position on canals, where the season remained unchanged. We will be consulting on this issue in 1996/97 and any changes will be introduced in 1997/98

summary

We have undertaken a review of anti-poaching operations which form a very important area of our work. This year we organised a seminar inviting various agencies involved in similar enforcement work to share ideas on best practice and to highlight areas where efficiencies could be made. The recommendations of this year's review will be introduced in 1996/7.

The way in which we monitor fish stocks is being reviewed, and a programme developed which will ensure that each river is surveyed once every 5 years. We have designed a classification system which will allow us to compare fish populations in different rivers. This will be introduced next year.

We published A Strategy for the Management of Salmon in England and Wales, this year. The aims of the strategy are to protect salmon stocks in England and Wales, and to ensure we make the most of the economic and social benefits they provide. Local Salmon Action Plans will be drawn up between now and the year 2000 for all our principal salmon rivers. These plans will set out the targets we aim to achieve and outline the work to be carried out on individual rivers. We will form Local River Liaison Groups to draw up the Action Plans which will be implemented through our statutory committees, with help from individuals and organisations concerned with salmon fisheries.

It was recognised that the current laws governing fisheries need to be reviewed. This review was started this year and will be concluded in 1996/7.

During 1995 we stocked about 5.2 million salmonid and 0.8 million coarse fish into rivers throughout England and Wales. Most of these were for rivers where we are doing work and improvements.

We published our yearly publication Salmonid & Freshwater Fisheries Statistics for England and Wales 1994 during 1995-1996.

Key statistics:

- *Surveys representing almost 9,000 km of river length were conducted.*
- *Over 200 fishery habitat improvements were completed this year, including the building of almost 50 fish passes and - screens.*

navigation

In February 1995 the Department of the Environment (DoE) published a consultation paper on our navigation responsibilities and British Waterways (BW) responsibilities. This continued a review which began in 1991. Part of our response stressed the importance of developing an overall plan to protect and develop inland waterways. This would require all 26 inland navigation authorities working together, with the creation of a national inland navigation strategy. Our response also indicated that we believe that some river navigations which are managed by BW might be more effectively managed by the NRA. Our system of Catchment Management Planning and integrated river management allows all the uses and users of a river to be considered in an integrated way and enables us to realise substantial efficiency savings.

summary

We run separate boat registration and licensing schemes on each of our regional navigations. Following the review of our finances, in 1994, and investigations into how we run our navigations, we developed a harmonised charging scheme. This year we asked our users for their views on it. We will use this information to develop any proposals before seeking changes to legislation which would be necessary before such a scheme could be introduced.

Key statistics:

- 40,500 craft were licensed to use NRA navigations in 1995, a very slight increase on those registered in 1994.

In 1995 we asked our customers what they wanted and expected from NRA navigations. This market research identified the need for better communication and we produced a newsletter which was mailed to all boaters. Using this newsletter we were able to explain the changes into the Environment Agency and give some feedback from the market research stage of the harmonised charging project.

A telephone distribution line was introduced in 1995, which supplies key navigation publications to boaters.

A free 14 day visitor licence was introduced in 1995. This allowed boats which registered annually with the NRA to use any other NRA navigation for a period of up to 14 days without charge. This was very successful with over 200 users taking advantage of the scheme. This will continue from 1st April until 31st December 1996.

navigation

We have continued our research project looking into why people go boating, and especially the effects of increasing licence charges on demand. The information is being used in a promotional campaign to encourage newcomers to boating. More detailed market research has also been undertaken to develop a better understanding of how the price of boating affects who will go.

summary

We attended the Earls Court Boat Show in January, the Nottingham Boat Show in May and the Inland Waterways Association (IWA) Festival in Chester providing advice and information on the work of the NRA and the navigation service in particular.

Together with British Waterways and the Broads Authority we arranged a second successful seminar in May in Nottingham. Over 100 delegates from all navigation authorities across England and Wales attended, as well as guests from Holland and Ireland. We have continued our membership of the Permanent International Association of Navigation Congresses (PIANC), and we were represented on the British National Committee. Our staff also contributed to seminars and working groups led by PIANC.

During the year, ourselves and British Waterways continued to develop the Boat Safety Scheme, aimed at improving the safety of boats operated on controlled navigations. The scheme will start on NRA navigations from 1997.

Key statistics:

- *NRA staff inspected licences on 815,000 occasions with 99.8% compliance.*
- *10.5 million people visit our navigations to walk, ramble and sightsee. Lock sites are especially popular.*

Working in the community

The NRA has forged strong links with the community it serves through initiatives such as Catchment Management Plans and a policy of collaboration with others concerned with Recreation and Conservation. We have, in particular, formed a productive relationship in all regions with local authorities and county wildlife trusts and this has resulted in numerous collaborative projects to improve the conservation value and recreational opportunity in many areas. Working together with these and other groups has meant a pooling of expertise and resources thereby creating real improvements which are valued by the community.

TEME RIVERSIDE ACCESS

The village green and riverside area in the pretty village of Leintwardine in Herefordshire forms a focal point for the local

community and tourists alike.

Riverside open space had been donated by a village resident and the Parish Council approached the NRA for help to improve access and facilities at the site. At the same time, a growing group of coracle users, inspired by the enthusiasm of a local coracle maker, could be found paddling back and forth, or in the case of novices round and round, a local reach of the Teme which passes through the village. The coracle is an unusual but traditional craft that has been used for centuries to shoot nets for fishing but in recent times has been in danger of disappearing from the culture of the river.



Steps constructed in local stone by the NRA, now provide access to the river for coracle users. A ramp was also built to allow vehicle access for the NRA flood defence teams who are called on frequently to clear debris from under the river bridge. Riverside seating was provided and a programme to remove the dangerous and invasive giant hogweed plant from the river bank also formed important elements of the project.

COLNE NATURE RESERVE

An old rubbish tip and former sewage sludge lagoons hardly seem the ideal place to start when creating a new haven for wildlife. The derelict area known as Horton Lagoons in the Royal Borough of Windsor and Maidenhead is owned by the Council who decided in 1986 to develop the site as a nature reserve. The Council sought partners to design the reserve,



supervise the works and provide future management. Groundwork Colne Valley were appointed and work started in 1995 following detailed site analysis and survey work.

Meadows were formed and planted with a variety of wildflowers including meadow sweet, loosestrife and ragged robin. The pools were planted with emergent species such as common reed, flowering rush and yellow flag iris. Existing trees of willow and alder were supplemented with dog wood, field maple, blackthorn and wild cherry. Wildfowl have already



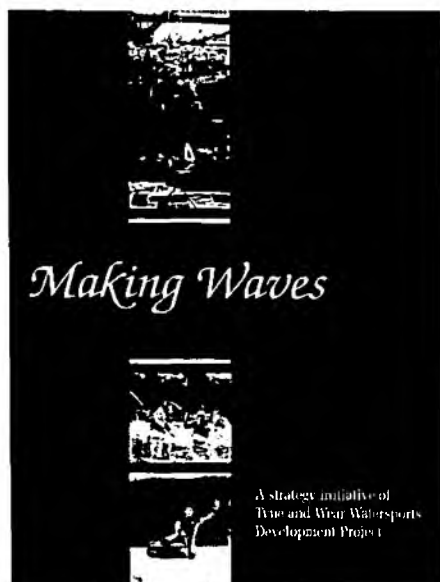
taken to the water areas and teal, shoveler, tufted duck and heron have been spotted from the birdhide.

It has been readily acknowledged that none of this would have been possible without the support and help of the NRA who provided £73k of the £200k cost of the project. The reserve has been named after a former mayor and councillor Arthur Jacob and was formally opened by well known naturalist and broadcaster Bill Oddie.

TYNE AND WEAR WATERSPORTS PROJECT

Already in its 4th year, the Tyne and Wear Watersports Project is reaping the rewards of various agencies working together. The project aim is to develop the recreational potential of the two rivers for the benefit of users and local economy.

The project follows a commonly agreed strategy entitled 'Making Waves' devised by the Development Corporation, Sports Council, five local authorities, two port authorities and harbour police. The strategy covers key issues of access, facility provision, training, promotion, regulation and co-ordination.



Two new water sports centres have been built and application has been made for sports lottery funding to improve slipways and pontoons.

Partnership funding has also allowed for the training of sufficient numbers of qualified instructors to enable newcomers to participate safely and improve the competence of

existing water recreation users. A comprehensive watersports directory has been published to promote facilities and water sports clubs and associations.

PRINCES TRUST VOLUNTEERS SCHEME

The Princes Trust Volunteers Scheme (PTV) has been described as a unique personal development programme for people aged between 16 and 25 years. The Scheme provides opportunities for young people from widely different backgrounds to work in teams for the benefit of the local community.

One such project was based on improvements on the Beverley Barmston Brook on the outskirts of Hull. The NRA fully encouraged and supported the project to re-engineer the brook where it passes through Queen Elizabeth Park by reprofiling the steep sided watercourse to create meanders and improve habitat. The PTV created a slope to the Brook to provide access for wheelchairs and pushchairs and built fishing

platforms for local anglers. Blackthorn and hawthorn have been planted and ponds created in an effort to improve the area for wildlife. The project started with removal of 31 shopping trolleys dumped by vandals into the watercourse. The local supermarket were subsequently persuaded to look at ways of controlling the removal of trolleys from their premises. The NRA provided £2k of the total of £4k necessary to run the project.

PROJECT KINGFISHER

"It's really boring - there's only cut grass and the stream's full of glass and stuff" was the local youngsters opinion of Hay Barn recreation ground alongside the River Cole in Birmingham. A Conservation Strategy launched in 1985 concluded that 7 miles of the river corridor was poor for wildlife and dominated by large areas of mown grass. The potential for increasing wildlife and improving the attractiveness of the landscape and recreation opportunity was obvious to the County, City and Solihull Borough Councils and thus Project Kingfisher was born. Surrounded by 100,000 people within 2 kilometres of the river puts enormous pressures on the corridor which has to cope with problems such as illegal rubbish tipping. In the early days of the Project large amounts of rubbish were removed from the valley - 12 loads in one year alone from the 10 hectare Yorks Wood. Thankfully things are now improving thanks to the efforts of the Project Kingfisher Team supported by other agencies such as English Nature, Countryside Commission and the NRA.

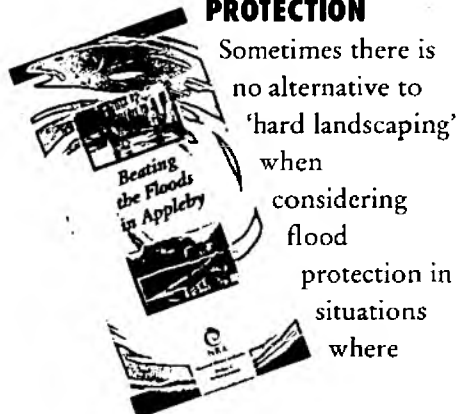
The latest round of improvements

includes the building of stepping stones by the NRA on a part of the river frequently used as a crossing point by local people. Previously all manner of materials were thrown into the river to provide a dry connection between the banks. The river was widened to provide flood flow capacity and wedge shaped stepping stones were positioned to minimise resistance to water flow. The stepping stones are now heavily used by local people and have proved very durable.

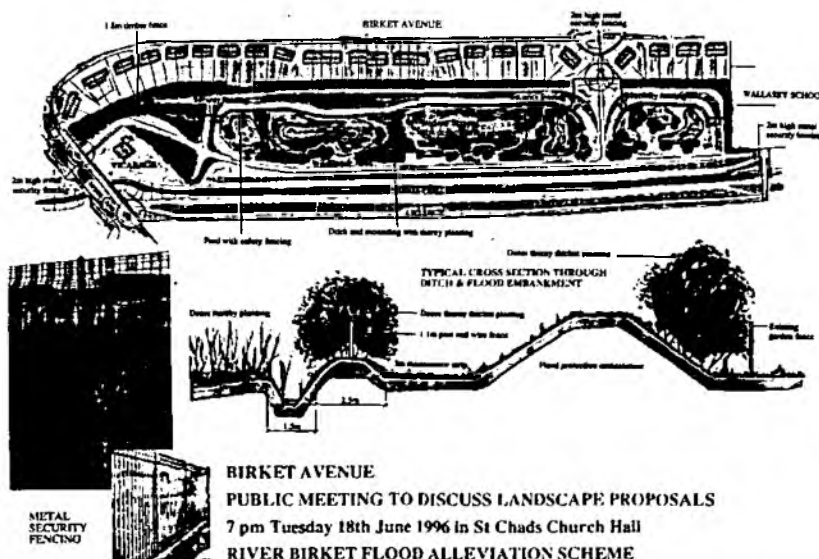
buildings and roads are located close to rivers. Such was the case in the heritage town of Appleby in Cumbria which had suffered major flooding from the River Eden over number of years.

Following rejection of the original proposals by the people of the town, the scheme finally used local stone in new flood walls constructed on high ground whilst maintaining the existing riverside environment and cricket pitch. Consultation with local residents ensured the scheme fitted the needs of the community. Enhancing the built environment was considered an important element of the scheme and a local artist was commissioned to create steel sculptures which would be attached to flood gates. A group was set up to direct the work of the artist and included representatives from the Town Council and both local schools.

APPLEBY FLOOD PROTECTION



Sometimes there is no alternative to 'hard landscaping' when considering flood protection in situations where



Protecting & Improving Wetlands and Rivers

Wetlands are extremely important but vulnerable habitats. Usually defined as the transitional zone between permanently wet and generally dry environments, many wetlands have been drained, infilled or exploited in non-sustainable ways for decades. This has resulted in a cumulatively massive, if somewhat insidious, loss of this highly productive ecosystem. Wetlands support a wide variety of flora and fauna and many species considered obviously terrestrial or aquatic rely on this habitat at some stage in their life-cycle. However, agricultural land drainage schemes and rural and urban development have contributed to the large scale destruction of this unique resource such that those wetlands that remain have become very significant.

The NRA has always sought to protect and restore wetlands whenever possible.

Similarly, river restoration has always been high on the NRA's agenda. The simple objective of getting flood water away to the sea as quickly as possible has, in the past, produced river modifications unsympathetic with the needs of wildlife, recreation and other users. This process of straightening and deepening rivers is perhaps best known as 'channelisation'. Other, more 'natural' solutions to water dissipation are now being used and the hostile river landscapes found in some areas are being restored, gradually bringing them back to life.

THE SEVERN VALLEY WETLANDS

The Severn Valley contains some of the most important wetlands in Britain. Montgomeryshire Wildlife Trust and the NRA have combined forces in a project to develop, improve and manage the chain of wetland sites throughout the upper reaches of the Severn.

As part of an on-going project, work was undertaken to create a wetland area at Newtown sewage works in partnership with Severn Trent Water plc.. Following detailed soil analysis, tubewell testing and discussions with the local authority, a four acre scrape has been created to encourage breeding birds to the area. This has proved very successful with species such as yellow wagtail, lapwing, little ringed plover, common sandpiper and sand martin being recorded in 1996. Overhead cables were diverted and spring cereal was sown to encourage the birds to the area which is now overlooked by a birdhide.

Further work has been carried out on a Trust reserve at Dolydd Hafren to extend the wetland. This



*Dolydd Hafren
Wetlands*



*Sand martin nest
holes*

area is now attracting breeding birds such as redshank, yellow wagtail and little ringed plover. Otters have also been seen from the hide.

In a further development the NRA, Countryside Commission, English Nature and the Countryside Council for Wales have joined together to study land use in an area around the Severn-Vyrnwy confluence. The study is primarily aimed at determining what financial or other incentives would be necessary to realise all or part of the environmental potential of the area through changes in land and water management. It has been recognised for sometime that changes can only be brought about through the voluntary co-operation of farmers and land owners and therefore any proposals need to make good business sense.

CORNARD MERE

Cornard Mere is designated a Site of Special Scientific Interest and includes seasonally flooded areas of fen species rich in herbs, grasses and woodland scrub vegetation. The Mere is managed by Suffolk Wildlife Trust who have been concerned with falling water levels over a number of years. It has recently discovered that the Mere water level is affected by a nearby borehole which is used to abstract groundwater for public supply.

A joint project with Anglian Water Services and the NRA has improved an area for marginal vegetation. This year, the project partners will install a pipeline to ensure an adequate water supply to the wetland site. The excavated scrape will encourage rare aquatic plants such as bogbean and lesser tussock sedge.

COLE & SKERNE RESTORATION PROJECTS

The Rivers Cole on the Wiltshire-Oxfordshire border, and Skerne in County Durham, form part of the 'River Restoration Project' initiative created by the Countryside Commission, English Nature and the NRA. The Project seeks to re-engineer rivers to create riffles, pools, meanders and oxbows from existing straight channels thus promoting wildlife habitat and restoring the appeal of traditional river landscapes. This requires land alongside rivers to be made available for such works and therefore sympathetic riparian owners need to be part of the scheme. Such partners were found in the form of the National Trust on the Cole and Darlington Borough Council in the case of the Skerne.

Restoring the rivers to their former glory by widening the floodplain puts nutrients back on the land and as a result of higher water levels for longer periods a rich mosaic of new habitats for birds, plants and fish begins to develop. It is hoped that birds such as redshank and snipe will return, fish nurseries for species such as dace and chub will develop and alder and willow trees will make a real



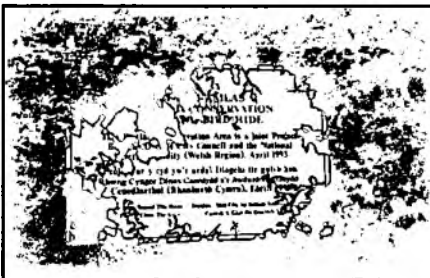
impact on the landscape. Wet meadows will also attract widgeon and teal in the winter and flowering plants such as snakeshead fritillary and lady's smock will attract orange tip butterflies and emerald damsel flies in the spring.

Creating new riverside access is considered to be a vital component of the design although a few buildings within the new flood boundaries have required relocation to higher ground.

Combined costs of the two schemes is £984k of which the NRA has contributed £340k. A bid has been made for support from the European Life Fund.

FOREST FARM INITIATIVE

Forest Farm is a Country Park situated on the fringe of Cardiff adjacent to the River Taff. The Park incorporates the Glamorganshire Canal Local Nature Reserve which has been designated a Site



of Special Scientific Interest because of its dragonfly population. In this and previous years, the NRA and Cardiff City Council have collaborated in a scheme to improve this locally rare habitat by creating a pond and bird hide on the site.

A local community based organisation called 'Friends of Forest Farm' put together proposals to create a large wetland area featuring reedbeds and marsh. The emphasis of the project was on interpretation and education and the work included building more birdhides and improving



access for disabled people both to the project area and the site as a whole. The new water feature is fed from the canal which is also connected to the existing pond system. Scrapes constructed at the pool's edge and the water management regime, are designed to attract a wide range of insect and bird life. Other partners in the project were Environment Wales and private companies including Amersham International and British Telecom.

ANGLESEY WETLANDS STRATEGY

In previous Annual Reports we have detailed the progress of this important joint project between the CCW, RSPB and NRA. This year we have continued to support the project with funding of £70k towards capital costs.



Work has resumed on the RSPB reserve at Malltraeth Marsh to try and increase the area of reedbed as quickly as possible. This has been achieved by not only direct planting of rhizomes into the soil



Wallasey Embankment. A pumping system was devised to relieve the risk of river flooding when heavy rainfall coincides with high tides. The latest scheme will reduce risk of flooding to an estimated 1 in 100 year event.

but also spreading them over a large areas of wet pasture and then rotovating them into the substrate using a lightweight, tracked vehicle.

The latest RSPB acquisition of Plas Bog has seen the restoration of this former reedbed SSSI with bunding around the site to contain water run-off and raise water levels by over a metre. Willow scrub clearance and some ditching has also been undertaken. It is hoped that the improvement of this habitat will enable the return of the breeding bittern to Anglesey.

Other work within the strategy involves water quality and sediment sampling of shallow eutrophic lakes, topographical surveys and sluice construction. Work was also undertaken at Cors Goch, Rhoscolyn, and Garreg Lwyd.

RIVER BIRKET FLOOD PROTECTION SCHEME

In 1995 the NRA started work on a £2.2m Flood Defence improvement scheme to protect nearly 2000 homes and properties on the Wirral from the misery of flooding. The Rivers Birket and Fender drain 65 sq km around Meols, Leasowe and Moreton. The work was complex because much of the land in the lower reaches lies below mean high water mark during spring tides and is protected from the sea by the

The scheme also generated an opportunity to improve the environment by the creation of ponds, wetlands and scrapes whilst winning material for the new flood embankments. The ponds will be developed as a educational resource with the involvement of local schools. The building of pond dipping platforms and getting the children interested in tree planting schemes will also assist in getting the area adopted by the local community. We are also helping Wirral Groundwork to establish a surfaced cycle route along the new flood banks.



Birkett ponds and scrapes in the making

Education, Interpretation & Information

Over recent years, more and more people have expressed increasing concern for our environment and this has produced a ground swell of support for taking better care of the world in which we live. This is due in part to being better informed about the complex nature of the modern world and an awareness that decisions we take now about the environment can seriously affect future generations. We all have a responsibility to ensure that people are made aware of consequences of their actions and this is particularly so when they affect an essential ingredient of life such as water. The NRA believes that raising the profile of water issues at every opportunity increases environmental awareness and builds on a growing consensus towards sustainability.

SEA LIFE CENTRE

In an exciting new venture, the latest in the chain of Sea Life Centres has recently opened in Birmingham. For the first time, Sea Life have extended their normal maritime themes to include freshwater life amongst the displays. The NRA was invited to participate in the enterprise by designing an exhibit which portrays a large river system. The River Severn was selected as the ideal model to demonstrate the principles of regulation, flood defence, water resources and quality and public supply. Close liaison between various NRA functions and 'Sea Life' promoters, Vardon Attractions, ensured that both the model and messages were accurate and relevant to the everyday lives of millions of people.

The display features the source of the Severn in the Welsh mountains, Clywedog Reservoir, a typical

riverside village, power station abstraction and the innovative Shropshire Groundwater supplement scheme. Projected on to the back-drop of the set is a film of the ever changing weather conditions which culminates in a dramatic reconstruction of a violent thunder storm over the mountains. A simulated rapid rise in the river levels changes the tranquil river flow into a raging torrent which threatens the flood defences of the model village down in the valley.

Even before the centre opened over 5000 school children had booked to see the exhibition and use the special classroom facilities provided for studies relevant to the National Curriculum's key stage II water project. Visitor numbers are projected to exceed half a million a year and will include business groups and tour operator packages.

The Centre's undoubted success is a clear example how the public and private sectors can work together and will mean the vital role played by the NRA in complex business of environmental management, which will be continued by the Environment Agency, is delivered in a novel and entertaining way.



NRA Staff help design sea life centre

MALVERN SHOWGROUND

Malvern is famous for its schools, spectacular hills and Three Counties Show. The showground is the destination of tens of thousands of people every year during the period of the show but perhaps less well known is the fact

that it is used by schoolchildren and specialist interest groups throughout the year as a project area.

The NRA, in collaboration with the showground organisers, have created a permanent conservation exhibition in the form of a lake which is over half an acre in size. A 'Water Environment Centre' forms the focus of attention for demonstrations and displays in water resource management and conservation practice and also houses pond dipping equipment and a small punt which are much in demand from school groups. An artificial otter holt built on the site will give people a chance to get close to an example of the NRA's efforts to encourage recolonisation of the rare mammal to the area.



THAMES TOURIST INFORMATION POINTS

As part of the Information Strategy for the River Thames, a series of information points have been installed at popular lock sites in a three year collaborative project with the Countryside Commission and Southern Electric plc.

The information points have been built in a vernacular style and contain several easily read panels depicting the historic and cultural importance of the river. The panels also feature how the river can be enjoyed in that locality with information on events, scenic routes and places to visit. One important aspect of the project is to promote the newly launched Thames Path National Trail which links all eighteen information sites. One of several major companies involved in the Trail, Southern Electric plc. has now entered a £34,000 three year sponsorship deal with the NRA to help fund the information points.



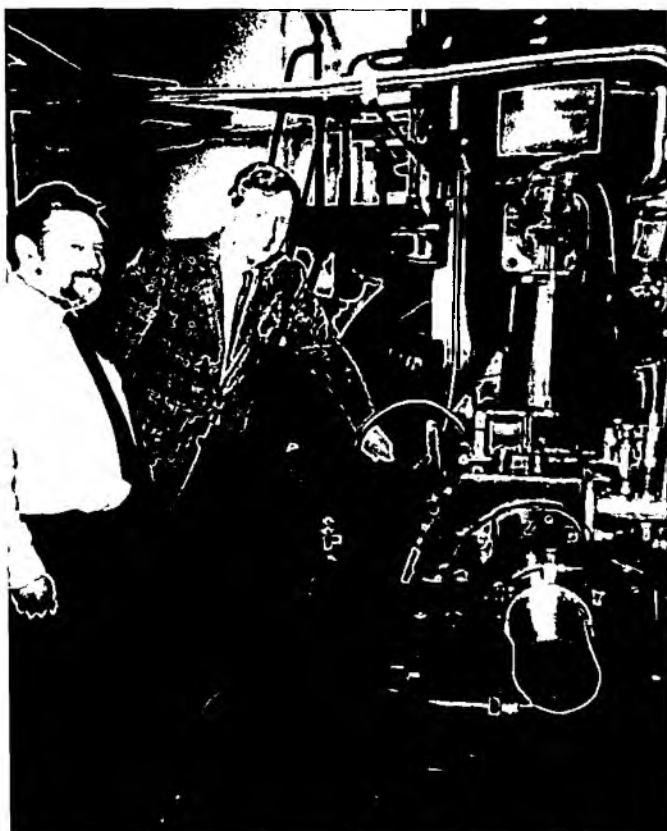
Information point at St John's Lock

The information points are proving very popular with local people and tourists alike and help enrich the quality of experience for visitors to these immensely popular NRA sites.

PRICKWILLOW MUSEUM

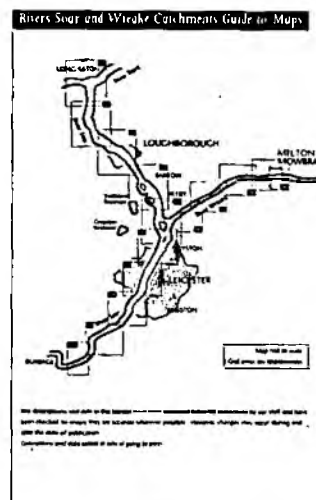
On the 28th April 1996 Lord De Ramsey, Chairman of the Environment Agency, officially opened Prickwillow Museum. Located near Ely in Cambridgeshire, the Museum tells the story of how the fenlands were

drained for agricultural production and displays the machinery necessary to keep water levels down and reduce flooding. The work of the Agency and its predecessors in this operation is revealed on a series of information boards. Other exhibits include working pump engines long since removed from active service. It is sometimes not appreciated how completely the landscape has changed and lives have been affected by such management regimes. The Museum hopes to become a permanent witness to these changes and to remind all visitors that 'we can not know truly where we are, unless we know where we have come from.'



RIVERS SOAR & WREAKE ANGLING GUIDE

The River Soar is one of the main tributaries of the River Trent. It rises to the south west of Leicester and flows north east through areas of mainly agricultural land but includes the conurbations of Leicester and Loughborough.



The Soar was canalised two hundred years ago and parts of the river form an integral part of the navigation system linking the Grand Union Canal to the River Trent. A series of weirs and locks maintain the required depth for navigation.

The river contains good stocks of a wide variety of coarse fish with roach, chub, bream, dace and pike being common. Barbel were stocked into the river in the late 1980's and early 1990's and are now old enough to spawn.

Now an angling guide has been published by the NRA. It follows the format of the successful River Trent Angling Guide and covers the Soar from upstream of Leicester to its confluence with the Trent and includes a main tributary, the River Wreake. The 24 page booklet provides maps to assist anglers and an indication of which clubs control which stretch of river. The guide has been produced with the assistance of the many clubs with fishing rights on the river.

'WATER WISE' AWARDS

In an imaginative scheme called 'Water Wise', primary schools in Sussex were invited to apply for project funding to a partnership of the NRA, Sussex Wildlife Trust and Southern Radio.

'Water Wise' offered schools the chance to raise awareness of the importance of water in the environment by contributing up to 75% of the cost of any school or community based project within this theme. Project criteria included innovation, participation by all pupils, involvement of the local community and after-care provision.

Winning entries included such diverse ideas as construction of an ox-bow lake, designing and painting a water cycle mural and creating an artificial stream complete with nature trail. A total of eighteen schools received awards of between £300 and £1500. The prizes were handed over during a ceremony which included presentation of poster displays of each winning project.



'Water Wise' Award Ceremony



Creating Opportunities for People

People vary in their ability to cope with the physical demands placed upon them and therefore many can be disadvantaged in their range of choice. Those discriminated against could include the elderly, young children and parents with infants as well as those more usually regarded as 'disabled'. This is specially so in the countryside where man-made barriers and obstacles abound at every turn and which, combined with the natural difficulties of terrain, make access very difficult for those less physically able. In the built environment, often the solution to these difficulties is simple - kissing gates instead of stiles, ramps instead of steps etc. Sometimes more subtle design changes or dedicated facility provision is required to make a real difference to the quality of experience.

We have created a Facility Design Manual which incorporates best practice guidelines gathered from around the country to make life easier for people. We have made changes on our own sites and have been pleased to work with many other organisations to improve access and extend choice for everyone.

WHEELYBOAT LAUNCHED

Access to facilities on and by open water are often denied to wheelchair users because of inappropriate surfaces and unsuitable craft. In a collaborative project with Shropshire County Council, the NRA has helped to provide a 'Wheelyboat' and launch ramp for disabled people in wheelchairs at Ellesmere.

The first 'Wheelyboat' was launched in 1985 by Prince Charles as a purpose designed craft for wheelchair users and features a bow ramp which can be lowered for boarding in similar fashion to a landing craft.

Ellesmere, a large lake in north Shropshire, is popular visitor destination for local people and tourists alike. This former SSSI is a haven for wildlife especially water birds and attracts anglers, boaters,

bird watchers as well as those that come just for the scenic view.

Pioneered by the Handicapped Anglers Trust, the 'Wheelyboat' is a very stable boat that can be manoeuvred using a quiet electric outboard engine powered from a 12 volt battery. The boat, which provides a stable platform for many waterborne activities, will be



*Wheelyboat
works wonders*

used mainly by local individuals and disabled groups and patients from the nearby Oswestry Orthopaedic Hospital.

NEW PLATFORMS FOR WELLAND ANGLERS

Fishing facilities for disabled people on the River Welland at Stamford featured in a joint project between the Town Council and the NRA. Representatives from disabled angler organisations helped with the design of fishing platforms, car park and toilet facilities. The scheme was also supported by the Stamford Welland Angling Association and cost almost £20k in total of which £4.5k was provided by the NRA.



COBNOR COASTAL PATH ACCESS

Storms at Chichester Harbour badly damaged the coastal path and flood embankment on which it sits. The whole area is important for wildlife and a popular place for visitors and is designated a Site of Special Scientific Interest, Special Protection Area and Ramsar Site.

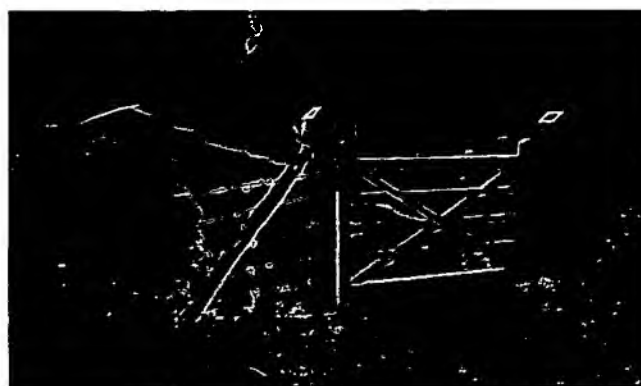
A half mile section of footpath, first created in 1987, suffered damage to the surface during a severe storm in January 1995. In a joint project with the Chichester Harbour Conservancy, Countryside Commission and West Sussex County Council it was decided to upgrade the standard of the surface during repair to accommodate wheelchair users. The path was also raised

250mm to give greater protection from overtopping waves during storm conditions and spring tides.

EXTENDING HORIZONS

Seven Sisters Country Park near Seaford, Sussex has long been a popular destination for those seeking some fresh air and scenic views. Although some paths within the park were already suitable for wheelchairs, Sussex Downs Conservation Board were keen to extend this network to improve access for people of all abilities.

In a joint project with the East Sussex County Council, the NRA was involved in improving wheelchair access to the shoreline and in doing so revealed previously unseen views of Cookmere Haven for wheelchair bound visitors. This was achieved by regrading ramps over the primary and secondary sea defences. By excavating a scrape nearby, sufficient material was gained to enable the construction of wheelchair ramps at a gentle 1 in 12 gradient and a safe 3 metres in width. The scrape will in turn attract wading birds, concluding a project that benefits both the park visitor and the natural environment.



'CORRIDORS TO THE COUNTRYSIDE'

The Corridors to the Countryside Project began in October 1993 and was formed by a partnership which includes six local authorities, Countryside Commission, Nottinghamshire Wildlife Trust, British Trust for Conservation Volunteers, Groundwork, British Waterways and the NRA.

The Project safeguards and creates new opportunities for people and wildlife in Nottingham's Corridors. These are linear habitats such as rivers, canals and disused railway lines which link Nottingham to the surrounding countryside. The corridors form important wildlife corridors but also provide valuable routes for people of all abilities to walk, cycle, learn about wildlife and or just admire the surroundings. They are extremely diverse in terms of their landscape, variety of wildlife habitats and history.

'Corridors to the Countryside' depends on local residents, community groups, schools, landowners and businesses to

make the project happen. A Consultative Forum is held once a year to which everyone with an interest in the Corridors is invited to present their ideas on how the Project should develop. A Working Group has also been formed to study the Project area in detail and find solutions to access issues. The accent for this group is on practical use and representatives walk/cycle/ride along routes and give their opinions on gates, stiles, bridges, surface, path widths, chicanes, signage etc.

The Project depends heavily on Volunteers. Local community groups and schools have undertaken schemes which not only improve the landscape for wildlife but also for residents.

By organisations working together in partnership, Corridors to the Countryside forms a powerful and effective means to create a continuous network of routes alongside the River Leen, River Trent, Fairham Brook, Nottingham Beeston Canal and associated corridors including disused railway lines.

Increasing our Knowledge

One important factor in making the right decisions on environmental matters is a soundly based knowledge of the subject. Such scientifically validated information is increasingly being demanded by those we regulate. The Environmental Assessment of development proposals is a process gaining in maturity which also relies heavily on quality scientific information. The NRA believed the gathering of such knowledge essential to its role as 'Guardians of the Water Environment'

There continues to be a need to gather specific data to help form a balanced overview of the issues, present needs and future demands.

Surprisingly, in some cases with respect to Conservation and Recreation, this information is non-existent or patchy at best. Only with this knowledge can we begin to target resources effectively at the right activities, at the right time and in the right places.

In matters relating to rivers, the NRA was the first port of call for information from vast array of enquirers such as schoolchildren and students, river users, public bodies, local government, private companies and the general public. There was a expectation of expertise from the Authority in all things water related - none more so than in fields of water recreation and conservation. As we move into the Environment Agency we are pleased to able to maintain this standing in the community.

MUTE SWAN INVESTIGATION

Shortly after the 'Wheal Jane' mine pollution of the River Fal in Cornwall, the resident mute swan population on the river started to show unusual behaviour patterns, poor health and some incidents of mortality.

Environmental investigations found that no long term impacts were detectable and because of the

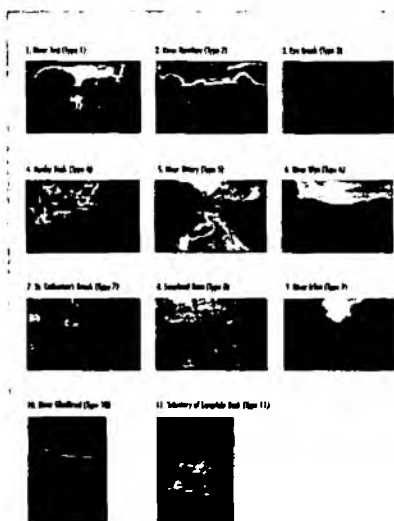
long history of heavy metal pollution in some parts of the estuary some scientists believe that flora and fauna had adapted to elevated levels of these metals. However post-mortem analysis showed high concentrations of some heavy metals in the tissue of dead swans and it was suspected that there was a direct link to the Wheal Jane incident.



What was not known however, was the process by which swans could ingest high concentrations of heavy metals and in response to public concern further studies were commissioned by the NRA. A working group was formed from a wide spectrum of interest groups including Local and Harbour Authorities, Cornwall Wildlife Trust, RSPCA, RSPB local Amenity Societies and local residents.

RIVER HABITAT SURVEY

The effectiveness of nature conservation measures in an ever changing environment is a matter of careful monitoring and accurate interpretation. This means not only managing a Research and Development programme which meets the needs of the future but also gathering base-line information on the state of the environment against which any



changes can be measured. A major key to this understanding is the development of River Habitat Surveys (RHS) - a system for assessing the habitat quality of rivers based on their structure. Three thousand RHS sites across England and

Wales have been

surveyed to provide a comparable data set comprising two million entries. This enabled an initial national overview to be published in March 1996 in a NRA report entitled 'River Habitats in England and Wales' which is now available from the Environment Agency.

RECREATION DATABASE

The first phase of the Recreation Strategy for the River Thames was completed with the publication of 'Space to Live - Space to Play'. This important document identified the need for a recreation facility database for all rivers in the Thames Region which could be used by many organisations including our major project partner, the Sports Council.

A project officer was appointed on a short term contract to identify the optimum software database package for the task and then develop a system for the research and collection of comprehensive data relating to sports and recreation provision.

A Geographical Information System coupled to a conventional

database was used to record information about commercial users, sports clubs, river bridges, open spaces, moorings, slipways, campsites and many other facilities. The system can be used to answer public enquiries and help strategic planning particularly where gaps are found in facility provision.

VILLAGE POND STUDY

Village ponds have long been regarded as an important freshwater habitat across the country. The River Hull valley contains many such ponds which provide essential habitat for wetland wildlife and give clues to the history of the land.

It is estimated that almost one million village and farm ponds have disappeared over the past century and this means a huge reduction in habitat for dependant species of wildlife. Surviving ponds are under pressure from development proposals and polluting substances from agricultural and road run-off which can reduce water quality and damage wildlife. Lack of maintenance can result in silting up and drying out in times of drought.

In order to assess the threats to this valuable natural resource, a study by University of Hull, part funded by the NRA, has been commissioned to look at the ecosystems associated with ponds in the catchment. The study will describe the current status of the village ponds, recommend future management regimes and identify measures to restore those that have been lost or damaged.

TRACKING RATTY

From the beginning of this century, the water vole (immortalised as Ratty in the book *Wind in the Willows*) population has declined by some 70% and the situation is now considered so serious that it is included in the Government's Biodiversity Action Plan as one of the UK's threatened and fastest declining species.

The introduction of the American mink which is a predator of the water vole is thought to be a significant factor in its decline. However, this cannot be the whole story as water vole numbers were declining before the arrival of mink in this country. Changes in land use, pollution and land drainage may also have played a part in reducing its habitat and breeding capability.

A major study of these factors has been established by the NRA and Wildlife Research Unit at Oxford University. As part of this research, water voles are being tracked using radio collars and electronic tags to provide data on their behaviour. Parasites are also being looked at to see if there are any links with those carried by rats. Studies will include the effects of some water pollutants such as organochlorines, polychlorinated biphenols (PCB's) and heavy metals that are known to be harmful to some animals.

The research project will cost £355k and last for three years. Only with a thorough understanding of the causes of this population decline can we hope to begin to reverse this trend and restore the water vole to its previously common status.

BARLEY STRAW PROJECT

Like many rivers, the Welland suffers from nutrient enrichment during the summer months as raised temperatures and long periods of sunlight combine to produce heavy growths of floating *Cladophora* alga. These algal 'blooms' have apparently become worse over recent years causing difficulties for recreational users of the river including anglers and boaters. As well as being visually unattractive, the algae also causes problems for Flood Defence teams and can have a marked deleterious effect on water quality.

Recent studies have revealed that barley straw can inhibit the growth of certain algae by producing 'lignin' as it decomposes. In a pilot project with Peterborough Angling Association and Spalding Yacht Club, 13 tonnes of barley straw in the form of 'sausages' were placed along 17 kilometres of the river in an effort to discover whether this would reduce algal growth. Intensive monitoring is now being carried out to determine the effectiveness of the operation.

COLNE VALLEY RECREATION STUDY

The study commissioned Colne Valley Groundwork to investigate



the feasibility of creating new access for informal recreation to the riverside in the Colne Valley. The study involved recording current

access within the Colne Valley Regional Park and extended to identify potential developments and areas of apparently no current access both within the Park and the adjacent corridor. The study included :-

- a desk survey of land ownership and known access
- site surveys of access, obstructions and land use
- the production of maps and descriptions of areas where new access was feasible



- the publication of a final report summarising findings and possible future projects

Information from the study has been entered on a Geographical Information System which is now held by the Environment Agency and forms part of a comprehensive recreation database of information in which other rivers in the region such as the Thames, Wey and Loddon are included.

ALIEN CRAYFISH

The white-clawed crayfish (*Austropotamobius pallipes*) is the only native crayfish species in the UK, where it is our largest freshwater invertebrate.

Unfortunately, pollution, habitat modification and the introduction of alien crayfish species all threaten the white-clawed crayfish. The introduction of non-native crayfish (notably the signal crayfish, *Pacifastacus leniusculus*) is producing the greatest threat, via competition for food and habitat, and through the introduction of 'crayfish plague', which the species sometimes carries. The signal crayfish is immune to this infection but native crayfish populations can be devastated by the disease. Indeed, the white-clawed crayfish is endangered to such an extent that it is classified as internationally-threatened. It is listed under both the Bern Convention and EC Habitats Directive (1992), as well as being protected from taking and



sale by the Wildlife and Countryside Act in the UK.

In Leicestershire, there are several populations of the native crayfish remaining, including a healthy one in the River Eye, upstream of Melton Mowbray. Recently water quality has dramatically improved in the river downstream of Melton, with the upgrading of the sewage treatment works into which this native population may expand. However, signal crayfish have been inadvertently introduced into the head-waters of a tributary, the Gaddesby Brook, and exist there in dense numbers. These not only threaten the native species downstream, but are also causing significant bank erosion by their burrowing activities, and are also thought to damage fish stocks. A capture programme by the NRA realised hundreds of signal crayfish in 1993.

During 1995/6, the NRA decided that the population needed further investigation. The University of Leicester was commissioned to study distribution, density and possible management options. A mark and re-capture exercise demonstrated that densities of

signal crayfish in the Gaddesby Brook were as high as any known in the wild in the UK. Fortunately a distribution exercise demonstrated that the crayfish had still not spread beyond Ashby Folville; possibly as a result of previous trapping activities. The study demonstrated that sustained trapping was able to significantly reduce population size. However, the use of crayfish farming traps was found to be completely ineffective at capturing juveniles, which could account for up to 25% of the population. Simply trapping adult crayfish would rapidly increase recruitment rates of juveniles. Thus trap meshes had to be modified to capture juveniles. It was also suggested that it may be possible to control spread by leaving large adult male crayfish in the brook to predate upon the smaller individuals, as crayfish are cannibalistic at high densities.

The Environment Agency will be the Species Contact Point for white-clawed crayfish under the Government's Biodiversity Action Plan in response to the signing of the Biodiversity Convention at Rio de Janeiro in 1992.



Farming and Wildlife

New opportunities to combine nature conservation and modern farming practices have been developed over recent years. This reverses the trend of maximising agricultural yield often to the detriment of the environment as a whole. Many farmers now recognise the benefits of changing farming methods to those more in sympathy with nature. This may mean for example adopting measures to reduce the application of chemical fertilizers, herbicides and pesticides, creating field headlands and tree and hedgerow planting. Set-aside land and the allowance of buffer zones next to watercourses have added to biodiversity and reduced pollution. Many of these practices have benefits not only for wildlife. By reducing soil erosion, biologically combating crop pests and reducing organic loading, farms may be more sustainable in the long term. The NRA has worked with farmers and organisations which promote this philosophy such as the Farming and Wildlife Advisory Group (FWAG).

NORTHUMBERLAND

In a bid to encourage farmers and landowners to take measures to improve and conserve wildlife habitats, particularly those involving wetlands and watercourses, the NRA and FWAG funded the appointment of an advisor. In the first six months of operation the advisor visited over 40 farms, representing over 2000 hectares of land and 19 miles of watercourse. In October, a collaborative scheme involving farmers and the NRA was launched. The scheme identified



sites that would benefit from habitat improvement by mainly fencing and planting. It applied to all watercourses and wetlands but especially fish spawning and nursery areas in header streams. The work involved hedgerow and tree planting, pond creation and the control of bankside grazing by stock to reduce erosion and vegetation trampling.

STONELEIGH SHOWGROUND

Stoneleigh in Warwickshire is home to the Royal Agricultural Society of England and is perhaps best known as the venue for the annual 'Royal Show'. This and other events staged at Stoneleigh, created excellent opportunities to inform the agricultural industry and the public of the various functions of the NRA from Pollution Control to Conservation.

A permanent NRA exhibition constructed within the showground contains a section of artificial river, designed and constructed by Conservation staff. It features a recirculating flow of water in a discretely lined channel with pools, riffles and managed conservation area. The river course was designed to be sinuous and banks varied with berms and prolific marginal vegetation. The 'river' scene is complemented by a surroundings of unimproved grass land which in the spring and summer are covered in wild flowers.



The demonstration area is used to convey elements of best practice in river management including tree pollarding and spiling, cattle drinks and even fishing platforms. River restoration in rural areas is as important as urban improvements and can significantly increase wildlife and landscape value.



HRH Prince Charles Visits the NRA Exhibition

The site at Stoneleigh has been visited by, amongst others, HRH Prince Charles and the Rt Hon. William

Waldegrave, Minister of Agriculture. The work has also attracted much media attention with features in newspapers and national television and radio coverage.

THE ARUN VALLEY

The River Arun crosses the Sussex Downs and the valley it creates forms an agricultural landscape of meadows, wetlands and ditches. This habitat supports wading birds such as snipe and lapwing which nest in the areas of rough grassland. Barn owls hunt over the rougher meadows whilst the ditches contain rare plants and dragonflies. However changes in agricultural practices over the last few decades has resulted in a steady decline in wildlife interest.

In a three year project to halt this decline the NRA has funded the

appointment of a project officer to coordinate efforts to conserve and enhance the landscape, nature conservation and amenity value of the valley.



The project costs £21k a year but will bring benefits far in excess of this by mobilising enthusiasm and fusing effective working relationships with the organisations and individuals within the valley. It will encourage farmers with advice and grants and raise community awareness of the local issues. The officer will also assist the existing otter project and propose water level management plans to improve wetland habitats.

In a parallel project to reinstate breeding barn owls to the Arun and Rother Valleys the NRA sought the assistance of the Hawk and Owl Trust and valley land owners sympathetic to the cause. Firstly, suitable breeding and feeding areas were identified.

Landowners were then approached and, in the main, proved very supportive of the project. Over fifty nest boxes were subsequently located in old farm outbuildings and trees. The next phase of the project will be to monitor the progress of the owls and their adoption of the boxes for nesting using trained and licensed volunteers from the Trust.



1995 Conservation Access and Recreation Report

NRA site information

| Region | Recreation | | Conservation | |
|----------------|------------|------------|--------------|--------|
| | In use | Future use | In Use | Future |
| ANGLIAN | 168 | 265 | 75 | 367 |
| *NORTH / YORKS | 204 | 233 | 136 | 329 |
| THAMES | 57 | 10 | 40 | 17 |
| SEVERN-TRENT | 46 | 12 | 35 | 24 |
| WELSH | 26 | 2 | 24 | 3 |
| SOUTH WESTERN | 46 | 1 | 38 | 11 |
| NORTH WEST | 19 | 12 | 24 | 7 |
| *SOUTHERN | 42 | 32 | 35 | 35 |

*Although Regions have been continually reviewing their site information the Regions marked * have undertaken a major review of their initial site information. This refinement includes meeting the definition of a site: as an area larger than 0.5 hectares or a strip of land longer than 0.5 km. A number of sites have been consolidated which had previously been counted as separate sites. This has altered the data reported from previous years.*

Types of site

| | |
|----------------|-----|
| ASSET | 166 |
| RIVER | 574 |
| STILLWATER | 100 |
| WOODLAND | 67 |
| MOORLAND/HEATH | 3 |
| GRASSLAND | 571 |
| WETLAND | 93 |
| ESTUARY | 32 |
| COAST | 31 |

** An asset is defined as a structure or building*

Land based activities

| Activity | Restricted access | Permitted access | Open access | Total |
|-----------------------------|-------------------|------------------|-------------|-------|
| BIRD WATCHING | 2 | 1 | 123 | 126 |
| CYCLING/ MOUNTAIN BIKING | | | 37 | 37 |
| HORSE RIDING | | | 22 | 22 |
| MODEL BOATING | 2 | | 2 | 4 |
| MOTOR SPORTS | | | 2 | 2 |
| ORIENTEERING | | | 1 | 1 |
| JOGGING/RUNNING | | | 46 | 46 |
| HUNTING/SHOOTING | 17 | | 2 | 19 |
| WALKING | 3 | | 446 | 449 |

Restricted Access is available for club members only or for groups organised by local authorities

Permitted Access is open to everyone but a charge is made.

Open access is free for everyone

Water based activities

| Activity | Restricted access | Permitted access | Open access | Total |
|----------------|-------------------|------------------|-------------|-------|
| BOATING | 15 | 10 | 71 | 96 |
| CANOEING | 14 | 10 | 54 | 78 |
| COARSE FISHING | 71 | 74 | 92 | 237 |
| SEA FISHING | 1 | 1 | 9 | 11 |
| GAME FISHING | 13 | 27 | 9 | 49 |
| JET SKIING | 2 | | 2 | 4 |
| SAILING | 7 | 1 | 8 | 16 |
| SUB AQUA | | 1 | 1 | 2 |
| SWIMMING | 1 | | 3 | 4 |
| WATER SKIING | 3 | | 2 | 5 |
| WINDSURFING | 5 | 1 | 4 | 10 |
| ROWING | 4 | 1 | 25 | 30 |
| RAFTING | | 1 | | 1 |

Restricted Access is available for club members only or for groups organised by local authorities

Permitted Access is open to everyone but a charge is made.

Open access is free for everyone

Note: We may or may not own the fishing rights at these sites.

Designations of Sites

| | |
|----------------------|-----|
| NATIONAL TRAIL | 44 |
| REGIONAL TRAIL | 23 |
| COUNTRY PARK | 4 |
| NATIONAL PARK | 11 |
| AONB | 30 |
| HERITAGE COAST | 2 |
| SSSI | 128 |
| SNCI | 85 |
| NNR | 7 |
| LNR | 11 |
| RSPB RESERVE | 2 |
| RAMSAR SITE | 29 |
| COUNTY TRUST RESERVE | 17 |
| SPA | 29 |
| SAM | 8 |
| LISTED BUILDING | 5 |
| SSAI | 6 |
| SIHI | 1 |

Rights of Way

| | |
|-----------------|-----|
| PUBLIC FOOTPATH | 400 |
| BRIDLEWAY | 43 |
| PERMISSIVE PATH | 116 |

Facility provision

| Facility | Number of sites | Suitable for disabled |
|--------------------------------|-----------------|-----------------------|
| FOOTPATHS | 477 | 67 |
| CAR PARKS | 71 | 14 |
| PICNIC SITE | 22 | 9 |
| INFORMATION/ VISITOR CENTRE | 8 | 4 |
| INTERPRETATION BOARDS | 45 | 22 |
| TOILETS | 40 | 12 |
| VIEWING POINTS | 15 | 7 |
| PLAY GROUNDS | 2 | |
| CYCLE TRAIL | 18 | 3 |
| CAMPSITE | 13 | 1 |
| FISHING LODGE | 1 | |
| FISHING PLATFORM | 238 | 42 |
| CLUBHOUSE | 9 | 1 |
| NATURE TRAIL | 7 | 1 |
| BIRD HIDE | 12 | 3 |
| BOAT HIRE | 2 | |
| SLIPWAYS | 18 | |
| MOORINGS | 177 | 18 |

LEAFLETS AND PUBLICATIONS

Head Office

Conservation

Conservation Technical Handbooks:

- 1 River Corridor Surveys
- 2 Landscape Assessment
- 3 Otter Handbook

River Habitats in England and Wales - River Habitat Survey report no. 1,
March 1996

1995 Conservation Directory (for NRA staff only)

A Guide to Identifying Freshwater Crayfish in Britain and Ireland

Guidance for the Control of Invasive Plants near Watercourses

Conservation Strategy

Fisheries

Fisheries Statistics 1989

Fisheries Statistics 1990

Fisheries Statistics 1991

Fisheries Statistics 1992

Fisheries Statistics 1993

Fisheries Statistics 1994

Fisheries Technical Reports:

- 1 Sea Trout in England & Wales
- 2 Sea Trout Catch Statistics
- 3 Sea Trout Literature Review
- 4 Sea Trout Gene Banks
- 5 National Anglers Survey 1994

National Rod Fishing Licences leaflet (1995 -1996)

Catch and Release - a guide to careful salmon handling leaflet

A Strategy for the Management of Salmon in England and Wales

Fisheries Strategy

Navigation

NRA Navigations leaflet

Boat Safety Scheme - technical standards

(produced with British Waterways)

NRA Emergency hotline sticker for Boaters

Oil Care for Boaters

Navigation Strategy

Navigation newsletter - River Views - April edition

Respect the River - a code for boat users

Take to the Water - Boater's starter pack (produced with British
Waterways)

Recreation

Have Fun, Have a Care - information for river canoeists
(leaflet, poster and plastic card)

Water Wisdom

Recreation Facility Design Manual (for internal use)
Recreation Strategy

Anglian Region

Fisheries

Fisheries Byelaws

Your Complete Guide to Fishing in the Anglian Region - Rivers &
Stillwaters (produced with Angling Times)

Conservation

Conservation in Anglian Region

East Anglian Salt Marshes

Rivers Environmental Database System

Coastal Wildlife Survey

Recreation and Navigation

Waterways - A code of conduct

Navigation in the Anglian Region

Navigation Notes - Advice to boat owners

Navigation - The Anglian Experience

Map - Navigation in the Anglian Region

Northumbria and Yorkshire

Conservation

Water Weed Control - take care to protect the aquatic environment

Farming and Wildlife Advisory Group / NRA River Corridor Project
Flyer

Ponds and Conservation

Conservation in the Catchment documents - Ure and Swale catchments

Floodbanks in Flower

Understanding River Erosion - from a Conservation perspective

Otters and eel netting

Fisheries

Angling Guide - Northumbria

Kielder Salmon Hatchery

Buyer Beware Poached Salmon

Keld Head Hatchery

Angling Clubs in Yorkshire

River Angling in Yorkshire

NRA Yorkshire's Catch - Fisheries magazine

Fisheries Byelaws - North East Region

Stillwater Fisheries - their creation, development and management*

Predators and pest control*

Fish and fisheries biology*

Water plants: their functional control*

Construction and desilting of stillwaters*

Fisheries habitat improvement*

Environment of fish*

* *Fisheries advisory booklet series*

Recreation

Northumbria Canoeist's Access hotline card
Hazard Warning - Rubbish in River
Barmby Barrage Amenity Site
The NRA & you - A partnership for the future
Rivercall - an information guide for river users

North West Region

Conservation

Conservation and Rivers
Bassenthwaite Lake - Home Sweet Home
Silt - and its effects on the river
When did you last see an otter in the North West?

Fisheries

Fishing Guide to NRA North West
Protecting & Improving Fisheries in the North West of England
1994 Annual Fisheries report
1995 Annual Fisheries report

Recreation

Spending a Penny on Windermere Could Cost You a Fortune!
1995 Annual report on Conservation & Recreation

Severn-Trent Region

Conservation

Provision and Maintenance of Nest and Roosting Sites on River Bridges
Operations and Protected Species
The Water Environment - Our Cultural Heritage (produced with English Heritage)
Coed Cymru - Riverside Trees
Dredging and Archaeology
River Severn Otters Project - bringing otters back to our rivers
Water Plants
Conservation Designations
Mink

Fisheries

Environment of Fish
Fish and Fisheries Biology
Monitoring and Control of Fish Stocks
Construction and Desilting of Still waters
Fisheries Habitat Improvement
Management of Specialist Stillwater Coarse Fisheries
Management of Stillwater Trout Fisheries
Trout Farming
Predator and Pest Control in Fisheries
Useful Information for Angling Clubs
Fisheries News - magazine

Recreation and Navigation

Navigation in the Severn-Trent Region
NRA Recreation Sites
Canoeist's Guide to the River Severn
River Avon Users Guide
The Severn Bore
The Trent Aegir
The Trent Angling Guide
The Soar & Wreake Angling Guide
Regional Fishing Guide 1996 - 1997
Angling Contest Waters

Southern Region

Conservation

River Darent conservation project
Ponds and Conservation - pond pack
Managing Aquatic Plants
Otters - the South East Otters and Rivers Project
Spotting the Otter
New life for Hermitage Stream
Green link

Fisheries

Fishing in the South
Freshwater Fish of the Southern Region
Buyer Beware of Poached Salmon
News Reel for Anglers (bi-annual newspaper)
Fisheries information leaflets - 19 various subjects

Recreation and Navigation

Guide to the Medway Navigation
The Medway Navigation
Boating on Sussex Rivers
Harbour of Rye
Rye Harbour Byelaws
Medway River Project
Guide to the Harbour of Rye
Sailors guide to Rye

South Western Region

Conservation

Pond Pack
Wildlife Along Rivers
Somerset Levels and Moors Water Level Management and Nature
Conservation
River Tone

Fisheries

The Guide to Angling in South West England 1995 - 1996 (published by
Westcountry Tourist Board with the NRA)

Angling Guides : Avon and Dorset, Somerset, and Bristol Avon

Buyer Beware Leaflet

Fisheries Technical reports:

- 1 The status of spring salmon stocks in Devon and Cornwall
- 2 Electric fishing monitoring - regional policy
- 3 Reporting guidelines for catchment overview surveys
- 4 The Exeter Canal coarse fishery
- 5 Biological problems associated with IFIM
- 6 Fisheries targets and their measurement on the Rivers Taw and Torridge
- 7 Review of fishery regulations on the Rivers Taw and Torridge

Recreation

The By Brook

Thames Region

Conservation

Pinkhill Meadows Nature Reserve

Invertebrate Animals of the Tidal Thames

Nature and the Freshwater River Thames

Restoring Land for Otters

Ponds and Conservation

River Ash Enhancement Project

Fisheries

Fisheries Byelaws 1978

Navigation

A User's Guide to the River Thames

Cruising on the River Thames - A Boating Guide

Thames Launch Safety Specification

Locks and Weirs on the River Thames - how do they work?

Navigation Levels of Service

Power Operation of Locks on the River Thames

Annual Navigation Newsletter

Thames Navigation Byelaws 1993

The Thames Navigation General and Licensing Byelaws 1993 -

An Introduction

The Royal River Thames

Thames Region Fact File - Navigation

Recreation

Enjoying the Waterside, Amenity & Recreation in the NRA

Thames Region

The Thames Barrier, The Eighth Wonder of the World

Three Walks from Hurley Lock

Pinkhill Meadow Nature Reserve

Abingdon Riverside Walk

The Two Rivers Walk

The Thame Valley Walk

The Beane Valley Walk
England's River - the attractions, wildlife and people
England's River - the sporting and leisure life of the River
Enjoy Oxford's Waterways
Camping beside the River Thames
A Guide to the River Thames, Lock & Weir Fishing
A Recreation Strategy for the River Thames
A Recreation Strategy for the River Thames - an overview
Thames Region Fact File - Recreation

Welsh Region

Conservation

Conservation and Recreation: The Wye Challenge
Conservation & Rivers
Tryweryn Otter Trail

Fisheries

Juvenile Salmonid Monitoring Programme Report
Rewards for Tagged Fish
Buyer Beware of Poached Salmon
Rod and Line Byelaws 1996
River Wye Angling Guide
An introduction to eel and elver fishing
Angling Guide for the Rivers Dee and Clwyd 1994 - 1995
Fishing the rivers of Wales (trout and salmon) 1996
Fisheries Technical Reports;
1 Usk Salmon - Recommendations for Action
2 Spring Salmon - A review of factors affecting the abundance and catch of spring salmon from the river Wye and elsewhere, and proposals for stock maintenance and enhancement
3 Resident Brown Trout - A management strategy, implementation and progress report
4 Welsh rivers - stocking and taking stock - proceedings of the joint NRA Welsh Region (Welsh Salmon and Trout Angling Association (WSTAA) seminar)
5 Dee Stock Assessment Annual Report 1992
6 Dee Stock Assessment Programme Report 1993

Recreation

Canoeists Guide to the River Wye
Access on the River Usk, Sennybridge to Usk (joint NRA & WCA)
River Wye Handbook
River Wye Code of Conduct
Glas-y-Dorlan magazine

On 1st April 1996 the Environment Agency took over the functions of its predecessors the National Rivers Authority, Her Majesty's Inspectorate of Pollution, Waste Regulation Authority and some parts of the Department of the Environment.

MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60



**ENVIRONMENT
AGENCY**