REDROW

BAE SYSTEMS

ROYAL ORDNANCE, BISHOPTON




REMEDIATION AND RECLAMATION EARTHWORKS

ENVIRONMENTAL STATEMENT

APPENDIX 14.3

WATER VOLE, MINK, OTTER, BADGER, AMPHIBIANS AND REPTILES, BATS AND PLANT SPECIES SURVEY

October 2006

ROYAL ORDNANCE

BISHOPTON

Surveyed for water vole, mink, otter, badger, amphibians and reptiles, bats and plant species.

Surveyed September/October 2002

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BISHOPTON SITE REPORT

1.1 Introduction

Following an induction day on Thursday 5th September, which included an escorted tour and overview of the site, survey work began on Monday 9th September. A further three full survey days (18th, 19th and the 25th) were spent at the site during September, with a full day on Tuesday 8th October and two evenings (two hours each evening), the 7th and 8th October, for bat survey work. The main emphasis for the time spent at the site was on survey work for water vole, mink and otter, amphibians and badger, with additional time being time being spent on bat and vegetation survey work.

The principal account of that work was added to a map held at the site, during the course of the surveys. The map was produced by BAE, on site. The following information is a written account of the recorded data.

1.2 SURVEY FOR WATER VOLE (*Arvicola terrestris*)

The purpose behind the survey, was twofold:

1. to determine where voles were present within the site

   and

2. to estimate the actual population(s), at that time

As the survey was carried out relatively late in the breeding season, it is probable that the number of water voles may be reflective of the population at the peak of their number. Signs had already been noted at locations on the Dargavel Burn, from survey work carried out during the 4th – 8th September 2002. Anecdotal information from staff within the site had also identified a possible sighting on the Craigend Burn, to the east of the site. However, further work was required to fully cover all of the watercourses and additional water bodies within the site and to establish colony numbers and clan or family territories.

1.2.1 Methodology

A standard approach was adopted for the survey method, which followed principles or guidelines, outlined in the Water Vole Conservation Handbook (WVCH) [1]. This involved following the watercourses and noting signs of water vole activity. Signs include:

latrine sites – water voles use their droppings to indicate territorial activity, by revisiting the same site, over and over, and by scenting the accumulating mass of droppings with scent from glands on their flanks.

NOTE: A special emphasis was placed on locating latrine sites. Latrine sites are the most useful sign, for recording purposes. Not only do they indicate, whether there is a definite presence of water voles at a site, they are also used for determining the number of animals, within the colony.

holes/burrows – water voles create a system of tunnels, which may or may not interlink but can be extensive where a clan or family territory is held.

feeding signs – evidence of water vole activity can be determined from feeding signs, particularly from feeding stations, a place where they gather food together for feeding purposes.

tracks – tracks can be useful, if clear.

runs – as they move through the vegetation, the voles create, wide, open, passageways or runs, which due to their size, can be distinctive from other small mammals runs.

1.3 DESCRIPTION OF WATERCOURSES AND ADDITIONAL BODIES OF WATER

1.3.1 Dargavel Burn

Dargavel Burn forms the major watercourse at the site, flowing in a northwest to southeast direction. The burn is fed by a series of internal ditches, which provide drainage and runoff at the site. Although the burn is a natural feature, it has been canalised for much of its length and has, in the past been cleared, in sections, on a regular basis (straightening of the burn, principally up to Dargavel House, appears to have been carried out previous to the site becoming a Royal Ordnance Factory, at the beginning of the 1900's). The banks can be vertical, with little shelving and where deep, have little in the way of natural platforms, along the water's edge.

Following the course of the burn, from where it enters, through the northwest boundary fence, the burn tended to be shallow and tree-lined, with alder (*Alnus glutinosa*) and willows (*Salix* spp). This has resulted in poorly vegetated banks along the edge of the burn, under the shaded conditions. This part of the burn was fairly easy to negotiate, which meant that the edges and the banks could be surveyed comfortably. Approximately halfway along the course of the burn, the trees begin to become more spread out, providing more opportunity for a dense cover along the banks. However, the diversity of plant cover was poorly represented, being principally monopolised by stinging nettle (*Urtica dioica*). The depth of the burn also begins to change, becoming deeper, with a substrate, built-up of silt. This part of the burn was much more difficult to survey in detail, due to the problem of safety within the burn and the dense cover of nettles and other vegetation. Checks were made all the way along the burn, at regular intervals or where opportunity allowed easy access. The tall vegetation away from the banks (nettles and reed canary grass (*Phalaris arundinacea*)) was also surveyed to determine whether any small mammals were foraging away from the water's edge. The only foraging signs (feeding and latrines) located, were of field voles (*Microtus agrestis*).

Dargavel Burn is also fed by a series of ditches, which provide a watercourse corridor network across the site. Most ditches were overgrown with vegetation, with little open water and were in the main shallow. The sides and base of most ditches were concrete or stone lined, which has obvious implications for any burrowing animal.

No evidence of water vole activity was noted along the burn during the course of the survey. However, separate survey work to the south and north of the burn, located signs of activity.

1.3.2 Craigton Burn

Craigton Burn, flows from the east, under the main railway line, which runs along the eastern edge of the Bishopton site. The burn flows between the three Dargavel Ponds, then courses south to meet with Dargavel Burn, approximately midway through the site. Again the burn has been canalised in the past to ensure a quick passage of water. This has resulted in straight edges with steep(ish) banks. However, Craigton Burn had possibly the most potential as a water vole habitat at the site, with a range of suitable conditions. The banks had a diverse cover of vegetation, which provided both the opportunity for foraging and the necessary conditions for cover from predators. This was followed up with good floating, emergent and marginal plant cover within the burn, with adequate open water, water depth and suitable banks for burrowing. Species recorded along the burn included, reed canary grass, floating

sweet grass (*Glyceria fluitans*), branched bur-reed (*Sparganium erectum*), water forget-me-not (*Myosotis scorpioides*), rushes (*Juncus* spp), water star-wort's (*Callitriche stagnalis* and *C. hamulata*) and Canadian pondweed (*Elodea canadensis*).

Feeding signs (principally gnawed vegetation), which appear to fit with water vole, were located on the left bank (following the direction of flow) of Craigton Burn, east of the three ponds. No other signs were noted.

1.3.3 Dargavel Ponds

The three Dargavel ponds form substantial bodies of water at the site. The ponds originate from former brick works and have stocked and used as fishing ponds by staff on the site, in the past.

The three ponds are dissected by, Craigton Burn. Following the flow of Craigton Burn towards Dargavel Burn, Pond 1 lies to the left of the burn, with Ponds 2 (lower) and 3 (upper) to the right.

1.3.3.1 Pond 1

Surrounded by willows and occasional ash (*Fraxinus excelsior*), birch (*Betula* spp) and alder (*Alnus glutinosa*). Reed canary grass was noted around the open margins, with branched bur-reed and common spike-rush (*Eleocharis palustris*). A young moorhen was noted at the margins of the pond. Feeding signs and droppings of field vole were recorded, up to the pond edge.

1.3.3.2 Pond 2

More open surrounds. Occasional crack willow (*Salix fragilis*), ash and hawthorn (*Crataegus monogyna*) around the margins. Reed canary grass, common spike-rush and water horsetail (*Equisetum fluviatile*) were recorded by the pond edge.

Juvenile toads (*Bufo bufo*) were noted by the edge of the pond.

1.3.3.3 Pond 3

Pond 3 had more trees around the margins than 1 or 2. Several mature, fine, white willow (*Salix alba*) trees, crack willow and other willow species (*Salix* sp(p)). The edges of the pond were less colonised by reed canary grass and common spike-rush.

The margins of all three ponds are generally, poorly vegetated. This would appear to be related to the nature of the water's edge. Staff at the site spoke of the ponds getting deep quickly, which would mean that there was little opportunity for emergent and marginal vegetation to colonise. This also means that there is little cover out from the edge and possibly a restricted opportunity for water vole. The three ponds were walked in full and where possible, the edges were checked for signs of water vole.

No signs of water vole activity were noted around the margins of the three ponds.

1.3.4 Ditch Network

The ditches, which are spread throughout the site were followed where and when possible. Although some of the ditches had parts, which were suitable for water vole, they were nevertheless, few and far between. The ditches tended to be overgrown and shallow, allowing vegetation to colonise and dominate. Although the ditches could be used by water voles as corridors, providing a linked network, they, in the main, do not provide the conditions necessary for a population of water voles.

No evidence of water vole activity was noted along any of the ditches, at the site.

1.4 SURVEY FOR MINK AND OTTER

1.4.1 Mink (*Mustela vison*)

Loss of habitat and the fragmentation of habitat are regarded as two of the major problems leading to the massive reduction in water vole numbers. Alongside those problems is the issue of mink predation. A range of predators feed off the water vole population – heron, owls, stoats, weasels, fox, to name a few. However, since the release and escape of American mink into the ecosystem, there has been a close correlation of water vole decline. Female mink, in particular, are well suited to enter into the water vole burrow system, to devastating effect. During the course of the surveys, evidence of mink (tracks and scats/droppings), was recorded on a regular basis, along and around, the watercourses and ponds. It is apparent that mink are well established at the site, which can only mean that any water vole population existing at the site is under enormous pressure of local extinction.

Mink signs were located along Dargavel Burn, Craigton Burn and around the Dargavel Ponds, the main areas with potential for a water vole population, considering the ditches are generally unsuitable. There were also found in areas where water vole signs were previously noted, which may mean that the situation is extremely serious.

1.4.2 Otter (*Lutra lutra*)

Before the survey began there was a reported sighting of an otter close to Dargavel Ponds. During the course of the survey, tracks were noted below a bridge crossing Craigton Burn, close to the ponds and otter slides were noted on the banks of the ditch between the ponds. Further to this, two otters were noted swimming in Pond 3, on Thursday 19th September.

It is believed that when otters move into a territory occupied by mink, that they will displace, the mink. Signs of mink were noted by the ponds during the survey but it may be that they will be forced out into the ditch and burn network away from the fish rich, pond habitats. This, again, would have serious consequences for any existing water vole population, at the site.

1.5 SURVEY FOR BADGER (*Meles meles*)

As with all other information on protected or scheduled species, the information on badgers was passed directly on to staff at the BAE Bishopton site, which was then added to the main map of the site.

The main focus of effort was placed on surveying for signs of badger. Signs included, setts, latrines, paths, tracks and hairs. Evidence of badger activity was located at a number of areas across the site with a major amount of activity to the south of the site. This ties in with some historical information of badger presence, with several setts already noted in that area.

As signs have been located to the south, north, east and west, of the site, it would appear that the badger population could be substantial. Therefore, a more comprehensive survey of the distribution of the population and the community dynamics would be required.

1.6 SURVEY FOR AMPHIBIANS (and Reptiles)

The survey for amphibians and reptiles should not be considered to be a comprehensive survey, as none of the standard methodologies were employed (trapping, torching, netting, tinning). The time of the year when the surveys were being carried out was not the most useful time for those sampling methods. A further

problem, understandably, was the issue of individual and group safety. The site has a range of inherent safety issues, which make it extremely difficult to carry out searches without breaking site rules and regulations. As a consequence of those issues it was necessary to keep searches as simple as possible. The emphasis was placed on refuge searches, where appropriate and where it was considered safe. The principle aim behind this approach is to seek out possible wintering sites for herpetofauna (as a broad grouping) but in particular, for amphibians.

A single frog (*Rana temporaria*) was noted to the south of the site, close to the Dargavel Burn (west of site area FA29 – see site map for coded areas).

Young toads were noted around the area of the Dargavel Ponds.

A mature toad, which appeared to be preparing for winter, in a roadside bank (north of the burning grounds FA40).

Toad tadpoles were recorded at the edges of a large retaining pool (by FA19).

A dead toad was noted on the track by the, Picrite Lagoons.

Reports of newts at the site were investigated but no newts could be located. It is highly probable that newts will be found at the site after more survey work.

No reptiles were found at the site and no reports, were put forward by staff, at the site.

1.7 SURVEY FOR BATS

Bat surveys were carried out on the 7th and 8th October 2002. A separate bat survey report will detail the account of the surveys, with the species and number recorded.

1.8 VEGETATION SURVEY

Most of the land within the area appears to have been disturbed at various times over the sites history. A historical map (supplied internally at the site – date not known) shows large parts of the site to have been used in an agricultural sense, with estate woodland, hedgerows and possibly some small natural copses (excluding the large tracts of moss – Barochan and Fulwood). Many parts of the site, at present, would appear to be of made-up or disturbed ground, rather than original or natural ground. This has principally came about from the development of the site, over time. Some of the areas previously changed have now been left for some considerable time and are beginning to develop a more interesting structure. The principal habitats at the site are made up of grassland and woodland.

1.8.1 Grassland

At the outer edges of the site some of the grassland remains original and therefore, stands out from the previously highly maintained and now, rank and rough grassland that makes up the vast majority of that habitat.

1.8.2 Woodland

Woodland at the site also tends to be of plantation origins, some long established and some relatively recent.

1.8.3 Specific Plant Information

Although no direct surveys for vegetation were carried out during the full survey period (this was being carried out by other ecologists), some information was gathered on plants, at the site.

Reed canary grass (*Phalaris arundinacea*) was a dominant grass in many areas around the watercourses and by the ponds. Stinging nettles (*Urtica dioica*) could also be dominant along the edges of the burns, ditches and ponds. Meadowsweet (*Filipendula ulmaria*) occurred less frequently but could be locally abundant.

The large areas of rank grassland, which covered the site, tended to be dominated by tufted hair-grass (*Deschampsia cespitosa*), false-oat grass (*Arrhentherum elatius*) and Yorkshire fog (*Holcus lannatus*). Creeping soft grass (*Holcus mollis*), sweet vernal grass (*Anthoxanthum odoratum*), cock's-foot (*Dactylis glomerata*), fescues (*Festuca* spp), bent grasses (*Agrostis* spp) and meadow grasses (*Poa* spp), were all recorded across the site.

A large stand of common reed (*Phragmites australis*) was noted to the south of the site, along the edge of Dargavel Burn.

The ditch, which runs into Dargavel Burn, from the west, alongside the sewage treatment works (west of FA36), had a stand of reedmace (*Typha latifolia*), which had a number of feeding remains from field voles around the base of the plants.

Skunk cabbage (*Lysichiton americanus*), located to the west of the site, on the Dargavel Burn, at FA43 and on the burn to the north of the burning grounds (FA40).

Some additional plant species recorded during the survey:

Common Name	**Scientific Name**	**Location**
Trees and shrubs:		
Sycamore	*Acer pseudoplatanus*	across the site
Alder	Alnus glutinosa	many areas
Birch sp(p)	*Betula* sp(p)	across the site
Hornbeam	*Carpinus betulus*	Dargavel House
Hawthorn	*Crataegus monogyna*	across the site
Beech	*Fagus sylvatica*	many areas
Ash	*Fraxinus excelsior*	across the site
Larch sp(p)	*Larix* sp(p)	plantations
Norway spruce	*Picea abies*	plantations
Sitka spruce	*Picea sitchensis*	plantations
Scots pine	*Pinus sylvestris*	plantations/scattered
Oak sp(p)	*Quercus* sp(p)	several locations
White willow	*Salix alba*	by ponds
Goat willow	*Salix caprea*	across the site
Grey willow	*Salix cinerea*	across the site
Crack willow	*Salix fragilis*	ponds and burns
Elder	*Sambucus nigra*	across the site
Rowan	*Sorbus aucuparia*	west of site
Yew	*Taxus baccata*	Dargavel House +
Irish Yew	*Taxus baccata* 'Fastigiata'	Dargavel House
Common lime	*Tilia x vulgaris*	some avenues
Herbs:		
Yarrow	*Achillea millefolium*	
Sneezewort	*Achillea ptarmica*	Ditch west of FA14
Water plantain	*Alsima-plantago aquatica*	Craigton Burn
Angelica	*Angelica sylvestris*	
Knapweed	*Centaurea nigra*	
Common centaury	*Centaurium erythraea*	east of ponds

Creeping thistle	*Cirsium arvense*	
Vipers bugloss	*Echium vulgare*	west of site
Great willowherb	*Epilobium hirsutum*	ditch by sewage works
Wild strawberry	*Fragaria vesca*	
Marsh bedstraw	*Galium palustre*	Ditch west of FA14
Orange hawkweed	*Hieracium aurantiacum*	
Tutsan	*Hypericum androsaemum*	east of ponds by ditch
Cat's-ear	*Hypochaeris radicata*	
Meadow vetchling	*Lathyrus pratensis*	
Common duckweed	*Lemna minor*	
Ox-eye daisy	*Leucanthemum vulgare*	
Pale toadflax	*Linaria repens*	several locations
Common bird's-foot trefoil	*Lotus corniculatus*	
Greater bird's-foot trefoil	*Lotus pedunculatus*	
Water mint	*Mentha aquatica*	
Monkey flower	*Mimulus guttatus*	
Water forget-me-not	*Myosotis scorpioides*	
Silverweed	*Potentilla anserine*	
Creeping tormentil	*Potentilla reptans*	many areas
Barren strawberry	*Potentilla sterilis*	
Japanese knotweed	*Reynoutria japonica*	central to ponds
Bittersweet	*Solanum dulcamara*	ditch by sewage works
Common comphrey	*Symphytum officinale*	across the site
Lesser yellow trefoil	*Trifolium dubium*	
Reedmace	*Typha latifolia*	
Valerian	*Valeriana officinalis*	
Brooklime	*Veronica beccabunga*	Ditch west of FA14
Grasses, Sedges, Rushes, Ferns & Horsetails:		
Lady fern	*Athyrium filix-femina*	
Oval sedge	*Carex ovalis*	
Wavy hair grass	*Deschampsia flexuosa*	
Broad buckler fern	*Dryopteris dilitata*	
Male fern	*Dryopteris filix-mas*	
Field horsetail	*Equisetum arvense*	
Water horsetail	*Equisetum fluviatile*	
Wood horsetail	*Equisetum sylvaticum*	
Sharp-flowered rush	*Juncus acutiflorus*	
Jointed rush	*Juncus articulatus*	
Toad rush	*Juncus bufonius*	
Soft rush	*Juncus effusus*	
Hart's-tongue	*Phyllitis scolopendrium*	
Common polypody	*Polypodium vulgare*	
Bracken	*Pteridium aquilinium*	
Bryophytes:		
	Fontinalis antipyretica	
	Mnium hornum	
	Plagiomnium undulatum	
	Pleurozium schreberi	
	Polytrichum commune	
	Polytrichum formosum	
	Rhytidiadelphus squarrosus	

1.9 INCIDENTAL RECORDS

Across the site various species were recorded, which could be incorporated into site records.

1.9.1 Mammals:

Roe deer (*Capreolus capreolus*) were recorded across the site during the course of the survey. A number of young deer were noted, with what appeared to be two sets of twins.

Fox (*Vulpes vulpes*) – several foxes were seen across the site during the course of the survey and at least three, individual foxes, were recognised.

Hedgehog (*Erinaceus europaeus*) – the skin of a hedgehog was located to the east of area FA15. It is probable that a badger or a fox had killed the animal. However, it is believed that where badgers occupy an area that you are unlikely to find many hedgehogs. Could it have been brought into the site ?

Field vole (*Microtus agrestis*) feeding signs and latrines were recorded across the site but were particularly noted by the watercourses, due to the emphasis of the survey work in those areas.

Rabbit (*Oryctolagus cuniculus*) – noted at a number of locations around the site. At east two rabbits were noted to have, what was believed to be, Myxomatosis.

1.9.2 Birds:

Dipper (*Cinclus cinclus*) (1) – recorded west of the site, where the Dargavel Burn enters the site.

Sparrowhawk (*Accipiter nisus*) (1) – near the Cathedral (known site description).

Great spotted woodpecker (GSW) (*Dendrocopos major*) (1) – north of FA40 by, Dargavel Burn.

GSW (1) – area FA29.

GSW (1) – east of area FA44.

Moorhen (*Gallinula chloropus*) (1 adult + 1 young bird) – Pond 1.

Mallard (*Anas platyrhynchos*) (3) – Pond 2.

Tufted duck (*Aythya fuligula*) – on Dargavel Ponds.

Mute Swans (*Cygnus olor*) (2) – Pond 3.

Kestrel (*Falco tinnunculus*) – recorded foraging over the site.

Buzzard (*Buteo buteo*) – recorded most days over the site.

Jackdaw (*Corvus monedula*) – large numbers of corvids (jackdaws, rooks, carrion crows) gather to roost within the site or close by. Jackdaws recorded within the Cathedral.

Jay (*Garrulus glandarius*) – recorded to the north of FA40.

Magpie (*Pica pica*) – recorded across the site.

Woodpigeon (*Columba palumbus*) – recorded across the site.

Wren (*Troglodytes troglodytes*) – recorded over the site.

Songthrush (*Turdus philomelos*) – recorded to the north and west of the site, near FA 42.

Bullfinch (*Pyrrhula pyrrhula*) (5) – recorded by the ponds.

Goldfinch (*Carduelis carduelis*) – recorded to west of site near Reilly Road. across the site.

Grey wagtail (*Motacilla cinerea*) (1) – recorded north of FA36, near sewage treatment works.

Barn owl (*Tyto alba*) – a mummified body of a barn owl was found by staff, within a building, at the site, stuck inside some ducting – to the west of area FA24. A roost site was located in a building within the FA40 area – see site map.

Great tit (*Parus major*), blue tit (*Parus caeruleus*), long-tailed tit (*Aegithalos caudatus*), coal tit (*Parus ater*), chaffinch (*Fringilla coelebs*) were recorded across the site, in small, to large groups.

1.9.3 Insects:

Water boatman (*Notonecta* sp(p)) – in large retaining ponds (?), west of FA14.

Pondskater (*Gerris lacustris*) – west of FA14.

Common darter dragonfly (*Sympetrum striolatum*) – noted to the south and north of the site.

Black darter dragonfly (*Sympetrum danae*) – noted to the west of the site.

Carder bumblebee (*Bombus pascuorum*) – nest disturbed (accidentally), to the east of the ponds, at the edge of a ditch and woodland.

1.9.4 Fish:

Trout (Salmo trutta) – in Dargavel Burn, north of site.

Stickleback (*Gasterosteus aculeatus*) – Dargavel Burn, north of site. Also in Craigton Burn, between Dargavel Ponds and in the burn, close to the main railway line.

1.10 MITIGATION

Further survey work is required on badgers and bats, at the site, which means they would need to be considered at a future date. Additional survey work on amphibians and reptiles may also be required, before mitigation measures (if required) could be considered. Vegetation is being considered elsewhere, for the site as a whole. However, one of the main issues, in relation to the vegetational components at the site, is the potential for dramatic change to the landscape, due the need to ensure a safe environment. This could lead to large areas of the site being cleared of the presently established vegetation. More understanding of requirements for site preparation would be required before many decisions could be made towards the potential outcomes for many species, both plant and animal.

The main focus for mitigation measures considered, at this time, is in relation to the watercourses and bodies of water at the site, which have a direct bearing on the population of water voles.

The site has been actively managed during its period of operation. This has resulted in attention being placed on the ditches and burns, which provide the necessary transport corridors, to ensure adequate passage of water through the network. To that end, the ditches and burns have been cleaned out on a regular basis. This would have had a direct impact on any mammals using the system and in particular, those mammals using the banks as home ranges. It would also appear from the conditions along the banks of the burns that the cleaning out of the silt and debris has resulted in an enrichment of the conditions, benefiting species, such as stinging nettle. This has ultimately led to a smaller number of species dominating in areas and a reduction in the diversity of plants along those banks, generally.

From the survey carried out, the two burns (Dargavel and Craigton) would appear to have provided the best habitats for water voles, at the site. They would also have provided links to the periphery of the site and potentially to other water systems nearby. In practical mitigation terms it is clear that those two burns should provide the focus of any efforts to create more diverse and suitable habitats for water voles and more interesting riparian conditions, at the site.

Consideration should be given to remodelling the Dargavel and Craigton Burns to provide suitable conditions. These include, shelving of banks to allow for more natural latrine sites, a necessary requirement for the demarcation of territories. Shelving would also allow a structural layering of vegetation up the sides of the banks, providing for both cover and feeding areas. A greater diversity of plant species along the burns would provide for a more balanced food supply (seasonally based) and a more aesthetically interesting feature.

One of the major, and potentially more immediate problems, for water voles at the site, is the colonisation by mink. Activity of mink at the site may be growing, as a result of the site running down, in terms of general activity. If this is true, it is possible that the water vole population could be seriously affected. The fact that otters are also presently using the site has good implications for any water vole population. Although they would predate water vole, if the opportunity arose, they are also known to displace mink.

Management of this particular problem is a major issue at this time throughout the United Kingdom. There is no easy answer to the problem and it may be that it is impractical to deal with the issue at the site. The main consideration should be placed on providing the suitable conditions for water voles to expand their range and hopefully, to by implication, to increase their number.

1.11 References

Clapham, A. R., Tutin, T. G., and Warburg, E. G. Flora of the British Isles, 1959: 3rd Edn., 1981

[1] English Nature, Environment Agency & Wildlife Conservation Research Unit (WCRU). (1998). Water Vole Conservation Handbook. WCRU, Oxford.