To create a suitable habitat for the conservation of water voles at Woodhouse Washlands, A Nature Reserve in South East Sheffield.

Woodhouse Washlands Local Nature Reserve is a flood plain on the boundary between Sheffield and Rotherham. The River Rother runs through the site, flowing north towards Rotherham town centre. The site used to flood regularly each year, until in the 1950s when the river was channelised. This involved straightening out the entire river channel and getting rid of any meanders and bends that slowed the flow of water. A large steel flood barrier was installed at the northern end of the site. Now the river rarely floods as the water moves quickly downstream. If a long period of rain is forecast then the flood barrier can be dropped into the river which creates a dam on the floodplain and helps prevent flooding in central Rotherham.

Woodhouse Washlands is owned by the Environment Agency and leased to the Yorkshire Wildlife Trust. It is managed by Sheffield Wildlife Action Partnership (SWAP) with a group of interested local people who make up the management committee. By regularly surveying the site SWAP know that water voles live in the streams and ditches on the Rotherham side of the reserve and around the ox-bow pond. Since 2002 SWAP have also been recording signs of mink and have had sightings of the animals reported by fishermen.

<u>You have the task of writing the management plan for this site for the next five years.</u> What measures would you put into the plan to help ensure water voles are still found on the site in five years time? Use the results of the research from the following worksheets to help you.

As well as managing the reserve for the benefit of water voles, you will also have to consider the needs of other species on the site, especially other BAP species and habitats such as great crested newt, harvestmice, skylarks and lapwings and the floodplain grazing marsh itself. The needs of local people and site users will also have to be considered, as will the commercial and residential areas immediately surrounding the site.

Study the old and modern day site plans for Woodhouse Washlands. Given what you know about preferred water vole habitats, what effect do you think the channelisation work at Woodhouse Washlands may have had on water vole numbers?

Use the current day site map as a base to annotate with your ideas for the future management of the reserve.

Present your plans, with maps and illustrations, to other groups.

Current Management at Woodhouse Washlands

SWAP have managed the Woodhouse Washlands site in conjunction with the Nature Reserves Committee since 1994. The management has included developing ways of retaining the water on the site. Volunteer groups made up for local residents, students on placements with SWAP, Phoenix House drug rehabilitation project, young offenders groups, local schools and wildlife watch groups have all helped with work on site. Many new small ponds and scrapes have been created across the reserve. These fill up and provide good habitat for great crested newts along with other amphibians, birds and invertebrates.

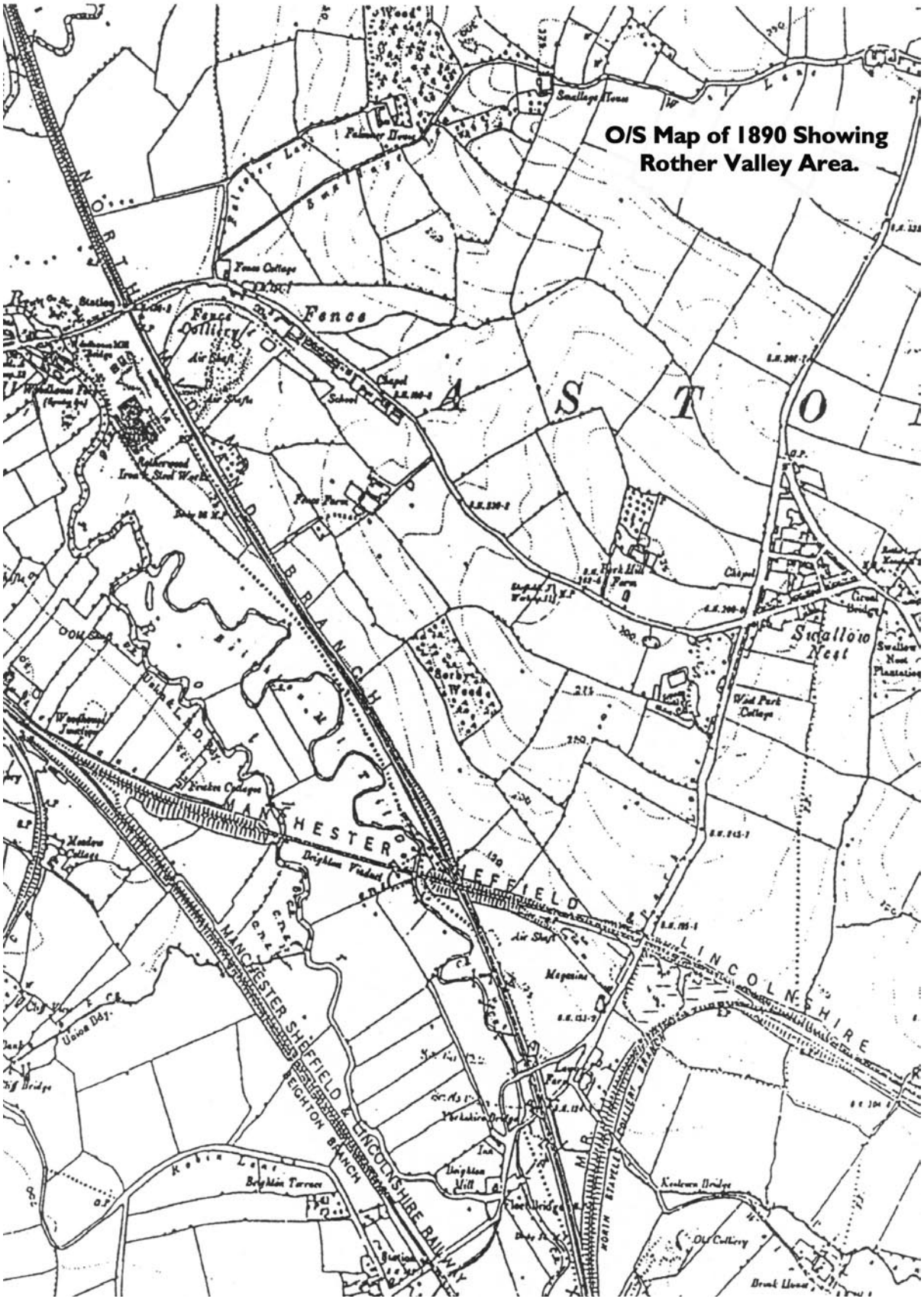
The grazing regime has been altered so that the number of animals grazing the reserve has been reduced, encouraging longer grass and wildflowers, providing an enhanced habitat for invertebrates, small mammals and birds. SWAP have planted areas of hedge around the edges of the reserve, this creates good habitat and also acts as a boundary fence for the site and a screen between the houses/ industry and the site.

As a small scale experiment across part of the site seeds from wild flower patches on the site have been collected and spread around to different areas. Some seedlings were grown on first in pots to give them a better chance of survival.

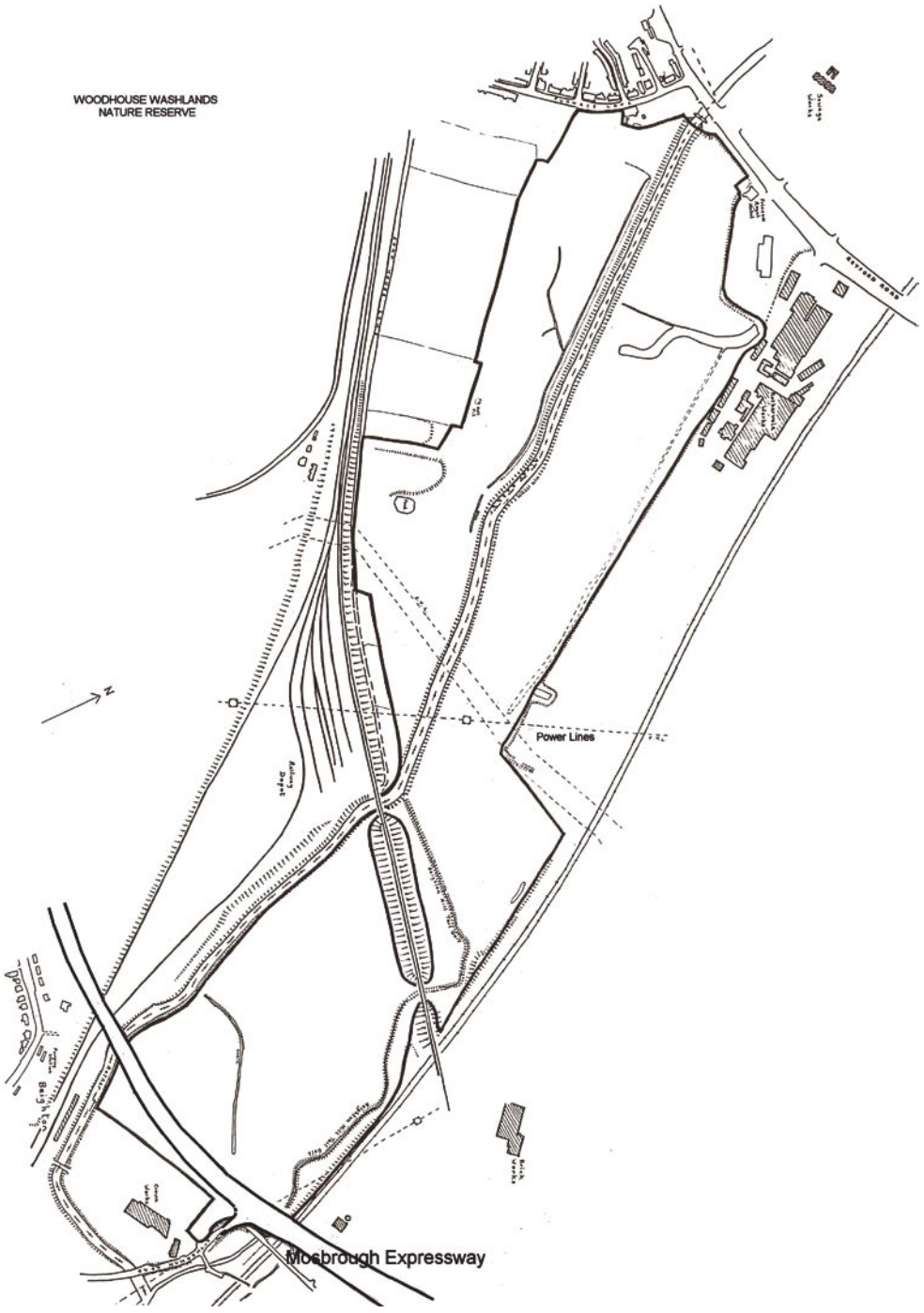
New housing development on either side of the reserve could potentially have led to massive depletion of rain water reaching the site (water falling on roofs flows in to guttering and into the main sewage system, water falling on roads flows down drains and into the main sewage systems which is then released into the main rivers, bypassing the ground water or pond water stage and increasing flash flood risks). SWAP worked closely with developers to gather the rainwater and put it back into the site through reed bed systems which naturally clean the water.

Yorkshire Wildlife Trust has a policy of trapping and killing mink if they are posing a problem on nature reserves and eating other native species. This policy has not been undertaken on Woodhouse Washlands as yet but is being considered by the Nature Reserves Committee as a plan for the future.

SWAP has a programme of public events, guided walks and talks that run throughout the year, and also work with local community groups and schools to provide free activities on the site to promote understanding and respect for the wildlife and habitats.


O/S Map of 1890 Showing
Rother Valley Area.
Fence
Fence Colliery
Fence Cottages
Fence Farm
Chapel
School
Rotherwood Iron & Steel Works
Swallow Nest
Swallow Nest Plantation
Wood Park Cottage
Park Hill Farm
Barbers Wood
Woodhouse Junction
Woodhouse Cottages
Brighton Viaduct
Brighton Terrace
Brighton Mill
Yorkshire Bridge
Kenworth Bridge
Old Colliery
Brook House
Union Day.
Air Shaft
Magazine
Tank
Tunnel
Works
Gas Works
Sheffield & Lincolnshire Railway
Manchester Sheffield & Lincolnshire Railway
Eighton Branch
Midland Railway
North Staveley Colliery Branch
Lincolnshire

Outline Plan of the Woodhouse Washlands Nature Reserve



Use this outline plan to

- Mark the old and new courses of the River Rother
- Add information from the Wildlife Trust leaflet
- Record your management proposals

Managing the Woodhouse Washlands to Conserve the Water Vole Population

Science Unit 8D; Ecological Relationships
Geography; Unit 23, Local Action/Global Effects - How are local rivers used and misused by people?
Citizenship; Unit 10, Debating a local issue.
Citizenship; Unit 21, People and the Environment

Good recommendations for habitat management may include some or all of the suggestion from the list below:

- Creating longer areas of slow flowing water and ditches, by digging out from the original ditch line.
- Creating ponds and marshy areas through digging out on the alluvial soils.
- Transferring reeds and preferred water vole feeding plants to the new wet land areas.
- Adding artificial otter holts along the banks of the River Rother to provide possible suitable habitat for returning otter. It is thought that otter discourage mink through territorial aggression. Otter are the larger animals so the mink can be pushed out of an area.
- Trapping of mink in humane traps- disposal issues. What would they do with captured animals? Shooting by a trained marksman is the cheapest option but what would local people/ animal rights campaigners think about that?

It might also be a good idea to hold public event days or school days where local people could come to find out what was happening on the reserve. They could also educate people about the differences between rats and voles to try to prevent unnecessary shootings in cases of mistaken identity. They might also want to ensure the site is protected from potential future development.

They could take their plans further and decide to install visitor centres and put up information boards. Perhaps local businesses and developments could be encouraged to sponsor work done on the reserve or contribute staff time to a project on site.

It may be interesting for pupils to consider different sides of this argument of which there are many. The pupils could be allocated a different view point to represent:

- a developer keen to build in the riparian zone
- a mink farmer
- an animal rights activist who wants to free mink
- a local hunting group keen to hunt mink with dogs
- the local wildlife trust
- local people

By working in groups and using the internet to investigate the pros and cons the students can develop a wider understanding of the issues and some of the complexities involved.

Outline Plan of the Woodhouse Washlands Nature Reserve

The groups could deliver a short presentation outlining these viewpoints, which could then lead to a class discussion.

A good question to students might be: **Are you bothered?** This is a problem at the cutting edge of conservation in Britain. Mink populations are booming at the expense of our native fauna. Increasing areas of riverside land and flood plains are being developed for housing and industrial use. How do you feel about this and what steps do you think should be taken to ameliorate the problems.

There are some very useful resources and ideas for worksheets etc. on the water vole; its adaptation and conservation, on the English Nature website: **www.englishnature.org/science/nature_for_schools/primary_6.asp**

The best place in the country to see live otters is not far from Sheffield at the Chestnut Centre, near Chapel en le Frith, just through Castleton. (Phone 01298 814099)

Students who are interested in these worksheets and would like more information could speak to SWAP (Sheffield Wildlife Action Partnership), the Environment Agency or the Wildlife Trust. There might even be potential for students to become involved with conservation issues locally through volunteering work. Groups like Volvox run practical work days on reserves throughout South Yorkshire, and SWAP run free public event days and practical volunteering days in Sheffield.

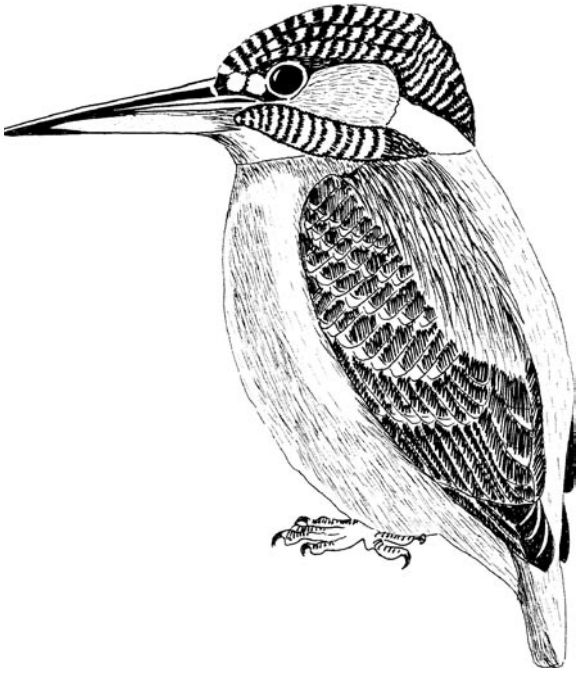
Local council Ranger services and groups like the British Trust for Conservation Volunteers also provide plenty of opportunities to join in and also give an opportunity to gain experience of working in the environmental sector.

For information on the Woodhouse Washlands site and volunteering with SWAP see **www.sheffieldwildlife.org.uk**

To organise a visit to Woodhouse Washlands or to invite a SWAP member to come into school to talk about the reserve contact SWAP

Contact Numbers:

Sheffield Wildlife Action Partnership (0114) 273 4703
Yorkshire Wildlife Trust (01904) 659570
British Trust for Conservation Volunteers (0114) 2723591



Information Sheet

The **water vole** is a rodent and is sometimes called the water rat. It has a round body a blunt face and small round ears. It weighs around 300g. Water voles are usually seen in and around water. When disturbed on the bank they jump into the water with a characteristic 'plop'. Water voles are herbivores, feeding throughout the day on waterside plants. The water vole's tail is furry and about half the length of its body.

The water vole is most frequently mistaken for the **brown rat** that also inhabits waterside vegetation and is a strong swimmer. Rats are generally larger, weighing around 500g (300g for a water vole). They have a pointed face, larger, more obvious ears and bigger eyes. The rat's tail looks scaly and is much longer, about the length of its body.

Much larger mammals that also live along English rivers are the American mink and the otter. The **otter** is still very rare but beginning to return to Yorkshire, so it would not be impossible to pick up signs of an otter on our local riverbanks. Otters eat fish and insects, which they catch by diving into the river. They are very secretive, hunting mainly at night.

The **mink** is a predator of water voles, contributing to their decline. Mink were introduced to Britain in the 1920s from North America. They were bred for their fur but many escaped from the fur farms and they now breed in the wild. Mink are strong swimmers and a female mink with young can kill all the voles in her territory within a year.

Recently water voles have undergone a huge decline in the UK, possibly by up to 90%. A number of reasons have been identified - loss of habitat, pollution, poisoning and an increase in population of the American mink. There is a great need for water vole surveys and research and by undertaking a survey on a local river/ stream/ ditch/ pond/ canal you can contribute to water vole conservation.

Information Sheet

The Water vole

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Survey

Recently water voles have undergone a huge decline in the UK, possibly by up to 90%. A number of reasons have been identified - loss of habitat,, pollution, poisoning and an increase in population of the American mink, a vicious predator. There is a great need for water vole survey and research and by undertaking a survey on a local river/ stream/ ditch/ pond/ canal you can contribute to water vole conservation.

Health and safety

Do not carry out the survey in flood conditions or in heavy rain. It is not necessary to only survey rivers as water voles can be found in ditches, ponds, streams and canals. Avoid deep water, strong currents and steep banks. Many signs of water voles will be washed away after heavy rain or floods and although they don't hibernate, they are not very active in winter, so surveys are best carried out between March and October.

Leptospirosis (weils disease) is a dangerous disease which can be caught by contact with water which contains rat or water vole urine. Ensure pupils do not touch droppings or water, wet vegetation etc. Make sure hands are washed after survey and before eating, drinking or smoking. Advise pupils to consult a doctor if flu- like symptoms occur up to 3 weeks after possible exposure to infected water. Reference cards can be obtained free from the Health and safety executive –

Contact: HSE Books, PO Box 1999, Sudbury, Suffolk C0106FS
Tel: 0787881165 Fax: 0787313995

Other Water mammals

The water vole is most frequently mistaken for the brown rat which also inhabits waterside vegetation and is a strong swimmer.

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The water vole's tail is furry and about half the length of its body. The rats tail looks scaly and is much longer, about the whole length of its body.

Much larger mammals are the American mink and the otter. The otter is still very rare but beginning to return to Yorkshire, so it would not be impossible to pick up signs of an otter.

As the mink is a predator of water voles, contributing to their decline, it is important to record any sightings or signs of mink.

Water Vole (Arvicola terrestris) Legal Status

All animals, plants, invertebrates, birds and habitats that are threatened locally have, under legislation introduced in 1992 following the Earth Summit in Rio, to be included on a list held by local authorities and reports made into their status and efforts to conserve the species. These lists are known as Biological Action Plans; BAPs for short. The water vole is such a species.

Since April 1998 the water vole has been legally protected through its inclusion in the 1981 Wildlife and Countryside Act. However the protection is limited and does not protect the water vole itself, but its habitat. It is therefore an offence to intentionally.'

- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection
- Disturb water voles while they are using such a place
- Because the position of the water vole has become increasingly precarious it has been afforded full protection under the Act from January 2005.

Development on areas used by water voles is allowed, but developers must ensure all reasonable steps are taken to minimise damage to water vole burrows. It is recommended that a water vole survey is carried out before planning any work to ensure mitigation is included in proposals. Mitigation means taking appropriate measures that can be implemented to avoid, reduce or remedy adverse effects as follows-

- Planning the development to avoid water vole habitats - water voles live in rivers, ditches, ponds and nearby vegetation. Leaving these areas undeveloped conserves the voles habitat and provides wildlife corridors for other species.
- Excluding water voles from the development area - carefully removing vegetation from the area to be developed causes water voles to move to other areas.
- Removing the water voles - water voles can be caught in traps and released at appropriate sites.
- Restoring / enhancing habitat - to encourage the return of water voles and other wildlife.

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- Removing the water voles. Water voles can be caught in traps and released at appropriate sites.
- Restoring / enhancing habitats to encourage the return of water voles and other wildlife.

Discussions

Discuss whether or not pupils feel water voles should be protected. Set a scenario of a proposed development (i.e. a new supermarket) on a site which has water voles and discuss the need for a supermarket which will make shopping easier for people and the impact on wildlife. Is there a way in which developers and wildlife both win?

What about the mink? A non native mammal which eats water vole and other mammals and birds. Mink originally escaped from fur farms and more recently were liberated from farms in large numbers by animal rights activists. Should mink be controlled and if so how?

Web Based Research

The well-being of water voles, mink and otter are interrelated. The number of water voles has declined dramatically in the last few years. It is thought that this has something to do with the spread of mink that have been released or escaped into the wild from fur farms. At the same time the number of otters, which had been driven from most of their former territory by pollution and disturbance, seems to be on the increase again. All this has had great implications in terms of the way that the shared habitat of these mammals is managed.

You are going to research the needs and pressures on these creatures so that you can plan for measures that would ensure that the water vole population in Sheffield is protected. Read all the information carefully before beginning.

1.Use the following websites to investigate <u>water voles</u> and make notes on the following-

www.wildlifetrust.org.uk/berksbucksoxon/actionforspecies/watervoles
www.southeastwater.co.uk/library_pdfs/Otters_&_Water_Voles.pdf
www.wildlifetrust.org.uk/sheffield/biodiversity/species/facts/watervole
www.ukbap.org.uk

- What are water voles?
- Which classic childrens story book had a water vole as one of the main characters? What is confusing about this character's name?
- How is the water vole adapted to its environment?
- What makes ideal water vole habitat?
- How could you detect the presence of water voles?
- Water voles have been declining in numbers throughout England since the beginning of the twentieth century. What are the main factors contributing to this decline?
- What measures are already in place to protect water voles?
- How could water vole habitats be better protected?
- How could species that predate water voles be controlled?
- Water voles are now a BAP species. What are BAP's and how does this help water voles?

Web Based Research

2. Use the following web sites to collect information on <u>mink</u> and make notes, using the following questions-

www.furcommission.com
www.peta.org/factsheet/files/FactsheetDisplay.asp?ID=56
http://news.bbc.co.uk/1/hi/uk/422632.stm
http://www.league.uk.com/cruel_sports/british_wildlife/mink/mink.htm
http://www.huntinginquiry.gov.uk/evidence2/wealden.ht
http://www.huntinginquiry.gov.uk/evidence2/twt2.htm

- What are the characteristics of mink?
- What habitats do they choose to live in?
- Mink are a non-native species, why were they brought to England?
- What happened to the mink that has allowed them to become wild?
- What are your opinions on the fur trade?
- How do you feel about mink being released into the wild?
- What problems are mink causing in the wild?
- What makes the water vole population so vulnerable to predation by mink?

3. Use the following web sites to find out about <u>otters</u> and make notes to answer the following questions about otters

www.wwf.org.uk/core/wildlife
www.mammal.org.uk/otter.htm

- What sort of habitats do otters prefer?
- What are the characteristics of otters which adapt them to their environment?
- What signs could show the presence of otters?
- Otters have under gone a massive decline in population in the past. What may have been the cause of this?

Web Based Research

Otters are spreading back to areas in which they were once frequently discovered.

- Why are they able to do this?
- What effects might this have on mink and water vole populations?

4. Now look carefully at this picture of a brown rat with which the water vole is frequently confused.

Compare its features with the water vole.

List some of the differences and similarities.