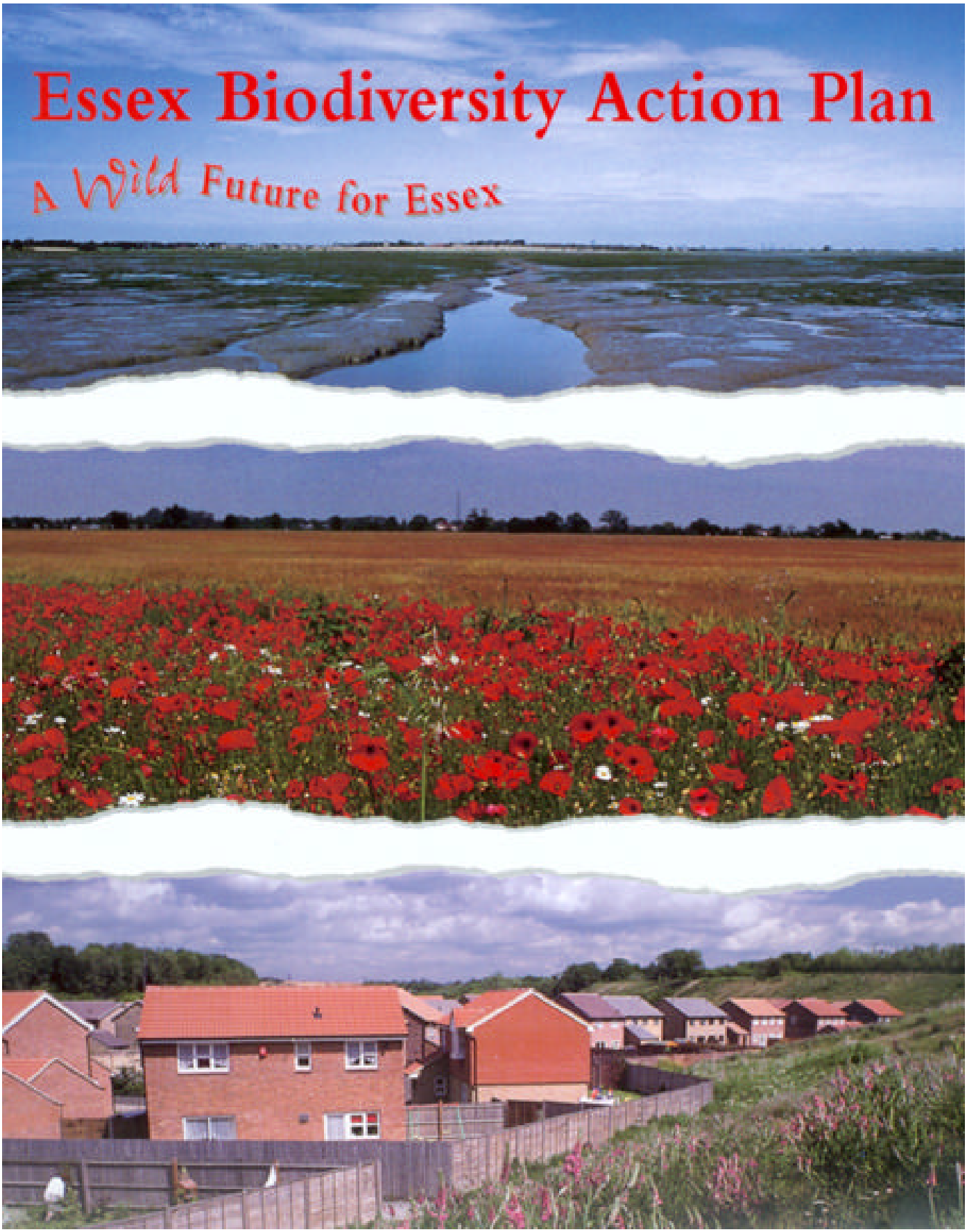
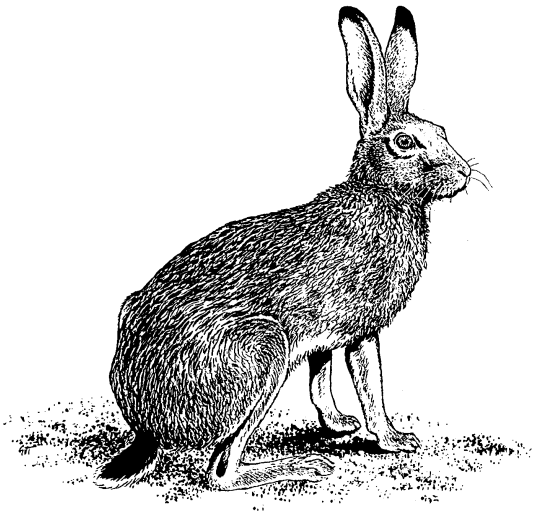
Essex Biodiversity Action Plan

A Wild Future for Essex



BROWN HARE (*Lepus europaeus*)



National Lead Partners: Mammal Society, TGCT
County Lead Partners: EWT, FWAG (01206 729678 & 01245 420705)
Associated plans: Cereal field margins, grey partridge, skylark

1. CURRENT STATUS IN THE UK

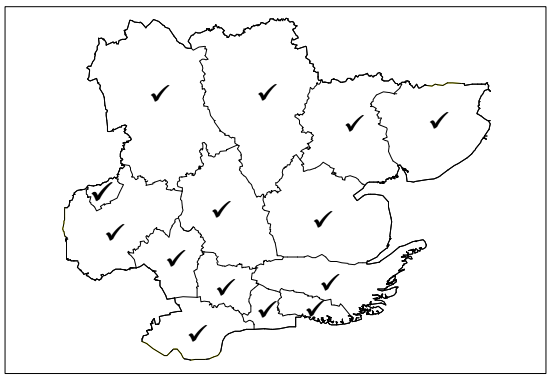
1.1 The brown hare is one of two species of hare that occurs in the British Isles, the other being the native mountain hare. The brown hare is considered a common and widespread farmland species in Britain and was probably introduced by the Romans from mainland Europe. In Europe this species inhabits the open steppe and has colonised farmland. In Britain it is most abundant in arable areas with cereal farming, although woods and hedgerows can provide cover and resting areas (Tapper, 1991).

1.2 It is widespread over the whole of Britain except the north-west and western Highlands. Although it was formally considered as abundant, the brown hare seems to have undergone a decline in numbers since the 1960s. Population estimates now vary between 817,500 and 1,250,000. Numbers have remained relatively constant for the last 10 years. Similar population changes have taken place over the rest of Europe (Anon, 1995).

1.3 This species does not have any specific protection under EU or English law. However, together with all wild mammals, cruelty to the brown hare is prohibited under The Wild Mammals (Protection) Act 1996.

2 CURRENT STATUS IN ESSEX

2.1 This species has always been locally common in Essex and a general increase in numbers was seen after the onset of myxomatosis in the rabbit population. Results from the last national hare survey and other county records show that hares are present in all the districts in Essex (see map). Numbers or estimates of breeding pairs are not available at present.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of habitat diversity in the agricultural landscape.

3.2 Changes in planting and cropping regimes, such as a move from hay to silage, and reduction in over-wintering stubbles.

3.3 Some deaths from direct poisoning where pesticides (e.g. paraquat) are used heavily.

3.5 Illegal hare coursing.

3.6 Road casualties can be important source of mortality in some areas, especially where new road schemes cross existing populated areas.

4. CURRENT ACTION

4.1 JNCC commissioned a survey from Bristol University in 1991/2. The current distribution map for the species is based on these data.

4.2 A survey covering the whole country has been initiated by Bristol University and the Mammal Society. This was started in 1997/8 and is being added to in 1998/9. This includes survey squares in Essex, the results of which are awaited.

4.3 The population in the county is also monitored by the numbers seen or shot during hunting.

4.4 Essex, Cambridgeshire, Hertfordshire and Bedfordshire police worked together on 'Operation Tortoise' to combat illegal hare coursing around the borders of these counties. This also involved participation from local landowners and resulted in big decline in coursing in the north west of Essex.

4.5 Some habitat is managed and benefits hares under the ESA, Countryside Stewardship and Pilot Arable Stewardship schemes run by MAFF.

4.6 Compilation of an Essex mammal atlas by the Essex Field Club.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain the current numbers of breeding hares in Essex.

5.2 Reduce the amount of illegal hare coursing and review the situation regarding legal coursing with dogs.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Encourage the uptake of agri-environmental schemes such as Countryside Stewardship and Arable Stewardship (in the pilot area) and consider the needs of brown hares when implementing subsequent changes in land management. As well as increasing food availability and cover after ploughing and harvesting, such schemes can result in a reduction in the amount of herbicides and pesticides which will in turn reduce deaths from incidental poisoning. (ACTION: FWAG, FRCA, NFU, EN, EWT, RSPB).

6.1.2 Encourage the uptake of the new flexible set-aside scheme instead of rotational set-aside, habitats are therefore left in place for longer providing a more stable environment for this and other species. (ACTION: FRCA, NFU, FWAG, EN).

6.2 Site Safeguard and Management

6.2.1 Target areas where the population is seen to be low and/or declining for inclusion in agri-environmental schemes as above. (ACTION: FWAG, FRCA, NFU, EN, EWT).

6.2.2 Monitor the effect of ELMS on hare populations. (ACTION: FRCA, farmers through NFU).

6.3 Species Management and Protection

6.3.1 Consider repeating Operation Tortoise in other parts of the county which has seen a recent increase in illegal hare coursing. (ACTION: Essex police, NFU).

6.3.2 Co-ordinate data collection from shooting records and feed in more closely to any county monitoring scheme. (ACTION: FWAG, BASC, NFU, EFC, EWT).

6.3.3 As a last resort consider translocating individuals from areas of high populations (e.g. Foulness) to areas with low and/or declining populations. This can only be done after investigations into available habitat and reasons for loss and decline in these areas. (ACTION: EN, EWT, EFC).

6.4 Advisory

6.4.1 Distribute widely any management advisory booklet compiled by the JNCC, together with advice tailored to the county. (ACTION: EN, FWAG, NFU).

6.5 Future Research and Monitoring

6.5.1 Input into new national hare survey and any subsequent surveys. (ACTION: EWT, FWAG, EN).

6.5.2 Set up a programme to continue to monitor the numbers of the hare in the county. This is to continue after the current national survey and link with the Atlas of Mammals in Essex. (ACTION: EWT, FWAG, EFC, EN, BASC, NFU).

6.5.3 Research into the effect of shooting on the Essex population (ACTION: TGCT, FRCA, FWAG, NFU).

6.5.4 Research into the effects of illegal and legal hare coursing on the Essex population. (ACTION: TGCT, FRCA, FWAG, NFU).

6.6 Communications and Publicity

6.6.1 Use the brown hare, with other farmland species, to highlight the impact of modern agricultural practices on biodiversity in the county. (ACTION: FWAG, NFU, EN, EWT).

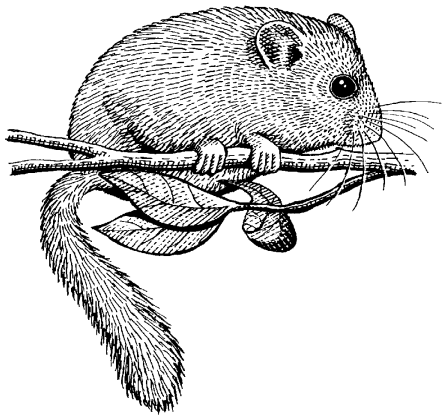
6.6.2 Encourage local public surveys to raise the profile of this species. (ACTION, LAs, LA21 grps, EWT, EN).

7. REFERENCES

Anon (1995). *Brown Hare*. In Biodiversity: The UK Steering Group Report. Volume 2: Action Plans. HMSO London.

Tapper, S.C. (1991). *Brown hare*. In The Handbook of British Mammals. Ed Corbet, G.B. & Harris, S.

DORMOUSE (*Muscardinus avellanarius*)



National Lead Partner: EN/Wildlife Trusts
County Lead Partner: EWT (01206 729678)
Associated Plans: Ancient woodland, Ancient and species rich hedgerows, Old orchards

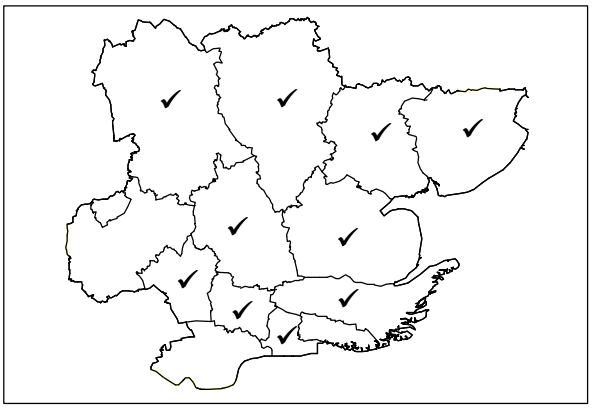
1. CURRENT STATUS IN THE UK

1.1 The dormouse with its characteristic furry tail and orange/brown fur is an nocturnal, arboreal rodent which inhabits mixed broadleaved woodland, hedgerows and orchards. In the UK the dormouse is mainly restricted to England with only a few know populations in Wales. In England it has become extinct in up to 7 counties (half of its former range) in the last 100 years. The species is mainly absent from the north, with only a few populations in Cumbria and Northumberland, and although dormice are still widespread in southern counties they are patchily distributed. Population densities are much lower than other small mammals, and less than 10 adults per hectare are present even in good habitats.

1.2 The dormouse is listed on Appendix 3 of the Bonn Convention and Annex IVa of the EC Habitats Directive. It is protected under Schedule 2 of the Conservation (Natural Habitats etc.) Regulations, 1994 (Regulation 38) and Schedule 5 of the WCA 1981.

2. CURRENT STATUS IN ESSEX

2.1 There are currently a few scattered records for Essex, mainly based around nest box monitoring programmes and 'nut hunts'. This distribution is spread over several districts. There are many areas of potential habitat which have not been surveyed, for example Epping and Hatfield forests, and it is thought that the current distribution is one which is based on under recording.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of broad-leaved ancient woodland, which provides the optimum habitat for dormouse when managed in a suitable way. Also loss of hedgerows which can provide suitable habitat and corridors between woodland.

3.2 Changes in woodland management have also reduced the number of suitable sites for dormice. Coppicing has greatly declined over the last 50 years, which has resulted in taller trees shading out the shrub layer leaving fewer interconnected runways for dormice. However, if coppicing is carried out in large adjacent blocks, large areas of possibly suitable woodland will be unusable by dormice for approximately 5 years. Coppicing that takes place on a short rotation (less than 10 years) also effectively reduces suitable habitat since shrubs do not reach fruiting age.

3.3 Woodland management in plantation forests does not provide good dormouse habitat, consisting of few species, tall straight trees, and little or no understorey.

3.4 Fragmentation of suitable habitats can leave small, isolated non-viable populations. The lower threshold limit for woodland has been calculated as 20 hectares, where short gaps of as little as 100 metres can be an effective isolating barrier. This applies within a woodland as well as between woodlands.

3.5 Warfarin put out to control grey squirrels may cause a problem locally, whereas large populations of squirrels themselves may reduce the amount of available hazel nuts in places.

4. CURRENT ACTION

4.1 National ecological research has led to practical proposals for conservation management. A national nest box scheme has been established aimed at collating data on breeding and population density. Twenty sites in Essex are being monitored by the Essex Wildlife Trust, but this is mainly for presence or absence at the current time.

4.2 In 1992 the dormouse was added to English Nature's Species Recovery Programme. Grants from this scheme have been utilised in Essex to erect and check nest boxes all over the county.

4.3 The Great Nut Hunt in 1993 took place in many woods in Essex, but there were only three positively confirmed results. Unconfirmed results were used to identify possible locations for boxes, several of which have since been identified as dormouse sites.

4.4 Dormice occur in some known, and probably many as yet unknown, sites which have no protection as nature reserves or SSSIs. These sites may have value as links or corridors, especially where habitats are fragmented and below optimum size. PPG 9 requires local planning authorities to have regard for such habitats, as well as the presence of a protected species being a material consideration.

4.5 Management of derelict hazel coppice is covered by Forestry Authority (FA) grant through the Woodland Grant Scheme (WGS) via the supplementary Woodland Improvement Grants (WIG).

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Maintain current known dormouse populations in Essex and provide scope for enhancement in suitable areas.

5.2 Survey woodlands and other suitable sites (e.g. old orchards), especially in areas of the county with few records, to extend current knowledge of their distribution.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek to ensure that PPG9 guidance issued by the DoE is taken into account by Highway Authorities and Local Authorities. Target = 1998 onwards. (ACTION: DoT, LAs, ECC, EN).

6.1.2 Push for designation, statutory or non-statutory, of sites which support dormice and currently have no protection. Target = next CWS review and on-going. (ACTION: EN, EWT)

6.2 Site Safeguard and Management

6.2.1 Provide advice to land managers on appropriate management for dormice using EN Dormouse Species Recovery Plan booklet - targeted after 'Nut Hunts' have identified new locations, 1998 onwards. (ACTION: EN, EWT)

6.2.2 Encourage land owners to use grant-aid and incentive schemes (such as Woodland Grant Schemes) to help them manage suitable habitat appropriately. Target = ongoing. (ACTION: FA, EN, MAFF, FWAG).

6.2.3 Prioritise identified dormouse sites to target both the management of existing populations and WGS/ CS to reconnect habitat on adjacent land (hedges and woodland). This is a long term aim beginning in 1998, but planning for the next 50 years. (ACTION: FA, MAFF, EWT, LAs, FWAG, Thames Chase).

6.3 Species Management and Protection

6.3.1 Continue to monitor the progress of dormouse introductions in other counties, including the requirements for woodland size and type. This could only take place in large reserves where the habitat is suitable, it is certain that there are no dormice present, and the resources are available to sustain the project. Target = ongoing. (ACTION: EN, EWT).

6.4 Advisory

6.4.1 Distribute any new national publications. Target = ongoing. (ACTION: EN).

6.4.2 Develop training for dormouse conservation for landowners, managers and wardens. Target = 2 county training sessions by end of year 2000(ACTION: FA, MAFF, EN, EWT).

6.4.3 Ensure that any new information on habitat management and ecology is passed on to landowners, managers and wardens. Target = ongoing and through training sessions. (ACTION: FA, MAFF, EN, EWT).

6.5 Future Research and Monitoring

6.5.1 Continue research into dormouse ecology in Essex, such as nesting materials and habitat preferences, and feed this into national research. Target = ongoing. (ACTION: EN, EWT).

6.5.2 Continue to analyse and disseminate research findings, and modify forestry practices as appropriate. Target = ongoing. (ACTION: EN, EWT, FA).

6.5.3 Continue and expand the established Dormouse Nestbox Monitoring Scheme in Essex, both within EWT reserves and other sites, aiming to refine distribution data by further sampling. Target = 4 new sites by end of year 2000. (ACTION: EWT).

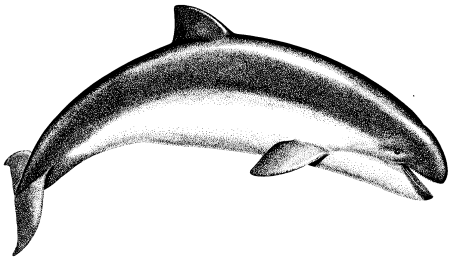
6.5.4 Support and expand repeat surveys based on the Great Nut Hunt to provide data on County distribution. Target LNRs non-statutory nature reserves and LA land. Target = 1998 and 2/3 yearly intervals. (ACTION: EN, EWT, LAs).

6.6 Communications and Publicity

6.6.1 Continue to make the public aware of this species and its role as a key indicator of good woodland and hedgerow management during talks, presentations and in publications. Target = ongoing. (ACTION: EN, FA, EWT, LAs).

6.6.2 Use the dormouse as a flagship species to explain the value of coppicing in woodlands. Target = 1998 onwards. (ACTION: EN, EWT, LAs, FE).

HARBOUR PORPOISE (*Phocoena phocoena*)



National Lead Partner: SMRU
County Lead Partner: EWT (01206 729678)
Associated Plans: None

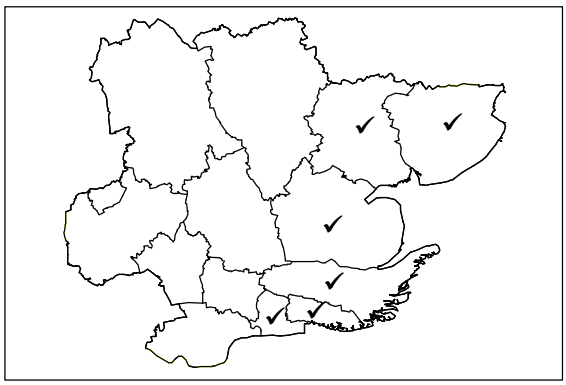
1. STATUS IN THE UK

1.1 The harbour porpoise is the only species of true porpoise found in European waters. It is the smallest British cetacean never reaching more than 2m in length. It is has a dark grey back and is paler below, a small round body and small head with no beak The dorsal fin is triangular and placed in the middle of the back. Porpoises are most often seen in small groups or individually within 10 km of the shore. They can be observed in all months, but there is a seasonal peak between July and October. (Evans, 1991)

1.2 There is some evidence of a decline in numbers of harbour porpoise in UK waters since the 1940s, especially in the southern North Sea and English Channel. The conservation status of the species around the whole UK coast is unknown, but the recent "SCANS" survey of small cetaceans in the North Sea, Channel and Celtic Sea indicated that the population in those waters was approximately 350,000.

1.3 The harbour porpoise is listed on Appendix II of CITES, Appendix if the Bern Convention and Annexe II and IV of EC Habitats Directive. It is also on Appendix 2 of the Bonn Convention and is covered by the terms of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), a regional agreement under the Bonn Convention. It is protected under Schedule 5 of the WCA 1981.

2. STATUS IN ESSEX



2.1 At the present time the status of this species off the Essex and East Anglian coast is uncertain. Casual remarks suggest that they were common off the coast about 50 years ago. The majority of local records are old, mainly concerned with dead individuals. No map or details of this species was included in the Essex Mammal Atlas of 1986 although some cetaceans were included. It is probably still found off the coast in low numbers.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

These are not clear at the present time, but could include:

3.1 Incidental capture and drowning in fishing nets.

3.2 Environmental contaminants - toxic substances at sea, marine debris, disease, noise disturbance, physical disturbance from large amounts of marine traffic.

3.3 Environmental change - effects of fishing and possibly climate change.

4. CURRENT ACTION

4.1 No known action is being undertaken in Essex with the exception of odd sightings. No survey has been undertaken close to the East Anglian coast in recent years.

4.2 Distribution studies have been undertaken by JNCC since 1980. The Sea Mammal Research Unit co-ordinated the international SCANS survey (which included the North Sea) in 1994.

4.3 Conservation, management and research action is being undertaken and planned under ASCOBANS, but it is not thought that any is planned for this region.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Determine size and distribution of harbour porpoise population in coastal waters around Essex and East Anglia

5.2 Set up an East Anglian coastal network to monitor any porpoises present and co-ordinate data received from casual sightings.

5.3 Revise action plan if there are porpoises present close to the Essex coast.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Future Research and Monitoring

6.1.1 Carry out a comprehensive survey of the waters off the Essex coast (and if possible the rest of the East Anglian coast) for coastal mammal species. (ACTION: EWT, Sea Watch, Whale and Dolphin Conservation Society).

6.1.2 Set up a coastal recording network to report all sightings (ACTION: EWT, Essex and Kent Fisheries, EN, EA).

6.1.3 Ensure that all casualties are sent for post-mortem and tissue studies (ACTION: EN, EA, LAs, EWT).

6.2 Communications and Publicity

6.2.1 Highlight the fact that there are native species of cetacean off the Essex coast and that they are part of the natural heritage and not just present in exotic waters. (ACTION: EWT, EN, Whale and Dolphin Conservation Society).

6.2.2 Initiate a scheme for the public to report any sightings both of live and stranded individuals. (ACTION: EWT, EN)

Until some research has taken place, other action for this species cannot really be determined. If they are found still to be present off the coast the following actions are likely:

6.3 Policy and Legislation

6.3.1 Introduce agreed codes of conduct to reduce disturbance from acoustic sources and physical pressures (ACTION: JNCC, EN).

6.4 Site Safeguard and Management

6.4.1 Introduce speed limits and no-go areas to ensure the safe passage of the species (ACTION: EN, LAs).

6.4.2 No further action is required with regard to marine protection as practically all of the Essex coast has SAC designation for other reasons.

6.3 Species management and Protection

6.3.1 Work with fishers with the aim of reducing and avoiding by-catches in active and passive fishing gear, and to dispose of discarded gear safely. (ACTION: MAFF, JNCC).

6.3.2 Introduce a code of practice to reduce disturbance by other marine craft (speedboats, etc.). (ACTION: EN, EA, LAs).

6.4 Advisory

6.4.1 Disseminate best practice from any future national research.

6.4.2 Provide an advisory service to accompany any codes of best practice. (ACTION: EN, EA, LAs).

7. REFERENCES

Evans, P.G.H (1991). Whales, Dolphins and Porpoises: Order Cetacea. In *The Handbook of British Mammals.* Blackwell. Ed. Corbet, G.B & Harris, S.

European otter (*Lutra lutra*)

National Lead Partner: EA/WTs
County Lead Partner: EA/EWT (01473 727712 / 01206 729678)
Associated Plans: None

1. CURRENT STATUS IN THE UK

1.1 The otter is a large, semi-aquatic member of the stoat and weasel (mustelid) family. It can be distinguished from other mustelids and aquatic rodents in the water by its large size and flattened head. It occurs in rivers, streams, lakes, marshes and coastal habitats. Otters are opportunistic hunters that will take a wide range of prey depending on the habitat, but most mainly feed on fish.

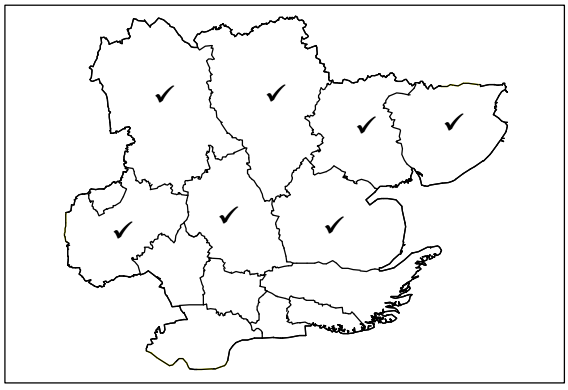
1.2 The otter is a top predator in the river ecosystem and as such it occurs at a naturally low density. Its sensitivity to river management and water quality makes it a valuable indicator of the health of riverine ecosystems.

1.3 Despite the decline of the thirty years from 1960, the UK as a whole still supports a significant population of otters in a European context.

1.4 The otter is listed on Appendix I of CITES, Appendix II of the Bern Convention and Annexes II and IV of the Habitats Directive. It is protected under Schedule 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation (Natural Habitats etc.) Regulations, 1994 (Regulation 38). The European subspecies is also listed as globally threatened on the IUCN / WCMC Red Data List.

2. CURRENT STATUS IN ESSEX

2.1 The otter was widespread in Essex up to the early 1960s but a rapid decline throughout the decade culminated in its disappearance from the County in the mid 70s and 80s. This decline was the result of a number of factors, of which the most significant is likely to have been bioaccumulating organochlorines, especially PCBs.



2.2 Surveys in 1996 and 1997 by the University of Essex for the WWF have found the otter to be present on a significant number of rivers in Essex, particularly in the North and East. These include the Colne, Stour, Blackwater, lower Chelmer, Stort, Lee and Cam. The increase in the population locally is at least in part due to a re-introduction project in East Anglia. In Essex, small groups were released into Hamford Water and the rivers Stort and Stour. The current optimistic situation should be tempered by the fact that several years of population consolidation will be needed before the future of the otter in Essex is more secure.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Water Quality : As long as a river is virtually free of bioaccumulating contaminants and has sufficiently good water quality to enable it to support fish, it can support otters. In Essex, only perhaps the Mardyke system is currently incapable of supporting otters on water quality grounds. However, even if they do establish themselves on the rivers of the South East of the County, these populations are only ever likely to be marginal. Individual populations are vulnerable to isolated pollution incidents.

3.2 Low rainfall and inappropriate abstraction : low flow and its attendant problems for water quality may have posed problems for the spread of otter in Essex.

3.3 Loss of habitat : Intensification of riparian management has led to habitat loss for otters, in particular the loss of breeding and resting sites.

3.4 Insufficient food : Associated with low water quality, leading to a reduction in fish stocks. Currently only a problem in the Mardyke catchment.

3.5 Accidental Death: Road traffic accidents are probably the biggest single threat to the re-establishment of a thriving otter population in Essex. Otters are reluctant to pass under bridges that do not provide opportunities for sprainting. This leads them to cross roads and leaves them vulnerable to traffic accidents. Road building, and the density of traffic on roads, has increased enormously since the end of the 1950s when otters were last common in the county.

3.6 Drowning in fish / eel traps continues to pose a threat to otters in some regions.

4. CURRENT ACTION

4.1 Releases of captive-bred otters have taken place on a piecemeal basis since the early 1990s, but the documentation of this activity is incomplete. The national Framework Document on otters produced by JNCC is opposed to the release of captive-bred otters and this approach is reflected in Essex Wildlife Trust's approach to re-introduction programmes for the species.

4.2 A survey of the Essex river catchments is being carried out by S.M. Macdonald and C.F. Mason and has funding from WWF until 2001. This involves surveying for evidence of otter (spraints) every spring and autumn at fixed points along the rivers.

4.3 The River Colne Countryside Project is, in partnership with relevant bodies and funded by the Environment Agency, pioneering a scheme to build fauna passages under major road bridges on the Colne in the hope of reducing the potential for otters to be involved in traffic accidents.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Encourage the expansion of the otter population to all major catchments and coastal habitats in Essex by 2010.

5.2 Reduce the danger posed by road traffic, through the provision of safe road crossings at appropriate bridge locations.

5.3 Encourage otter- sensitive riparian land management in Essex.

5.4 All rivers in the county to be fisheries target classes (see EA LEAP plans) by 2010.

5.5 Encourage the introduction of new fisheries legislation to make the fitting of otter guards compulsory in all fyke nets used in waters likely to support otter populations.

6. PROPOSED ACTIONS WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Review abstraction guidelines in order to maintain flows sufficient to maintain high ecosystem classification in all Essex rivers. (ACTION: EA.).

6.1.2 Ensure all wetland or riparian sites found to be regularly used by otters are designated as SINCs and recognised and protected in Local Plans. (ACTION: LAs, EWT, EN).

6.2 Site Safeguard and Management

6.2.1 Include action for otters in all LEAPs (ACTION: EA).

6.2.2 Promote the take-up of agri-environment schemes to encourage appropriately managed corridors of riparian habitat and to mitigate for loss of habitat. (ACTION: FRCA, FWAG, LAs, NFU, EN, EA).

6.2.3 Ensure that all new bridges have fauna passages or provide opportunities for sprainting under them. (ACTION: ECC, EA, LAs).

6.2.4 Identify and then improve those existing bridges on roads 6metres wide or over (including pavements) that are not found to be 'otter friendly'. (ACTION: as above plus University of Essex).

6.2.5 Ensure, where possible, that the rate of flow in main rivers remains high enough to prevent a reduction in water quality. (ACTION: EA).

6.2.6 Ensure that the level of fish stocks in main rivers remain adequate to support otters (ACTION: EA).

6.3 Species Management and Protection

6.3.1 Review the need for current and future local release practices of otters; this should be done in the light of the national framework document policies on release schemes and the natural recolonisation of local river systems. (ACTION: EN, EA, EWT, University of Essex, Otter Trust).

6.3.2 Promote the creation of a selected small number ponds by rivers, in key strategic locations, to be stocked with fish. (ACTION: LAs, FWAG, EWT, EA, EN).

6.3.3 Seek to establish an Essex Otter Forum to co-ordinate conservation, information exchange, publicity and research. (ACTION: EA).

6.4 Advisory

6.4.1 Ensure that landowners are aware of the legal status of otters and that advice is available on appropriate management of their habitat (ACTION: EN, EA, EWT, LAs).

6.4.2 Ensure that the Highway Authority, Highways Agency and Environment Agency are aware of the needs of otters in relation to bridges (ACTION: ECC, Highways Agency, EA, EN).

6.5 Future Research and Monitoring

6.5.1 Survey all existing bridges for their 'otter friendliness' (ACTION: University of Essex, EA, EWT, LAs).

6.5.2 Continuation of the present research beyond 2001 (ACTION: University of Essex and potential funding partners - EA, EN WWF - current funding body).

6.5.3 Monitor the rate of flow in main rivers with a view to controlling abstraction rates to support flow rate. (ACTION: EA).

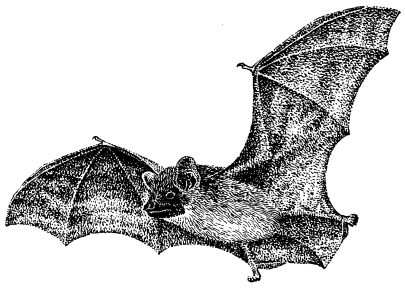
6.6 Communications and Publicity

6.6.1 A careful programme of publicity, exercising discretion, needs to accompany any attempts to conserve the otter in Essex. It is premature at this time to promote as a success story the return of the otter to the county. (ACTION: LAs, EWT, EA, EN, University of Essex).

6.6.2 Promotion to landowners highlighting positive management actions which would benefit otters. (ACTION: LAs, FWAG, FRCA, NFU, EWT, EA, EN).

6.6.3 Promote monitoring of otter population by providing opportunities for local people to report any sightings. (With careful checking to avoid inaccurate attribution). (ACTION: Local Records Centres, EWT).

PIPISTRELLE BATS (*Pipistrellus pipistrellus*)*



National Lead Partner: BCT
County Lead Partner: EBG/EN (01206 796666)
Associated Plans: Ancient woodland, ancient and species rich hedgerows, cereal field margins, urban.

1. CURRENT STATUS IN THE UK

1.1 Pipistrelle bats are small bats (head and body up to 45mm) with variable brown/grey coloration. They roost in a variety of buildings and structures including churches, modern houses, bridges and walls. They forage in many habitat types including woodlands, urban areas such as parks and gardens, lakes, ponds and wet/marshy areas.

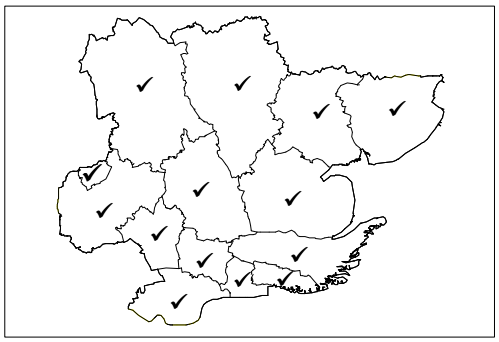
1.2 In the UK pipistrelle bats are the most abundant bat species and the species most likely to come into contact with humans. However, the National Bat Colony Survey suggests a decline of 70% between 1978 and 1993. The UK pre-breeding population estimate stands at about 2 million. The problems of estimating population trends have been compounded by the recent discovery that there are two distinct species of pipistrelle bat in the UK.

1.3 Bats use high frequency echo-location calls to detect their insect prey whilst flying. The two species of pipistrelle can be distinguished by monitoring these calls with a bat detector - one species uses calls around 46 kHz, the other 55 kHz. *At the time of publication the two species have not been given separate scientific names, so the original name (*Pipistrellus pipistrellus*) has been used.

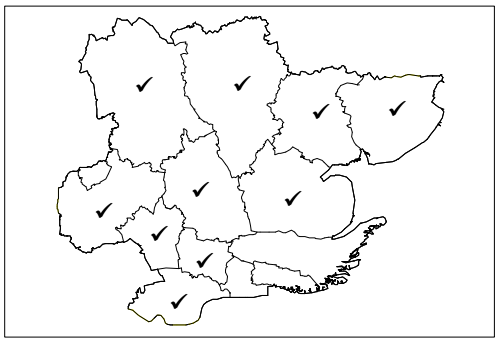
1.4 The pipistrelle is listed on Appendix III of the Bern Convention, Annex IV of the EC Habitats Directive and Appendix II of the Bonn Convention. It is also included under the Agreement on the Conservation of Bats in Europe. It is protected under schedule 2 of the Conservation (Natural habitats) Regulations 1994 and schedules 5 and 6 of the Wildlife and Countryside Act (1981) and schedules 5 and 6 of the Wildlife (Northern Ireland) Order (1985).

2. CURRENT STATUS IN ESSEX

2.1 Mirroring the national distribution, pipistrelles are the most abundant bat species in the county. Both species of pipistrelle are present in Essex although survey work is at an early stage. The 46kHz type has been recorded from 42 10km squares (all districts) and the 55kHz type from 23 10 km squares (10 districts).



Distribution of 46kHz species



Distribution of 55kHz species

2.1 Where colonies have been counted over successive years, a decline in numbers has been seen e.g. in Maldon a colony declined from over 1041 bats in 1990 to 688 in 1996 and at Little Baddow from 656 bats in 1988 to 264 in 1995. However, at South Woodham Ferrers and Bicknacre colony size has remained relatively unchanged over several years.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Reduction in insect prey abundance, due to high intensity farming practices and inappropriate riparian management.

3.2 Loss of insect rich feeding habitat such as wetlands and hedgerows.

3.3 Loss and disruption of flightline features (linear landscape elements) such as hedgerows.

3.4 Loss of roost sites in buildings and trees due to cavity wall insulation, use of UPVC barge-boarding and soffits and clearance of dead trees.

3.5 Disturbance and destruction of maternity roosts due to building works and conflicts with householders.

4. CURRENT ACTION

4.1 The National Bat Colony Survey is monitoring several colonies in Essex.

4.2 Essex Bat Group continues to provide support to EN in its advisory capacity and in surveying, monitoring and educational activities.

4.3 Field work is being undertaken to record distribution of the two pipistrelle species in Essex.

4.4 Licensed bat workers carry out advisory visits to householders to discuss management for all species of bat.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain existing populations and range of pipistrelles

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Encourage water quality levels which will help support populations of aquatic insects on which pipistrelles feed. (ACTION: EA, EWT, EBG).

6.1.2 Ensure the needs of this species are considered in incentive schemes designed for the management of suitable pipistrelle habitats. (ACTION: FWAG, NFU, EWT, EN).

6.2 Site Safeguard and Management

6.2.1 Encourage favourable management of land adjacent to known roost sites to support foraging by juvenile pipistrelles. (ACTION: EN, EWT, NFU).

6.3 Species Management and Protection

6.3.1 See section 6.6.2 below

6.4 Advisory

6.4.1 Ensure landowners are aware of the presence and legal status of pipistrelle bats and that advice is available on appropriate methods of management for conservation of their roosts and foraging habitats. (ACTION: EBG, BCT, FWAG).

6.5 Future Research and Monitoring

6.5.1 Undertake fieldwork to record distribution of both species. (ACTION: EBG).

6.5.2 To continue to monitor summer maternity roosts. (ACTION: EBG).

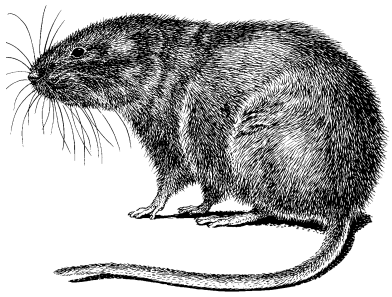
6.5.3 Pass information gathered during survey and monitoring of this species to BCT and The Robert Stebbings Consultancy in order that it can be incorporated in a national database and contribute to the maintenance of an up to date Red List. (ACTION: EBG).

6.6 Communications and Publicity

6.6.1 To maintain programmes of roost visiting, general education and publicity. (ACTION: EN, EBG, BCT).

6.6.2 Continue to inform the public about the harmlessness of bats and encourage householders not to ‘evict’ them from house roosts. (ACTION: EBG, EN, EWT).

WATER VOLE (*Arvicola terrestris*)



National Lead Partner: EA
County Lead Partner: EA/EWT (01473 727712 / 01206 729678)
Associated Plans: Coastal grazing marsh

1. CURRENT STATUS IN THE UK

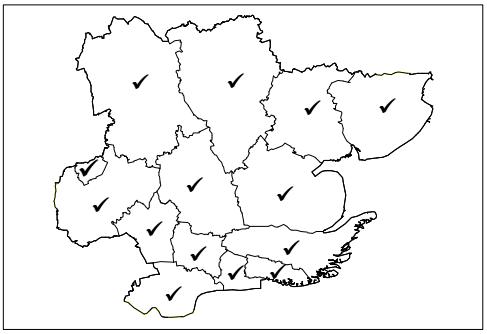
1.1 The water vole (or water rat) is the largest of the British voles with a head and body measuring around 20 cm. Due to its size and semi-aquatic lifestyle it is often confused with the brown rat when swimming, but the two can be distinguished quite easily as rats have more prominent ears, pointed snout and hairless tails.

1.2 Water voles inhabit the banks of slow flowing rivers, streams and ditches as well as non-flowing water features such as lakes, ponds and dykes. Their presence can be determined by searching for their burrows at and above the water level, together with characteristic piles of droppings (latrines) and feeding remains.

1.3 Previously a common and frequently seen species throughout the UK, the water vole has declined in distribution and numbers in recent years. A recent survey of water voles showed that populations had seriously declined, with 67% of those sites in the UK previously recorded as occupied in 1939 having no water voles recorded in 1989-90. Most of this loss is thought to have occurred in recent years and it is estimated that losses will have reached 94% by the year 2000

1.4 In 1998 the water vole received limited protection under the quinquennial review of the Wildlife and Countryside Act (1981) under schedule 5 section 9(4). It is now an offence to damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection and/or to disturb water voles while they are using such a place.

2. CURRENT STATUS IN ESSEX



2.1 The survey of 1989-90, carried out by the Vincent Wildlife Trust, showed that east Anglia was one of the least affected areas of water vole decline, with 60-80% of sites still being occupied (Strachan, R. & Jefferies, D.J. [1993])..

2.2 More recent records (1997) from the RSNC national water vole survey indicates that water voles are still present on most of the main river catchments in all districts in Essex, although population numbers are thought to have declined at some sites.

3. CURRENT FACTORS CAUSING LOSS OF DECLINE

3.1 Habitat loss: Loss of suitable bank-side habitats as a result of engineering, bank-side development, over zealous vegetation clearance & general decline of habitat condition have all contributed. (Woodroffe, G. 1996).

3.2 Population Fragmentation: Increasingly populations are being fragmented by human interference, from new roads to canalisation, development and loss of suitable inter-connecting river corridor habitat and the presence of mink.

3.3 Water Level Fluctuations: Water voles need steady water levels in channels to make their tunnel entrances secure. Recent years have seen significant water level fluctuations in many rivers as a result of droughts. As a consequence flooding of chambers and increased predation from native predators can occur (see also below).

3.4 Predation: The spread of feral mink (*Mustela vison*) throughout the UK has increased predation levels on water vole.

3.5 Pollution: Contamination of freshwater environments by pesticides, heavy metals, DDE, PCBs, and organic pollution from slurry and sewage may have contributed to the decline of water voles in certain river catchments, however water voles have been recorded as thriving on polluted watercourses in some areas.

3.6 Poisoning: In-direct poisoning of water voles by non-specific rodenticides targeted at brown rats can be a localised problem.

4. CURRENT ACTION

4.1 A handbook providing advice on habitat management and conservation of water voles is being produced nationally by English Nature and Environment Agency. There is currently a section regarding water voles in the EN species conservation handbook

4.2 A water vole and mink survey of main rivers and some non-main river sites in Essex has been completed (1998) results available in 1999.

4.3 A national re-survey of 2,970 sites originally surveyed in 1989-90 UK survey is being carried out in 1997-8 by the Vincent Wildlife Trust.

4.4 A national survey by volunteers of water vole sightings carried out by the RSNC during 1997/8 has produced many results in Essex. These results will be collated and will be available in 1999.

4.5 Distribution of mink in Essex is being included in the county otter survey being carried out by Essex University.

4.6 Compilation of county mammal atlas including water vole records is being carried out by Essex Field Club.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Endeavour to halt the decline of water voles in Essex by the year 2000.

5.2 Restore viable populations of water voles to those river catchments in the county that have lost them by the year 2010.

5.3 Improve riverine and other habitats for water voles throughout the county based on current research regarding their habitat requirements.

5.4 Monitor and record populations of water voles and mink in selected river catchment areas in the county.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek prioritisation of river corridor habitats in agri-environment schemes applicable to Essex - Countryside Stewardship, Essex Coast E.S.A. and Arable Stewardship. (ACTION: NFU, FWAG, EN, MAFF).

6.1.2 Include specific mention of habitat management for water voles in all LEAPs & Water level management plans. (ACTION: EA).

6.1.3 Include water voles, as a protected species, in development plan policies. (ACTION: ECC, LAs).

6.2 Site Safeguard and Management

6.2.1 Identify prime water vole population sites on county river sections and safeguard from adverse river management works. (ACTION: EA).

6.2.2 Identify river sections suitable for water level management / bankside management for re-colonisation of water voles. (ACTION: EA).

6.2.3 Target adjacent landowners for uptake of ELMS. (ACTION: FRCA, EA, EWT, EN).

6.3 Species Management and Protection

6.3.1 Carry out county-wide survey of water voles before 1999. (ACTION: EA EWT, FWAG).

6.3.2 Continue with county-wide survey of mink in Essex. Consider controlling mink to prevent the spread into currently mink free areas. (ACTION: University of ESSEX, EA, EN).

6.4 Advisory

6.4.1 Distribute widely management advisory booklet compiled by EN / EA (Available 1998) to all relevant partners and riparian controllers. (ACTION: EN, EA).

6.4.2 Promote water vole friendly management of aquatic sites by water authorities and statutory organisations. (ACTION: EA, Water Authorities, EN).

6.4.3 Promote better awareness of water voles and their requirements amongst private land owners and managers. (ACTION: EA EWT, FWAG, NFU, LAs, angling clubs).

6.5 Future Research and Monitoring

6.5.1 Research into viable methods of mink control. (ACTION: EA, EN).

6.5.2 Lobby for national research on the inter-relationship (if any) of freshwater pollutants and water vole populations. (ACTION: EN, EA).

6.5.3 Monitor the effect of rat trapping and the use of rodenticides on water vole populations. (ACTION: EA, EN, EWT)

6.6 Communications and Publicity

6.6.1 Use the water vole, with other freshwater species as an indicator of good water quality / riverine habitat in Essex waterways. (ACTION: EA,EN,EWT).

6.6.2 Publicise the risk of rodenticides to water voles and promote careful use of such chemicals near water courses. (ACTION EA,EN,FWAG,NFU)

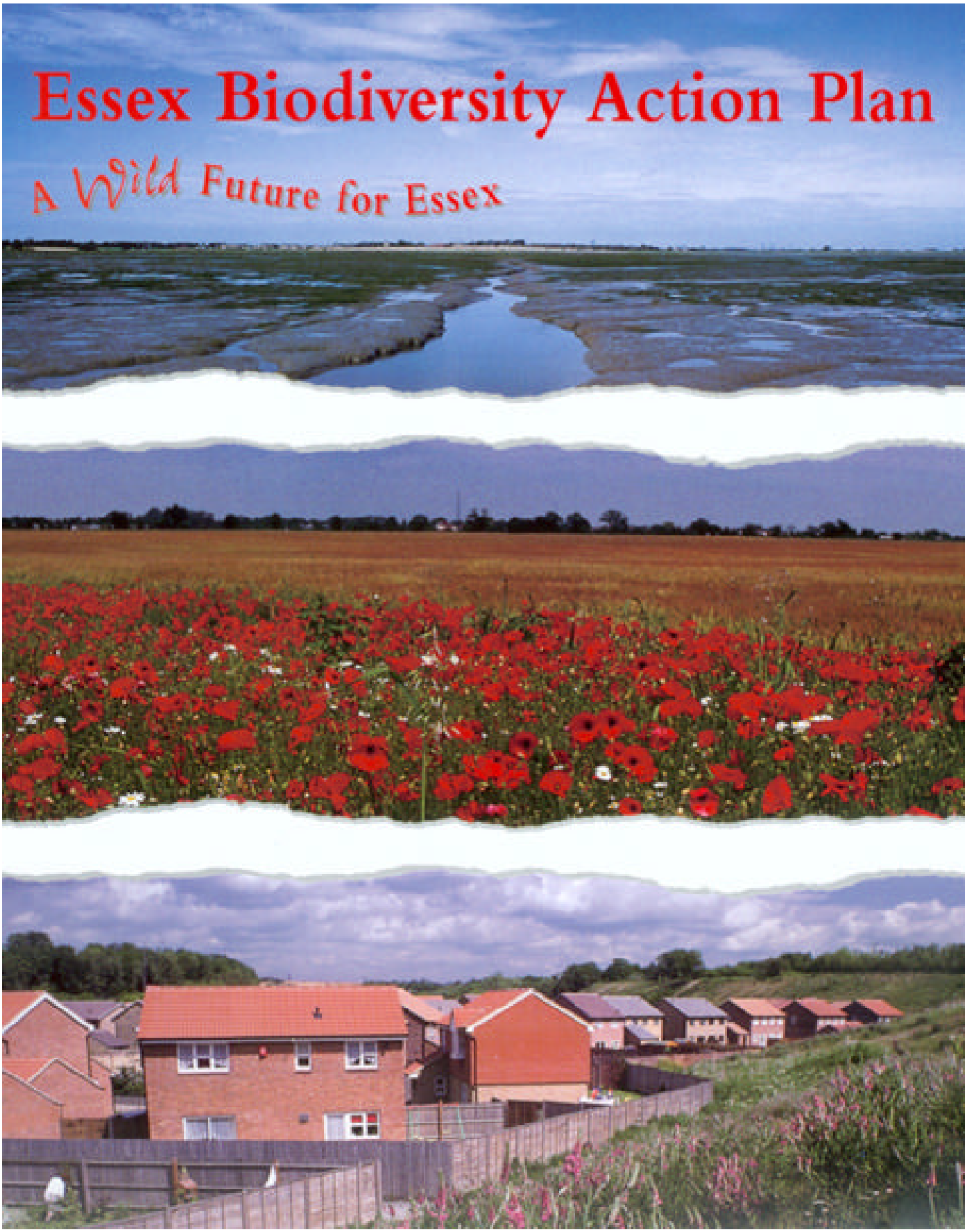
7. REFERENCES

Strachan, R. & Jefferies, D.J. (1993) *The Water Vole (Arvicola terrestris) in Britain 1989-1990: Its distribution and Changing Status.* The Vincent Wildlife Trust, London.

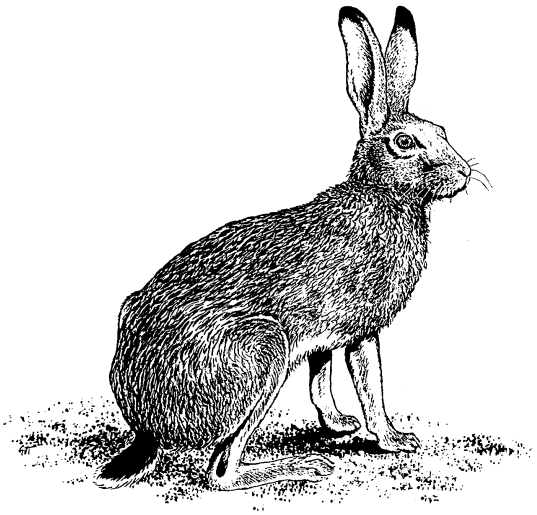
Woodroffe, G. (1986) *The Water Vole*. The Mammal Society. London.

Essex Biodiversity Action Plan

A Wild Future for Essex



BROWN HARE (*Lepus europaeus*)



National Lead Partners: Mammal Society, TGCT
County Lead Partners: EWT, FWAG (01206 729678 & 01245 420705)
Associated plans: Cereal field margins, grey partridge, skylark

1. CURRENT STATUS IN THE UK

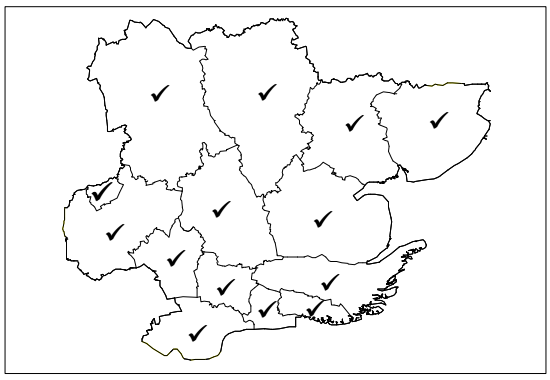
1.1 The brown hare is one of two species of hare that occurs in the British Isles, the other being the native mountain hare. The brown hare is considered a common and widespread farmland species in Britain and was probably introduced by the Romans from mainland Europe. In Europe this species inhabits the open steppe and has colonised farmland. In Britain it is most abundant in arable areas with cereal farming, although woods and hedgerows can provide cover and resting areas (Tapper, 1991).

1.2 It is widespread over the whole of Britain except the north-west and western Highlands. Although it was formally considered as abundant, the brown hare seems to have undergone a decline in numbers since the 1960s. Population estimates now vary between 817,500 and 1,250,000. Numbers have remained relatively constant for the last 10 years. Similar population changes have taken place over the rest of Europe (Anon, 1995).

1.3 This species does not have any specific protection under EU or English law. However, together with all wild mammals, cruelty to the brown hare is prohibited under The Wild Mammals (Protection) Act 1996.

2 CURRENT STATUS IN ESSEX

2.1 This species has always been locally common in Essex and a general increase in numbers was seen after the onset of myxomatosis in the rabbit population. Results from the last national hare survey and other county records show that hares are present in all the districts in Essex (see map). Numbers or estimates of breeding pairs are not available at present.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of habitat diversity in the agricultural landscape.

3.2 Changes in planting and cropping regimes, such as a move from hay to silage, and reduction in over-wintering stubbles.

3.3 Some deaths from direct poisoning where pesticides (e.g. paraquat) are used heavily.

3.5 Illegal hare coursing.

3.6 Road casualties can be important source of mortality in some areas, especially where new road schemes cross existing populated areas.

4. CURRENT ACTION

4.1 JNCC commissioned a survey from Bristol University in 1991/2. The current distribution map for the species is based on these data.

4.2 A survey covering the whole country has been initiated by Bristol University and the Mammal Society. This was started in 1997/8 and is being added to in 1998/9. This includes survey squares in Essex, the results of which are awaited.

4.3 The population in the county is also monitored by the numbers seen or shot during hunting.

4.4 Essex, Cambridgeshire, Hertfordshire and Bedfordshire police worked together on 'Operation Tortoise' to combat illegal hare coursing around the borders of these counties. This also involved participation from local landowners and resulted in big decline in coursing in the north west of Essex.

4.5 Some habitat is managed and benefits hares under the ESA, Countryside Stewardship and Pilot Arable Stewardship schemes run by MAFF.

4.6 Compilation of an Essex mammal atlas by the Essex Field Club.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain the current numbers of breeding hares in Essex.

5.2 Reduce the amount of illegal hare coursing and review the situation regarding legal coursing with dogs.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Encourage the uptake of agri-environmental schemes such as Countryside Stewardship and Arable Stewardship (in the pilot area) and consider the needs of brown hares when implementing subsequent changes in land management. As well as increasing food availability and cover after ploughing and harvesting, such schemes can result in a reduction in the amount of herbicides and pesticides which will in turn reduce deaths from incidental poisoning. (ACTION: FWAG, FRCA, NFU, EN, EWT, RSPB).

6.1.2 Encourage the uptake of the new flexible set-aside scheme instead of rotational set-aside, habitats are therefore left in place for longer providing a more stable environment for this and other species. (ACTION: FRCA, NFU, FWAG, EN).

6.2 Site Safeguard and Management

6.2.1 Target areas where the population is seen to be low and/or declining for inclusion in agri-environmental schemes as above. (ACTION: FWAG, FRCA, NFU, EN, EWT).

6.2.2 Monitor the effect of ELMS on hare populations. (ACTION: FRCA, farmers through NFU).

6.3 Species Management and Protection

6.3.1 Consider repeating Operation Tortoise in other parts of the county which has seen a recent increase in illegal hare coursing. (ACTION: Essex police, NFU).

6.3.2 Co-ordinate data collection from shooting records and feed in more closely to any county monitoring scheme. (ACTION: FWAG, BASC, NFU, EFC, EWT).

6.3.3 As a last resort consider translocating individuals from areas of high populations (e.g. Foulness) to areas with low and/or declining populations. This can only be done after investigations into available habitat and reasons for loss and decline in these areas. (ACTION: EN, EWT, EFC).

6.4 Advisory

6.4.1 Distribute widely any management advisory booklet compiled by the JNCC, together with advice tailored to the county. (ACTION: EN, FWAG, NFU).

6.5 Future Research and Monitoring

6.5.1 Input into new national hare survey and any subsequent surveys. (ACTION: EWT, FWAG, EN).

6.5.2 Set up a programme to continue to monitor the numbers of the hare in the county. This is to continue after the current national survey and link with the Atlas of Mammals in Essex. (ACTION: EWT, FWAG, EFC, EN, BASC, NFU).

6.5.3 Research into the effect of shooting on the Essex population (ACTION: TGCT, FRCA, FWAG, NFU).

6.5.4 Research into the effects of illegal and legal hare coursing on the Essex population. (ACTION: TGCT, FRCA, FWAG, NFU).

6.6 Communications and Publicity

6.6.1 Use the brown hare, with other farmland species, to highlight the impact of modern agricultural practices on biodiversity in the county. (ACTION: FWAG, NFU, EN, EWT).

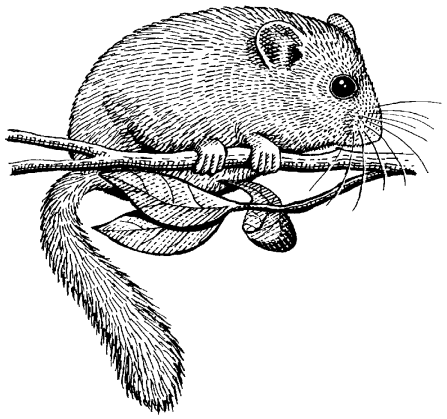
6.6.2 Encourage local public surveys to raise the profile of this species. (ACTION, LAs, LA21 grps, EWT, EN).

7. REFERENCES

Anon (1995). *Brown Hare*. In Biodiversity: The UK Steering Group Report. Volume 2: Action Plans. HMSO London.

Tapper, S.C. (1991). *Brown hare*. In The Handbook of British Mammals. Ed Corbet, G.B. & Harris, S.

DORMOUSE (*Muscardinus avellanarius*)



National Lead Partner: EN/Wildlife Trusts
County Lead Partner: EWT (01206 729678)
Associated Plans: Ancient woodland, Ancient and species rich hedgerows, Old orchards

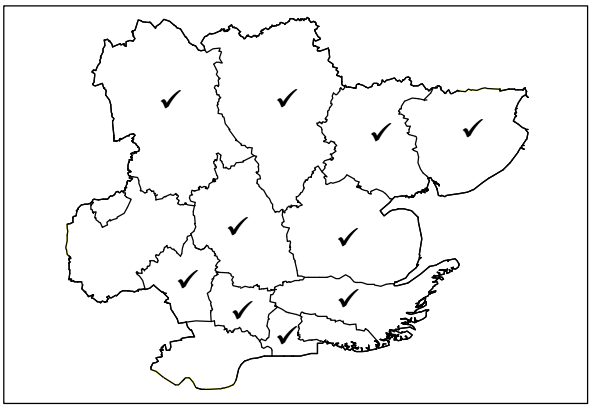
1. CURRENT STATUS IN THE UK

1.1 The dormouse with its characteristic furry tail and orange/brown fur is an nocturnal, arboreal rodent which inhabits mixed broadleaved woodland, hedgerows and orchards. In the UK the dormouse is mainly restricted to England with only a few know populations in Wales. In England it has become extinct in up to 7 counties (half of its former range) in the last 100 years. The species is mainly absent from the north, with only a few populations in Cumbria and Northumberland, and although dormice are still widespread in southern counties they are patchily distributed. Population densities are much lower than other small mammals, and less than 10 adults per hectare are present even in good habitats.

1.2 The dormouse is listed on Appendix 3 of the Bonn Convention and Annex IVa of the EC Habitats Directive. It is protected under Schedule 2 of the Conservation (Natural Habitats etc.) Regulations, 1994 (Regulation 38) and Schedule 5 of the WCA 1981.

2. CURRENT STATUS IN ESSEX

2.1 There are currently a few scattered records for Essex, mainly based around nest box monitoring programmes and 'nut hunts'. This distribution is spread over several districts. There are many areas of potential habitat which have not been surveyed, for example Epping and Hatfield forests, and it is thought that the current distribution is one which is based on under recording.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of broad-leaved ancient woodland, which provides the optimum habitat for dormouse when managed in a suitable way. Also loss of hedgerows which can provide suitable habitat and corridors between woodland.

3.2 Changes in woodland management have also reduced the number of suitable sites for dormice. Coppicing has greatly declined over the last 50 years, which has resulted in taller trees shading out the shrub layer leaving fewer interconnected runways for dormice. However, if coppicing is carried out in large adjacent blocks, large areas of possibly suitable woodland will be unusable by dormice for approximately 5 years. Coppicing that takes place on a short rotation (less than 10 years) also effectively reduces suitable habitat since shrubs do not reach fruiting age.

3.3 Woodland management in plantation forests does not provide good dormouse habitat, consisting of few species, tall straight trees, and little or no understorey.

3.4 Fragmentation of suitable habitats can leave small, isolated non-viable populations. The lower threshold limit for woodland has been calculated as 20 hectares, where short gaps of as little as 100 metres can be an effective isolating barrier. This applies within a woodland as well as between woodlands.

3.5 Warfarin put out to control grey squirrels may cause a problem locally, whereas large populations of squirrels themselves may reduce the amount of available hazel nuts in places.

4. CURRENT ACTION

4.1 National ecological research has led to practical proposals for conservation management. A national nest box scheme has been established aimed at collating data on breeding and population density. Twenty sites in Essex are being monitored by the Essex Wildlife Trust, but this is mainly for presence or absence at the current time.

4.2 In 1992 the dormouse was added to English Nature's Species Recovery Programme. Grants from this scheme have been utilised in Essex to erect and check nest boxes all over the county.

4.3 The Great Nut Hunt in 1993 took place in many woods in Essex, but there were only three positively confirmed results. Unconfirmed results were used to identify possible locations for boxes, several of which have since been identified as dormouse sites.

4.4 Dormice occur in some known, and probably many as yet unknown, sites which have no protection as nature reserves or SSSIs. These sites may have value as links or corridors, especially where habitats are fragmented and below optimum size. PPG 9 requires local planning authorities to have regard for such habitats, as well as the presence of a protected species being a material consideration.

4.5 Management of derelict hazel coppice is covered by Forestry Authority (FA) grant through the Woodland Grant Scheme (WGS) via the supplementary Woodland Improvement Grants (WIG).

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Maintain current known dormouse populations in Essex and provide scope for enhancement in suitable areas.

5.2 Survey woodlands and other suitable sites (e.g. old orchards), especially in areas of the county with few records, to extend current knowledge of their distribution.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek to ensure that PPG9 guidance issued by the DoE is taken into account by Highway Authorities and Local Authorities. Target = 1998 onwards. (ACTION: DoT, LAs, ECC, EN).

6.1.2 Push for designation, statutory or non-statutory, of sites which support dormice and currently have no protection. Target = next CWS review and on-going. (ACTION: EN, EWT)

6.2 Site Safeguard and Management

6.2.1 Provide advice to land managers on appropriate management for dormice using EN Dormouse Species Recovery Plan booklet - targeted after 'Nut Hunts' have identified new locations, 1998 onwards. (ACTION: EN, EWT)

6.2.2 Encourage land owners to use grant-aid and incentive schemes (such as Woodland Grant Schemes) to help them manage suitable habitat appropriately. Target = ongoing. (ACTION: FA, EN, MAFF, FWAG).

6.2.3 Prioritise identified dormouse sites to target both the management of existing populations and WGS/ CS to reconnect habitat on adjacent land (hedges and woodland). This is a long term aim beginning in 1998, but planning for the next 50 years. (ACTION: FA, MAFF, EWT, LAs, FWAG, Thames Chase).

6.3 Species Management and Protection

6.3.1 Continue to monitor the progress of dormouse introductions in other counties, including the requirements for woodland size and type. This could only take place in large reserves where the habitat is suitable, it is certain that there are no dormice present, and the resources are available to sustain the project. Target = ongoing. (ACTION: EN, EWT).

6.4 Advisory

6.4.1 Distribute any new national publications. Target = ongoing. (ACTION: EN).

6.4.2 Develop training for dormouse conservation for landowners, managers and wardens. Target = 2 county training sessions by end of year 2000(ACTION: FA, MAFF, EN, EWT).

6.4.3 Ensure that any new information on habitat management and ecology is passed on to landowners, managers and wardens. Target = ongoing and through training sessions. (ACTION: FA, MAFF, EN, EWT).

6.5 Future Research and Monitoring

6.5.1 Continue research into dormouse ecology in Essex, such as nesting materials and habitat preferences, and feed this into national research. Target = ongoing. (ACTION: EN, EWT).

6.5.2 Continue to analyse and disseminate research findings, and modify forestry practices as appropriate. Target = ongoing. (ACTION: EN, EWT, FA).

6.5.3 Continue and expand the established Dormouse Nestbox Monitoring Scheme in Essex, both within EWT reserves and other sites, aiming to refine distribution data by further sampling. Target = 4 new sites by end of year 2000. (ACTION: EWT).

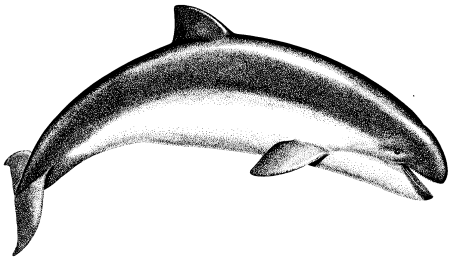
6.5.4 Support and expand repeat surveys based on the Great Nut Hunt to provide data on County distribution. Target LNRs non-statutory nature reserves and LA land. Target = 1998 and 2/3 yearly intervals. (ACTION: EN, EWT, LAs).

6.6 Communications and Publicity

6.6.1 Continue to make the public aware of this species and its role as a key indicator of good woodland and hedgerow management during talks, presentations and in publications. Target = ongoing. (ACTION: EN, FA, EWT, LAs).

6.6.2 Use the dormouse as a flagship species to explain the value of coppicing in woodlands. Target = 1998 onwards. (ACTION: EN, EWT, LAs, FE).

HARBOUR PORPOISE (*Phocoena phocoena*)



National Lead Partner: SMRU
County Lead Partner: EWT (01206 729678)
Associated Plans: None

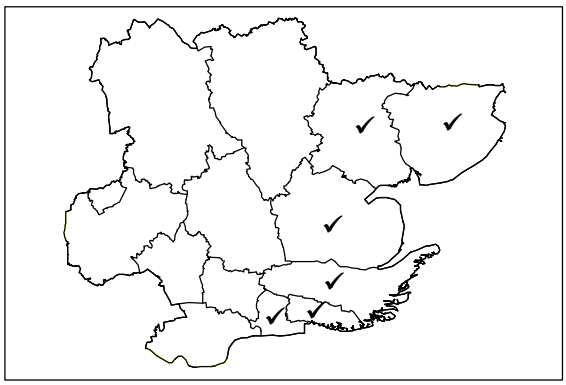
1. STATUS IN THE UK

1.1 The harbour porpoise is the only species of true porpoise found in European waters. It is the smallest British cetacean never reaching more than 2m in length. It is has a dark grey back and is paler below, a small round body and small head with no beak The dorsal fin is triangular and placed in the middle of the back. Porpoises are most often seen in small groups or individually within 10 km of the shore. They can be observed in all months, but there is a seasonal peak between July and October. (Evans, 1991)

1.2 There is some evidence of a decline in numbers of harbour porpoise in UK waters since the 1940s, especially in the southern North Sea and English Channel. The conservation status of the species around the whole UK coast is unknown, but the recent "SCANS" survey of small cetaceans in the North Sea, Channel and Celtic Sea indicated that the population in those waters was approximately 350,000.

1.3 The harbour porpoise is listed on Appendix II of CITES, Appendix if the Bern Convention and Annexe II and IV of EC Habitats Directive. It is also on Appendix 2 of the Bonn Convention and is covered by the terms of the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS), a regional agreement under the Bonn Convention. It is protected under Schedule 5 of the WCA 1981.

2. STATUS IN ESSEX



2.1 At the present time the status of this species off the Essex and East Anglian coast is uncertain. Casual remarks suggest that they were common off the coast about 50 years ago. The majority of local records are old, mainly concerned with dead individuals. No map or details of this species was included in the Essex Mammal Atlas of 1986 although some cetaceans were included. It is probably still found off the coast in low numbers.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

These are not clear at the present time, but could include:

3.1 Incidental capture and drowning in fishing nets.

3.2 Environmental contaminants - toxic substances at sea, marine debris, disease, noise disturbance, physical disturbance from large amounts of marine traffic.

3.3 Environmental change - effects of fishing and possibly climate change.

4. CURRENT ACTION

4.1 No known action is being undertaken in Essex with the exception of odd sightings. No survey has been undertaken close to the East Anglian coast in recent years.

4.2 Distribution studies have been undertaken by JNCC since 1980. The Sea Mammal Research Unit co-ordinated the international SCANS survey (which included the North Sea) in 1994.

4.3 Conservation, management and research action is being undertaken and planned under ASCOBANS, but it is not thought that any is planned for this region.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Determine size and distribution of harbour porpoise population in coastal waters around Essex and East Anglia

5.2 Set up an East Anglian coastal network to monitor any porpoises present and co-ordinate data received from casual sightings.

5.3 Revise action plan if there are porpoises present close to the Essex coast.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Future Research and Monitoring

6.1.1 Carry out a comprehensive survey of the waters off the Essex coast (and if possible the rest of the East Anglian coast) for coastal mammal species. (ACTION: EWT, Sea Watch, Whale and Dolphin Conservation Society).

6.1.2 Set up a coastal recording network to report all sightings (ACTION: EWT, Essex and Kent Fisheries, EN, EA).

6.1.3 Ensure that all casualties are sent for post-mortem and tissue studies (ACTION: EN, EA, LAs, EWT).

6.2 Communications and Publicity

6.2.1 Highlight the fact that there are native species of cetacean off the Essex coast and that they are part of the natural heritage and not just present in exotic waters. (ACTION: EWT, EN, Whale and Dolphin Conservation Society).

6.2.2 Initiate a scheme for the public to report any sightings both of live and stranded individuals. (ACTION: EWT, EN)

Until some research has taken place, other action for this species cannot really be determined. If they are found still to be present off the coast the following actions are likely:

6.3 Policy and Legislation

6.3.1 Introduce agreed codes of conduct to reduce disturbance from acoustic sources and physical pressures (ACTION: JNCC, EN).

6.4 Site Safeguard and Management

6.4.1 Introduce speed limits and no-go areas to ensure the safe passage of the species (ACTION: EN, LAs).

6.4.2 No further action is required with regard to marine protection as practically all of the Essex coast has SAC designation for other reasons.

6.3 Species management and Protection

6.3.1 Work with fishers with the aim of reducing and avoiding by-catches in active and passive fishing gear, and to dispose of discarded gear safely. (ACTION: MAFF, JNCC).

6.3.2 Introduce a code of practice to reduce disturbance by other marine craft (speedboats, etc.). (ACTION: EN, EA, LAs).

6.4 Advisory

6.4.1 Disseminate best practice from any future national research.

6.4.2 Provide an advisory service to accompany any codes of best practice. (ACTION: EN, EA, LAs).

7. REFERENCES

Evans, P.G.H (1991). Whales, Dolphins and Porpoises: Order Cetacea. In *The Handbook of British Mammals.* Blackwell. Ed. Corbet, G.B & Harris, S.

European otter (*Lutra lutra*)

National Lead Partner: EA/WTs
County Lead Partner: EA/EWT (01473 727712 / 01206 729678)
Associated Plans: None

1. CURRENT STATUS IN THE UK

1.1 The otter is a large, semi-aquatic member of the stoat and weasel (mustelid) family. It can be distinguished from other mustelids and aquatic rodents in the water by its large size and flattened head. It occurs in rivers, streams, lakes, marshes and coastal habitats. Otters are opportunistic hunters that will take a wide range of prey depending on the habitat, but most mainly feed on fish.

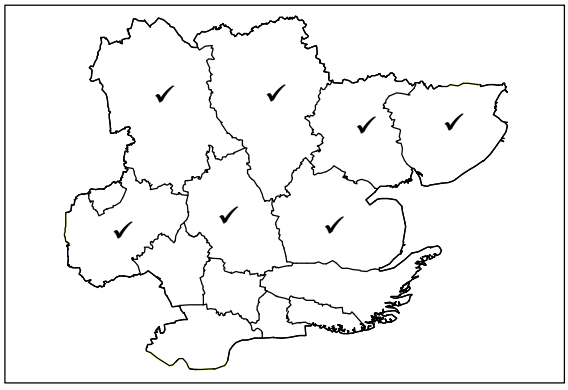
1.2 The otter is a top predator in the river ecosystem and as such it occurs at a naturally low density. Its sensitivity to river management and water quality makes it a valuable indicator of the health of riverine ecosystems.

1.3 Despite the decline of the thirty years from 1960, the UK as a whole still supports a significant population of otters in a European context.

1.4 The otter is listed on Appendix I of CITES, Appendix II of the Bern Convention and Annexes II and IV of the Habitats Directive. It is protected under Schedule 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation (Natural Habitats etc.) Regulations, 1994 (Regulation 38). The European subspecies is also listed as globally threatened on the IUCN / WCMC Red Data List.

2. CURRENT STATUS IN ESSEX

2.1 The otter was widespread in Essex up to the early 1960s but a rapid decline throughout the decade culminated in its disappearance from the County in the mid 70s and 80s. This decline was the result of a number of factors, of which the most significant is likely to have been bioaccumulating organochlorines, especially PCBs.



2.2 Surveys in 1996 and 1997 by the University of Essex for the WWF have found the otter to be present on a significant number of rivers in Essex, particularly in the North and East. These include the Colne, Stour, Blackwater, lower Chelmer, Stort, Lee and Cam. The increase in the population locally is at least in part due to a re-introduction project in East Anglia. In Essex, small groups were released into Hamford Water and the rivers Stort and Stour. The current optimistic situation should be tempered by the fact that several years of population consolidation will be needed before the future of the otter in Essex is more secure.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Water Quality : As long as a river is virtually free of bioaccumulating contaminants and has sufficiently good water quality to enable it to support fish, it can support otters. In Essex, only perhaps the Mardyke system is currently incapable of supporting otters on water quality grounds. However, even if they do establish themselves on the rivers of the South East of the County, these populations are only ever likely to be marginal. Individual populations are vulnerable to isolated pollution incidents.

3.2 Low rainfall and inappropriate abstraction : low flow and its attendant problems for water quality may have posed problems for the spread of otter in Essex.

3.3 Loss of habitat : Intensification of riparian management has led to habitat loss for otters, in particular the loss of breeding and resting sites.

3.4 Insufficient food : Associated with low water quality, leading to a reduction in fish stocks. Currently only a problem in the Mardyke catchment.

3.5 Accidental Death: Road traffic accidents are probably the biggest single threat to the re-establishment of a thriving otter population in Essex. Otters are reluctant to pass under bridges that do not provide opportunities for sprainting. This leads them to cross roads and leaves them vulnerable to traffic accidents. Road building, and the density of traffic on roads, has increased enormously since the end of the 1950s when otters were last common in the county.

3.6 Drowning in fish / eel traps continues to pose a threat to otters in some regions.

4. CURRENT ACTION

4.1 Releases of captive-bred otters have taken place on a piecemeal basis since the early 1990s, but the documentation of this activity is incomplete. The national Framework Document on otters produced by JNCC is opposed to the release of captive-bred otters and this approach is reflected in Essex Wildlife Trust's approach to re-introduction programmes for the species.

4.2 A survey of the Essex river catchments is being carried out by S.M. Macdonald and C.F. Mason and has funding from WWF until 2001. This involves surveying for evidence of otter (spraints) every spring and autumn at fixed points along the rivers.

4.3 The River Colne Countryside Project is, in partnership with relevant bodies and funded by the Environment Agency, pioneering a scheme to build fauna passages under major road bridges on the Colne in the hope of reducing the potential for otters to be involved in traffic accidents.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Encourage the expansion of the otter population to all major catchments and coastal habitats in Essex by 2010.

5.2 Reduce the danger posed by road traffic, through the provision of safe road crossings at appropriate bridge locations.

5.3 Encourage otter- sensitive riparian land management in Essex.

5.4 All rivers in the county to be fisheries target classes (see EA LEAP plans) by 2010.

5.5 Encourage the introduction of new fisheries legislation to make the fitting of otter guards compulsory in all fyke nets used in waters likely to support otter populations.

6. PROPOSED ACTIONS WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Review abstraction guidelines in order to maintain flows sufficient to maintain high ecosystem classification in all Essex rivers. (ACTION: EA.).

6.1.2 Ensure all wetland or riparian sites found to be regularly used by otters are designated as SINCs and recognised and protected in Local Plans. (ACTION: LAs, EWT, EN).

6.2 Site Safeguard and Management

6.2.1 Include action for otters in all LEAPs (ACTION: EA).

6.2.2 Promote the take-up of agri-environment schemes to encourage appropriately managed corridors of riparian habitat and to mitigate for loss of habitat. (ACTION: FRCA, FWAG, LAs, NFU, EN, EA).

6.2.3 Ensure that all new bridges have fauna passages or provide opportunities for sprainting under them. (ACTION: ECC, EA, LAs).

6.2.4 Identify and then improve those existing bridges on roads 6metres wide or over (including pavements) that are not found to be 'otter friendly'. (ACTION: as above plus University of Essex).

6.2.5 Ensure, where possible, that the rate of flow in main rivers remains high enough to prevent a reduction in water quality. (ACTION: EA).

6.2.6 Ensure that the level of fish stocks in main rivers remain adequate to support otters (ACTION: EA).

6.3 Species Management and Protection

6.3.1 Review the need for current and future local release practices of otters; this should be done in the light of the national framework document policies on release schemes and the natural recolonisation of local river systems. (ACTION: EN, EA, EWT, University of Essex, Otter Trust).

6.3.2 Promote the creation of a selected small number ponds by rivers, in key strategic locations, to be stocked with fish. (ACTION: LAs, FWAG, EWT, EA, EN).

6.3.3 Seek to establish an Essex Otter Forum to co-ordinate conservation, information exchange, publicity and research. (ACTION: EA).

6.4 Advisory

6.4.1 Ensure that landowners are aware of the legal status of otters and that advice is available on appropriate management of their habitat (ACTION: EN, EA, EWT, LAs).

6.4.2 Ensure that the Highway Authority, Highways Agency and Environment Agency are aware of the needs of otters in relation to bridges (ACTION: ECC, Highways Agency, EA, EN).

6.5 Future Research and Monitoring

6.5.1 Survey all existing bridges for their 'otter friendliness' (ACTION: University of Essex, EA, EWT, LAs).

6.5.2 Continuation of the present research beyond 2001 (ACTION: University of Essex and potential funding partners - EA, EN WWF - current funding body).

6.5.3 Monitor the rate of flow in main rivers with a view to controlling abstraction rates to support flow rate. (ACTION: EA).

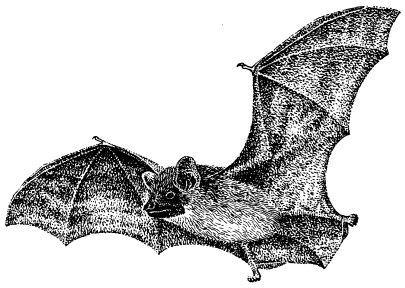
6.6 Communications and Publicity

6.6.1 A careful programme of publicity, exercising discretion, needs to accompany any attempts to conserve the otter in Essex. It is premature at this time to promote as a success story the return of the otter to the county. (ACTION: LAs, EWT, EA, EN, University of Essex).

6.6.2 Promotion to landowners highlighting positive management actions which would benefit otters. (ACTION: LAs, FWAG, FRCA, NFU, EWT, EA, EN).

6.6.3 Promote monitoring of otter population by providing opportunities for local people to report any sightings. (With careful checking to avoid inaccurate attribution). (ACTION: Local Records Centres, EWT).

PIPISTRELLE BATS (*Pipistrellus pipistrellus*)*



National Lead Partner: BCT
County Lead Partner: EBG/EN (01206 796666)
Associated Plans: Ancient woodland, ancient and species rich hedgerows, cereal field margins, urban.

1. CURRENT STATUS IN THE UK

1.1 Pipistrelle bats are small bats (head and body up to 45mm) with variable brown/grey coloration. They roost in a variety of buildings and structures including churches, modern houses, bridges and walls. They forage in many habitat types including woodlands, urban areas such as parks and gardens, lakes, ponds and wet/marshy areas.

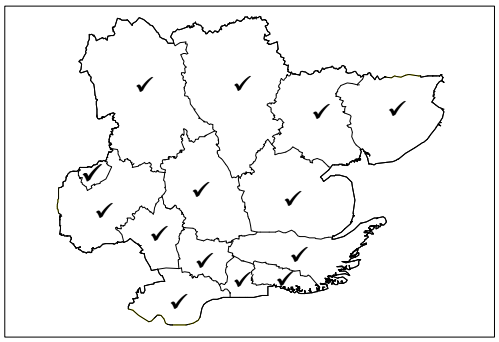
1.2 In the UK pipistrelle bats are the most abundant bat species and the species most likely to come into contact with humans. However, the National Bat Colony Survey suggests a decline of 70% between 1978 and 1993. The UK pre-breeding population estimate stands at about 2 million. The problems of estimating population trends have been compounded by the recent discovery that there are two distinct species of pipistrelle bat in the UK.

1.3 Bats use high frequency echo-location calls to detect their insect prey whilst flying. The two species of pipistrelle can be distinguished by monitoring these calls with a bat detector - one species uses calls around 46 kHz, the other 55 kHz. *At the time of publication the two species have not been given separate scientific names, so the original name (*Pipistrellus pipistrellus*) has been used.

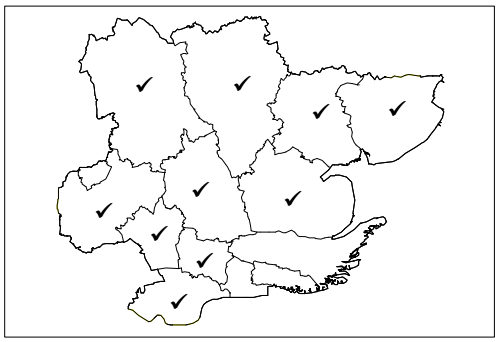
1.4 The pipistrelle is listed on Appendix III of the Bern Convention, Annex IV of the EC Habitats Directive and Appendix II of the Bonn Convention. It is also included under the Agreement on the Conservation of Bats in Europe. It is protected under schedule 2 of the Conservation (Natural habitats) Regulations 1994 and schedules 5 and 6 of the Wildlife and Countryside Act (1981) and schedules 5 and 6 of the Wildlife (Northern Ireland) Order (1985).

2. CURRENT STATUS IN ESSEX

2.1 Mirroring the national distribution, pipistrelles are the most abundant bat species in the county. Both species of pipistrelle are present in Essex although survey work is at an early stage. The 46kHz type has been recorded from 42 10km squares (all districts) and the 55kHz type from 23 10 km squares (10 districts).



Distribution of 46kHz species



Distribution of 55kHz species

2.1 Where colonies have been counted over successive years, a decline in numbers has been seen e.g. in Maldon a colony declined from over 1041 bats in 1990 to 688 in 1996 and at Little Baddow from 656 bats in 1988 to 264 in 1995. However, at South Woodham Ferrers and Bicknacre colony size has remained relatively unchanged over several years.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Reduction in insect prey abundance, due to high intensity farming practices and inappropriate riparian management.

3.2 Loss of insect rich feeding habitat such as wetlands and hedgerows.

3.3 Loss and disruption of flightline features (linear landscape elements) such as hedgerows.

3.4 Loss of roost sites in buildings and trees due to cavity wall insulation, use of UPVC barge-boarding and soffits and clearance of dead trees.

3.5 Disturbance and destruction of maternity roosts due to building works and conflicts with householders.

4. CURRENT ACTION

4.1 The National Bat Colony Survey is monitoring several colonies in Essex.

4.2 Essex Bat Group continues to provide support to EN in its advisory capacity and in surveying, monitoring and educational activities.

4.3 Field work is being undertaken to record distribution of the two pipistrelle species in Essex.

4.4 Licensed bat workers carry out advisory visits to householders to discuss management for all species of bat.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain existing populations and range of pipistrelles

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Encourage water quality levels which will help support populations of aquatic insects on which pipistrelles feed. (ACTION: EA, EWT, EBG).

6.1.2 Ensure the needs of this species are considered in incentive schemes designed for the management of suitable pipistrelle habitats. (ACTION: FWAG, NFU, EWT, EN).

6.2 Site Safeguard and Management

6.2.1 Encourage favourable management of land adjacent to known roost sites to support foraging by juvenile pipistrelles. (ACTION: EN, EWT, NFU).

6.3 Species Management and Protection

6.3.1 See section 6.6.2 below

6.4 Advisory

6.4.1 Ensure landowners are aware of the presence and legal status of pipistrelle bats and that advice is available on appropriate methods of management for conservation of their roosts and foraging habitats. (ACTION: EBG, BCT, FWAG).

6.5 Future Research and Monitoring

6.5.1 Undertake fieldwork to record distribution of both species. (ACTION: EBG).

6.5.2 To continue to monitor summer maternity roosts. (ACTION: EBG).

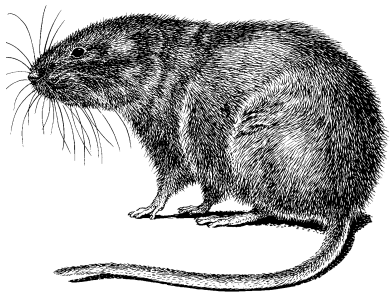
6.5.3 Pass information gathered during survey and monitoring of this species to BCT and The Robert Stebbings Consultancy in order that it can be incorporated in a national database and contribute to the maintenance of an up to date Red List. (ACTION: EBG).

6.6 Communications and Publicity

6.6.1 To maintain programmes of roost visiting, general education and publicity. (ACTION: EN, EBG, BCT).

6.6.2 Continue to inform the public about the harmlessness of bats and encourage householders not to ‘evict’ them from house roosts. (ACTION: EBG, EN, EWT).

WATER VOLE (*Arvicola terrestris*)



National Lead Partner: EA
County Lead Partner: EA/EWT (01473 727712 / 01206 729678)
Associated Plans: Coastal grazing marsh

1. CURRENT STATUS IN THE UK

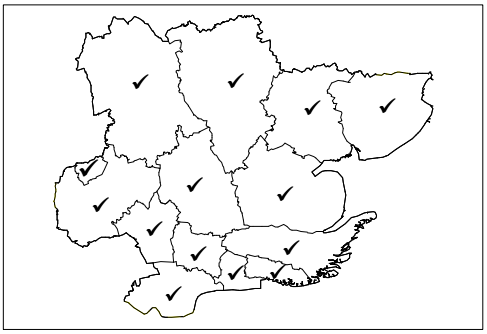
1.1 The water vole (or water rat) is the largest of the British voles with a head and body measuring around 20 cm. Due to its size and semi-aquatic lifestyle it is often confused with the brown rat when swimming, but the two can be distinguished quite easily as rats have more prominent ears, pointed snout and hairless tails.

1.2 Water voles inhabit the banks of slow flowing rivers, streams and ditches as well as non-flowing water features such as lakes, ponds and dykes. Their presence can be determined by searching for their burrows at and above the water level, together with characteristic piles of droppings (latrines) and feeding remains.

1.3 Previously a common and frequently seen species throughout the UK, the water vole has declined in distribution and numbers in recent years. A recent survey of water voles showed that populations had seriously declined, with 67% of those sites in the UK previously recorded as occupied in 1939 having no water voles recorded in 1989-90. Most of this loss is thought to have occurred in recent years and it is estimated that losses will have reached 94% by the year 2000

1.4 In 1998 the water vole received limited protection under the quinquennial review of the Wildlife and Countryside Act (1981) under schedule 5 section 9(4). It is now an offence to damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection and/or to disturb water voles while they are using such a place.

2. CURRENT STATUS IN ESSEX



2.1 The survey of 1989-90, carried out by the Vincent Wildlife Trust, showed that east Anglia was one of the least affected areas of water vole decline, with 60-80% of sites still being occupied (Strachan, R. & Jefferies, D.J. [1993])..

2.2 More recent records (1997) from the RSNC national water vole survey indicates that water voles are still present on most of the main river catchments in all districts in Essex, although population numbers are thought to have declined at some sites.

3. CURRENT FACTORS CAUSING LOSS OF DECLINE

3.1 Habitat loss: Loss of suitable bank-side habitats as a result of engineering, bank-side development, over zealous vegetation clearance & general decline of habitat condition have all contributed. (Woodroffe, G. 1996).

3.2 Population Fragmentation: Increasingly populations are being fragmented by human interference, from new roads to canalisation, development and loss of suitable inter-connecting river corridor habitat and the presence of mink.

3.3 Water Level Fluctuations: Water voles need steady water levels in channels to make their tunnel entrances secure. Recent years have seen significant water level fluctuations in many rivers as a result of droughts. As a consequence flooding of chambers and increased predation from native predators can occur (see also below).

3.4 Predation: The spread of feral mink (*Mustela vison*) throughout the UK has increased predation levels on water vole.

3.5 Pollution: Contamination of freshwater environments by pesticides, heavy metals, DDE, PCBs, and organic pollution from slurry and sewage may have contributed to the decline of water voles in certain river catchments, however water voles have been recorded as thriving on polluted watercourses in some areas.

3.6 Poisoning: In-direct poisoning of water voles by non-specific rodenticides targeted at brown rats can be a localised problem.

4. CURRENT ACTION

4.1 A handbook providing advice on habitat management and conservation of water voles is being produced nationally by English Nature and Environment Agency. There is currently a section regarding water voles in the EN species conservation handbook

4.2 A water vole and mink survey of main rivers and some non-main river sites in Essex has been completed (1998) results available in 1999.

4.3 A national re-survey of 2,970 sites originally surveyed in 1989-90 UK survey is being carried out in 1997-8 by the Vincent Wildlife Trust.

4.4 A national survey by volunteers of water vole sightings carried out by the RSNC during 1997/8 has produced many results in Essex. These results will be collated and will be available in 1999.

4.5 Distribution of mink in Essex is being included in the county otter survey being carried out by Essex University.

4.6 Compilation of county mammal atlas including water vole records is being carried out by Essex Field Club.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Endeavour to halt the decline of water voles in Essex by the year 2000.

5.2 Restore viable populations of water voles to those river catchments in the county that have lost them by the year 2010.

5.3 Improve riverine and other habitats for water voles throughout the county based on current research regarding their habitat requirements.

5.4 Monitor and record populations of water voles and mink in selected river catchment areas in the county.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek prioritisation of river corridor habitats in agri-environment schemes applicable to Essex - Countryside Stewardship, Essex Coast E.S.A. and Arable Stewardship. (ACTION: NFU, FWAG, EN, MAFF).

6.1.2 Include specific mention of habitat management for water voles in all LEAPs & Water level management plans. (ACTION: EA).

6.1.3 Include water voles, as a protected species, in development plan policies. (ACTION: ECC, LAs).

6.2 Site Safeguard and Management

6.2.1 Identify prime water vole population sites on county river sections and safeguard from adverse river management works. (ACTION: EA).

6.2.2 Identify river sections suitable for water level management / bankside management for re-colonisation of water voles. (ACTION: EA).

6.2.3 Target adjacent landowners for uptake of ELMS. (ACTION: FRCA, EA, EWT, EN).

6.3 Species Management and Protection

6.3.1 Carry out county-wide survey of water voles before 1999. (ACTION: EA EWT, FWAG).

6.3.2 Continue with county-wide survey of mink in Essex. Consider controlling mink to prevent the spread into currently mink free areas. (ACTION: University of ESSEX, EA, EN).

6.4 Advisory

6.4.1 Distribute widely management advisory booklet compiled by EN / EA (Available 1998) to all relevant partners and riparian controllers. (ACTION: EN, EA).

6.4.2 Promote water vole friendly management of aquatic sites by water authorities and statutory organisations. (ACTION: EA, Water Authorities, EN).

6.4.3 Promote better awareness of water voles and their requirements amongst private land owners and managers. (ACTION: EA EWT, FWAG, NFU, LAs, angling clubs).

6.5 Future Research and Monitoring

6.5.1 Research into viable methods of mink control. (ACTION: EA, EN).

6.5.2 Lobby for national research on the inter-relationship (if any) of freshwater pollutants and water vole populations. (ACTION: EN, EA).

6.5.3 Monitor the effect of rat trapping and the use of rodenticides on water vole populations. (ACTION: EA, EN, EWT)

6.6 Communications and Publicity

6.6.1 Use the water vole, with other freshwater species as an indicator of good water quality / riverine habitat in Essex waterways. (ACTION: EA,EN,EWT).

6.6.2 Publicise the risk of rodenticides to water voles and promote careful use of such chemicals near water courses. (ACTION EA,EN,FWAG,NFU)

7. REFERENCES

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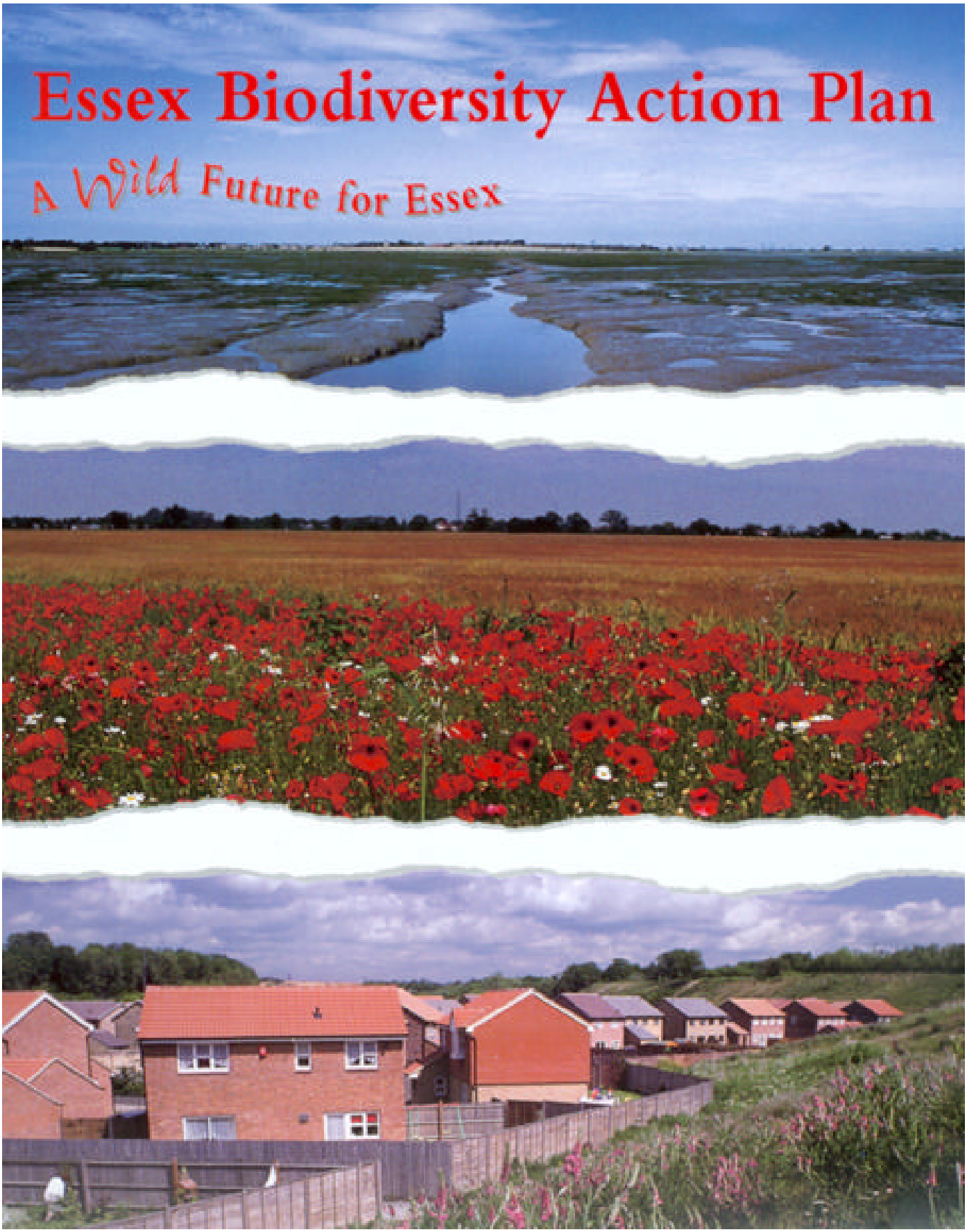
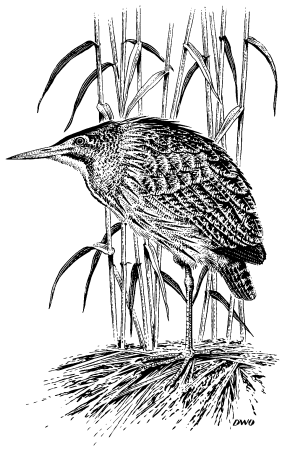
Essex Biodiversity Action Plan

A Wild Future for Essex



BITTERN (*Botaurus stellaris*)



National Lead Partner: RSPB
County Lead Partner: RSPB (01603 660066)
Associated Plans: Reedbeds

1. CURRENT STATUS IN THE UK

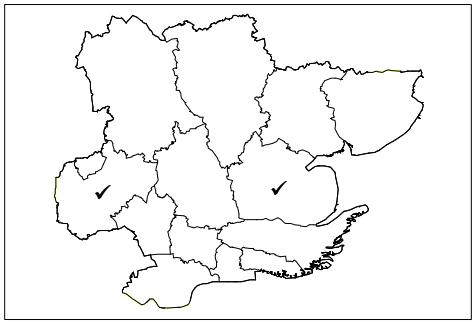
1.1 The bittern is a large, brown, secretive heron which inhabits dense reedbeds feeding on fish and amphibians. It is rarely seen, but its presence can be recorded by the characteristic booming of the male birds.

1.2 It is a rare, declining and highly localised breeding species almost entirely confined to lowland reedbeds in Norfolk, Suffolk and Lancashire. The UK breeding population has declined from a peak of 70 pairs in eight counties in the late 1960s to only 11 booming males in 1997. The breeding population is boosted in the winter by continental migrants.

1.2 It is listed on Annex 1 of the EC Birds Directive and Appendix III of the Bern Convention. It is protected in the UK under Schedule 1 of the Wildlife and Countryside Act 1981.

2. CURRENT STATUS IN ESSEX

2.1 The bittern has bred once in Essex (at Old Hall Marshes c.1944) and summered regularly at Old Hall Marshes until 1962. The species regularly winters in the county in the Lee Valley at Fishers Green and at Old Hall Marshes.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of suitable large reedbeds through seral succession, inappropriate management (particularly drainage and water abstraction) and fragmentation.

3.2 Degradation of habitat through eutrophication, pesticide and heavy metal pollution.

3.3 Food availability, especially of eels, affected by inappropriate habitat management and pollution.

3.4 Salt water intrusion into coastal reedbeds.

3.5 Problems due to small population size.

4. CURRENT ACTION

4.2 A high proportion of remaining national bittern sites are protected as nature reserves.

4.3 Detailed studies on bittern ecology have been carried out by the RSPB leading to a greater understanding of habitat requirements.

4.4 Management work has been carried out by statutory agencies and NGOs to restore and re-create suitable reedbed habitat for bitterns.

4.5 English Nature launched its Bittern Recovery Project, with funding available to landowners and NGOs for reedbed management and restoration.

4.6 Improved monitoring of populations has been achieved through voice pattern analysis.

4.7 Ongoing reedbed restoration, protection and creation work at Old Hall Marshes RSPB reserve as part of EU LIFE project. This site is thought to have the potential to hold a single breeding pair.

4.8 Reedbed work planned as outlined in Essex Reedbed Action Plan.

4.9 Implementation and promotion of water abstraction policies by the EA which give priority to nature conservation sites of national and international importance.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Encourage bitterns to breed in Essex.

5.2 Provide suitable bittern wintering sites.

5.3 Create 10 ha of new reedbed at Cheshunt Gravel Pits in Lee Valley, with a view to providing suitable wintering habitat, and encouraging breeding of at least a single pair within 10 years.

6. PROPOSED ACTIONS WITH LEAD AGENCIES

The bittern has not bred in the county since the 1940s, and occurrence of individuals has declined at all times of the year since then. The actions proposed are concentrated on recreating suitable bittern breeding and wintering habitats. This should not only benefit the bittern, but also the status of other, less publicised, species. See also county reedbed action plan.

6.1 Policy and legislation

6.1.1 Implement initiatives for the creation and management of large scale reedbeds on agricultural land. (ACTION: EN, EA, RSPB, MAFF, FRCA).

6.1.2 Ensure adequate protection of freshwater reedbeds of high conservation importance from sea water incursion in line with Essex Shoreline Management Plan. Target = All freshwater reedbeds protected from sea water incursion where economically feasible and desirable by 2005. (ACTION: EA, EN, RSPB, EWT).

6.1.3 Promote, in development plans, appropriate conditions of after-use for sand and gravel extraction sites which would favour reedbed development, ensuring that equal or greater priority is given to conservation as is currently afforded to recreation after-use. Target = All development plans in Essex to promote reedbed creation as a mineral extraction after use. (ACTION: EN, ECC, LAs, EWT, RSPB).

6.1.4 Consider developing environmental land management schemes to include prescriptions and incentives for reedbed restoration and management. (ACTION: EN, ECC, LAs, EA).

6.1.5 Promote the development and enhancement of suitable bittern habitats in relevant LEAPs and Water Level Management Plans. Target = All relevant LEAPs and WLMPs to contain action to create or enhance suitable bittern habitat. (ACTION: EA, RSPB, EN).

6.1.6 Support SPA status for the Lee Valley. Target = Lee Valley to be designated as SPA by 2001. (ACTION: All BAP partners, LVRPA)

6.2 Site safeguard and management

6.2.1 Manage and restore existing reedbeds in order to encourage bitterns to breed. Target = All reedbeds >10ha in size in suitable condition for breeding bittern by 2005. (ACTION: RSPB, EWT, EN, Private Owners, LVRPA).

6.2.2 Promote and facilitate reedbed creation on surplus agricultural land, mineral extraction sites etc. (ACTION: EN, ECC, LAs, RSPB, EWT, Landfill Trusts).

6.2.3 Protect any sites which are important for bitterns, having regard to the significance of formal and informal site designations when considering any proposed developments. (ACTION: EN, RSPB, LAs).

6.3 Species management and protection

6.3.1 Consider supplementary feeding in severe winters. Target = the need for a supplementary feeding programme to be assessed and if adopted the programme to be designed and in place by 2000. (ACTION: RSPB, EBS, EFC).

6.3.2 Determine current food supply on key sites and manage accordingly. Target = food supplies on key sites known and management mechanisms implemented by 2001. (ACTION: RSPB, EN, EA, EBS, EFC).

6.4 Advisory

6.4.1. Advise reedbed owners and managers of bittern requirements in order to promote appropriate management for this species using currently managed sites (e.g. Old Hall Marshes) as examples. Target: mechanism for giving advice on reedbed management in place by 2000. (ACTION: EN, RSPB, EA, EWT, Lee Valley Conservation Group).

6.5 Future research and monitoring

6.5.1 Use results of national research to ensure that reedbeds in Essex are managed optimally for bitterns Target: all reedbed sites in Essex to have agreed management plan by 2002 (ACTION: EN, RSPB, EWT, MoD, Lee Valley Conservation Group).

6.5.2 Monitor all reedbed sites for bittern activity Target = all reedbed sites monitored regularly by 2000. (ACTION: EN, RSPB, EWT, EBS, EFC).

6.5.3 If feasible, colour-ring and radio-tag bitterns in Lee Valley to investigate their movements and use of sites within the Lee Valley. Target = Feasibility study completed by 2000 (check with LVRPA). (ACTION: RMRG, RSPB).

6.5.4 Ensure that any bittern corpses or addled eggs are analysed for heavy metals and pesticides. Target = Protocol for dealing with any addled eggs or dead birds designed and in place by 2000. (ACTION: RSPB, EN).

6.5.5 Pass information gathered during survey and monitoring of this species to JNCC, BRC and BirdLife International so that it can be incorporated in national databases and an up-to-date global red list. Target = Data to be submitted to JNCC, BRC and BirdLife International on an annual basis. (ACTION: RSPB, EN, EBS, EFC, EWT).

6.6 Communications and publicity

6.6.1 Use this species to promote the importance of reedbeds and their conservation. Target = ongoing. (ACTION: EN, EWT, RSPB, LAs).

6.6.2 Maintain the bittern watch point at Cheshunt Pits. (ACTION: LVRPA, RSPB).

GREY PARTRIDGE (*Perdix perdix*)

National Lead Partner: TGCT
County Lead Partner: RSPB (01603 660066)
Associated Plans: Cereal field margins, ancient and species rich hedgerows, skylark, brown hare.

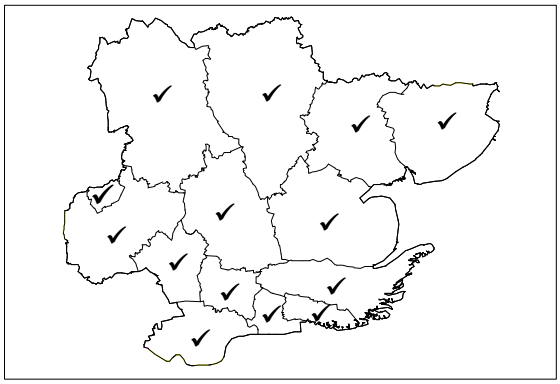
1. CURRENT STATUS IN THE UK

1.1 This is the only native partridge in the British Isles. It occurs in arable fields, rough pasture, heaths and moorland. It is a widespread species with an estimated national population of 150,000 pairs. However, the population has declined by over 50% between 1969 and 1990.

1.2 This species is protected in the close season under the Game Acts. It is listed on Annex III/I of the EC Birds Directive and Appendix III of the Bern Convention.

2. CURRENT STATUS IN ESSEX

2.1 The grey partridge is patchily distributed through all the Essex districts with strongholds along the Thames estuary, Colne and Hamford Water and the Dengie area and inland in the Epping Forest district. Population trends are unclear, but it appears to have steadily declined since the 1940s with some stabilisation over the past few years (Dennis, 1996).



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of nest sites (such as hedge bottoms) as a result of farm intensification.

3.2 Reduced food supplies and sources for chick food through the use of pesticides and herbicides, as well as the loss of winter stubble used as a food source by adults.

3.3 Vulnerability of nests to predators in farmland with poor cover.

3.4 Nest destruction caused by early mowing and other farm operations.

4. CURRENT ACTION

4.1 The Game Conservancy Trust (TGCT) encourages land managers to create suitable conditions for grey partridges, including suitable nest sites and cover, summer and winter feeding areas (e.g. conservation headlands and winter stubbles), and control of predators and shooting.

4.2 Some suitable habitat is also provided on some land under CSS and the pilot ASS scheme.

4.3 A species action plan has been prepared for this species by the RSPB, the country agencies and the TGCT.

4.4 Arable margins are being promoted via the ESA review.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Halt and reverse the decline of the grey partridge in Essex

5.2 Maintain, and where possible enlarge, the range of the species in Essex.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Encourage the uptake of agri-environmental schemes taking the needs of this species into account. Target = agri-environment schemes to have grey partridge prescriptions by 2003. (ACTION: MAFF, FWAG, NFU, EN, EWT).

6.1.2 Promote appropriate set aside management. Target = 50% set-aside in Essex managed to benefit grey partridge by 2003. (ACTION: FWAG, NFU, MAFF).

6.1.3 Encourage the targeted use of pesticides on farmland. Target = Guidance material produced by 2000. (ACTION: FWAG, NFU, EN).

6.2 Site safeguard and management

6.2.1 Review management of land owned or managed by BAP partner bodies for grey partridge and other farmland wildlife. Target = management practices reviewed considering grey partridge requirements by 2001. (ACTION: ECC, LAs, RSPB, EWT, NT)

6.3 Species management and protection

6.3.1 No action proposed.

6.4 Advisory

6.4.1 Continue to provide information and advice on field margins, set-aside management etc. through TGCT, FWAG and other advisors. Target = ongoing. (ACTION: TGCT, FWAG, EN).

6.4.2 Promote field margins as wildlife habitat. Target = ongoing. (ACTION: FWAG, EN, EWT, NFU).

6.5 Future research and monitoring

6.5.1 Encourage local research and survey, especially when linked to farmland management for grey partridge. Target = a greater understanding of grey partridge habitat requirements in Essex by 2003. (ACTION: RSPB, EN, FWAG, EBS, EFC).

6.5.2 Pass information gathered during survey and monitoring of this species to JNCC, BRC and BirdLife International so that it can be incorporated in national databases and contribute to the maintenance of an up-to-date global red-list. Target = Data to be submitted on an annual basis. (ACTION: RSPB, EN, EBS, EFC).

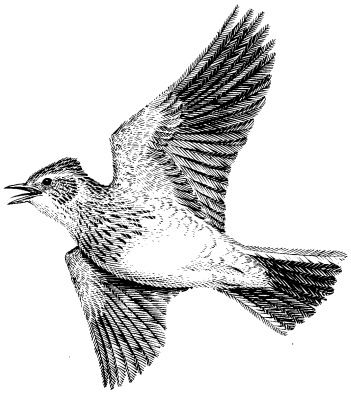
6.6 Communications and publicity

6.6.1 Use the grey partridge with other farmland species to illustrate the impact farm management may have on wildlife. Target = at least one grey partridge story in the local media annually. See also targets for skylark and brown hare. (ACTION: EN, EWT, RSPB, FWAG, NFU).

7. REFERENCES

Dennis, M.K. (1996). *Tetrad Atlas of the Breeding Birds of Essex*. The Essex Birdwatching Society.

SKYLARK (*Alauda arvensis*)



National Lead Partner: RSPB
County Lead Partner: RSPB (01603 660066)
Associated Plans: Cereal field margins, grey partridge, brown hare.

1. CURRENT STATUS IN THE UK

1.1 The skylark is a common and widespread ground dwelling bird which occurs in a wide variety of habitat types. It is heavily streaked with a noticeable crest and is most often seen during its characteristic escalating song flight in spring and early summer.

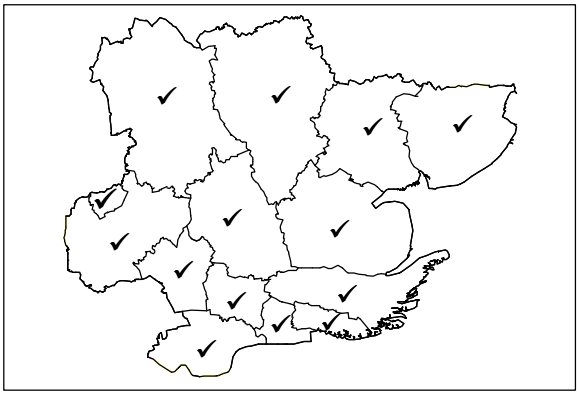
1.2 The estimated breeding population in Britain is approximately 2 million pairs. In winter a large number of continental immigrants have been noted (e.g. Cramp, 1988), but the number which settle is debatable.

1.3 The Skylark is a UK Red-listed species (BTO et al 1996) as a consequence of a 54% decline in the breeding Skylark population on lowland farmland in the UK between 1969 and 1991 and of having an unfavourable European conservation status (SPEC 3).

1.4 The Skylark is protected under the 1979 EC Birds Directive and the Wildlife and Countryside Act (1981).

2. CURRENT STATUS IN ESSEX

2.1 Common and widespread throughout Essex although breeding population has apparently declined steadily and significantly in recent years mirroring the national trend (Dennis, 1996).



2.2 Rainham Marsh has supported around 100 breeding pairs for the last 5 years, which demonstrates the importance of habitats other than farmland within the county.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Intensification of farming practices on lowland arable land has led to a reduction in available food for the skylark. The routine use of herbicides and insecticides have eliminated most ephemeral weeds and insect prey and the trend towards autumn-sown crops has also caused a loss of winter stubble fields.

3.2 Autumn-sown crops and intensively managed grassland create unsuitable nesting habitat for skylarks. The move from hay cropping to silage cutting on grasslands is destructive to nesting birds due to earlier and more frequent cutting.

3.3 High densities of skylarks are recorded on saltmarsh (Sharrock 1976), and are amongst the most widespread species found breeding and wintering on British saltmarsh (Fuller 1982). Inundation by high spring tides during the breeding season can result in almost complete nesting failure on some sites.

4. CURRENT ACTION

4.1 Since the decline in Skylark numbers has only recently been identified little action has so far taken place. A national species action plan has been prepared by RSPB and agreed by the country agencies.

4.2 Research and survey work is in progress to identify the relative importance of the causes of the population decline, especially with respect to habitat change.

4.3 Skylark counts are carried out annually in Essex as part of the Common Bird Census and more recently the Breeding Bird Survey (1995 onwards). Specific skylark counts were also carried out on selected 1 km squares during the breeding season (1997) and again in the winter (1997/98), co-ordinated by BTO. These recent surveys will help ascertain the most important areas and habitats within the county for skylarks.

4.4 EWT and RSPB are currently monitoring farmland bird species in the Maldon district, including the skylark.

4.5 Arable margins are being promoted via the ESA review, and one of the pilot Arable Stewardship Scheme incorporates part of Essex. This legislation should aid the species, together with other farmland species.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 To maintain, and where possible, enlarge the population of skylarks in Essex.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Lobby for the expansion of arable incentive scheme if pilot Arable Stewardship Scheme proves to be beneficial to the skylark. Target = towards the end of the ASS. (ACTION: FWAG, RSPB. MAFF, EN).

6.1.2 Promote appropriate set-aside management. Target = 50% of suitable set-aside in Essex managed to benefit skylark by 2003. (ACTION: FWAG, EN, RSPB, NFU).

6.1.3 Encourage targeted and more cautious use of pesticides on farmland. Target = Guidance material produced by 2000. (ACTION: FWAG, NFU, MAFF, EN).

6.2 Site safeguard and management

6.2.1 Review management of land owned by BAP partner bodies for Skylarks. Target = management practices on land owned by BAP partner reviewed in terms of skylark requirements by 2001. (ACTION: LAs, RSPB, EWT, NT, ECC).

6.2.2 Produce best practice land management guidelines, e.g. how best to manage land when weed treatment needs to take place in the presence of breeding birds. (ACTION: EN, RSPB, EWT, FWAG, NFU).

6.3 Species management and protection

6.3.1 No action proposed.

6.4 Advisory

6.4.1 Disseminate information on good management practices for skylarks throughout the region. Target = good practice guide for land management for skylarks to be produced and circulated by 2000. (ACTION: FWAG, NFU, EN, EWT, RSPB).

6.5 Future research and monitoring

6.5.1 Monitor the effect of ELMS on the numbers of skylark and other farmland species. (ACTION: FRCA, FWAG, local farmers).

6.5.2 Continue local research and survey programmes, especially in relation to land use and farmland management. Target = ongoing. (ACTION: RSPB, EBS, BTO, EN, EWT).

6.5.3 Encourage volunteer involvement in breeding and wintering bird survey, to ensure their continuation. Target = 50% more volunteer involvement in wintering and breeding bird surveys by 2001. (ACTION: RSPB, EWT, BTO, EBS).

6.5.4 Pass all survey and monitoring results to JNCC or BRC for incorporation into national databases. Provide information annually to BirdLife International for inclusion in an up to date Global red list. Target = Data to be submitted on an annual basis. (ACTION: RSPB, EBS, BTO, EWT).

6.6 Communications and publicity

6.6.1 Ensure that farmland bird decline has a high profile using the skylark as one of the flagship species. Target = at least one skylark story in the local media annually. (ACTION: RSPB, FWAG, EWT, EN, NFU).

7. REFERENCES

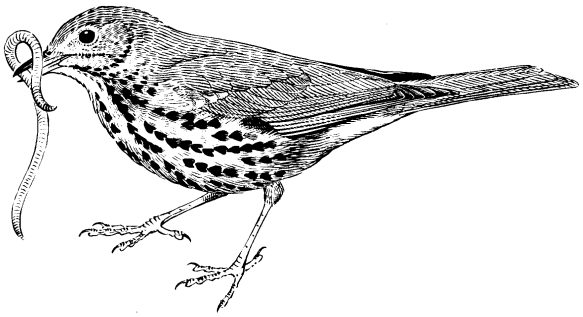
Cramp, S (ed.) (1988) *Handbook of the birds of Europe, the Middle East and North Africa. Vol. 5: Tyrant flycatchers to thrushes*. OUP, Oxford, UK.

Dennis, M.K. (1996). *The Tetrad Atlas of Breeding Birds in Essex.* The Essex Birdwatching Society.

Fuller, R.J. (1982) *Bird habitats in Britain*. Calton.

(Sharrock J.T.R. (1976) *The atlas of breeding birds in Britain and Ireland.* Tring

SONG THRUSH (*Turdus philomelus*)



National Lead Partner: RSPB
County Lead Partner: RSPB (01603 660066)
Associated Plans: Urban, ancient and species rich hedgerows, cereal field margins, ancient woodland.

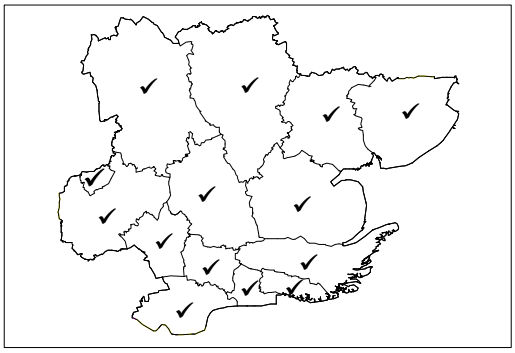
1. CURRENT STATUS IN THE UK

1.1 The song thrush is a neat, medium sized thrush which is common and widespread and is found in a variety of habitats including woods, fields and gardens. It is currently declining throughout the UK - there has been an estimated population decline of 73% in farmland and 49% in woodland since the mid 1970s.

1.2 This species is protected under the EC Birds Directive and the Wildlife and Countryside Act (1981).

2. CURRENT STATUS IN ESSEX

2.1 Common and widespread throughout the county. Local population trend has mirrored national trend with a steady decline over recent years (Dennis, 1996).



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

Reasons for decline are poorly known but could relate to the following:

3.1 Changes in farming affecting food supply and the availability of nest sites, particularly the switch from spring to autumn-sown cereals and possibly the increased use of molluscicides.

3.2 Severe winter weather and dry soil conditions (especially during drier summers - possible effect of climate change) affecting food availability.

3.3 Predation.

3.4 Competition with blackbirds.

3.5 Hunting in southern France.

4. CURRENT ACTION

4.1 Little action has yet been taken as the decline in song thrush numbers has only recently been identified. A national species action plan has been prepared by RSPB and agreed by the country agencies.

4.2 Research and survey work is now in progress to identify the causes of the population decline. Research so far has identified mortality of juvenile birds as being a key factor in the population decline. The causes of this mortality are being investigated.

4.3 In Essex there is ongoing RSPB research at Ongar.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Halt the decline in song thrush numbers in the county.

5.2 Continue RSPB research programme in Essex.

6. PROPOSED ACTIONS WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Promote the uptake of sensitive farming options under existing agri-environment incentive schemes over the whole county to benefit song thrush. Target = 50% agri-environment applications to contain options to benefit song thrush by 2005. (ACTION: FWAG, NFU, EN, FRCA).

6.1.2 Promote uptake and extension of the Arable Stewardship scheme in relevant areas with options to encourage song thrushes. Target = ensure options that will benefit song thrush are incorporated into Arable Stewardship by 2002. (ACTION: FRCA, NFU, FWAG, RSPB, EWT).

6.2 Site safeguard and management

6.2.1 No action proposed.

6.3 Species management and protection

6.3.1 No action proposed.

6.4 Advisory

6.4.1 Ensure local authorities, landowners and managers are aware of the presence, legal status and conservation requirements of this species, and appropriate methods of habitat management. Target = disseminate information on song thrush habitat requirements and appropriate methods of habitat management. (ACTION: FRCA, FWAG, EWT, EN, LAs).

6.4.2 Promote careful and limited use of molluscicides in farming and in gardens. Target = literature explaining environmental dangers of using molluscicides produced by 2000. (ACTION: FWAG, ADAS, NFU, RSPB, EWT).

6.5 Future research and monitoring

6.5.1 Promote local research or survey on the song thrush, especially when linked to habitat/management changes. Target = Habitat requirements of song thrush in Essex known by 2003. (ACTION: RSPB, EN, EWT. EBS, EFC).

6.5.2 Continue annual monitoring of breeding birds through the BTO/JNCC/RSPB Breeding Birds Survey. Target = breeding birds monitored annually in Essex. (ACTION: RSPB, EBS, EFC, EWT).

6.5.3 Promote volunteer participation in Breeding Bird Survey. Target = 50% more volunteers participating in Breeding Bird Survey by 2001. (ACTION: EWT, RSPB, EBS, EFC).

6.6 Communication and publicity

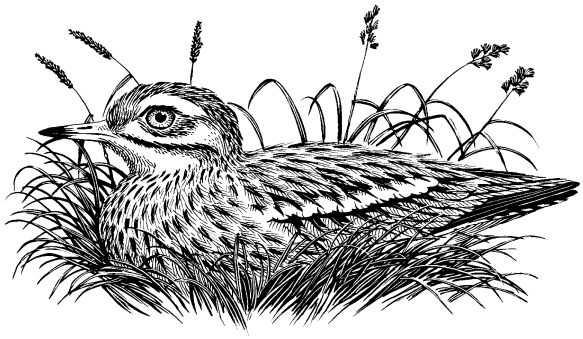
6.6.1 Produce publicity material and information for the general public to raise awareness of the song thrush and the possible links between population changes and human activities, and actions being taken. Target = at least one song thrush story in local media annually. (ACTION: EWT, EN, RSPB, NFU).

6.6.2 Encourage schools and people with gardens to put out food during cold winter spells as food for song thrushes. Target = publicity material to be distributed to local media and local authorities during cold winter spells. (ACTION: RSPB, EWT, LAs, EBS, EFC).

7. REFERENCES

Dennis, M.K. (1996). *The Tetrad Atlas of Breeding Birds in Essex.* The Essex Birdwatching Society.

STONE CURLEW (*Burhinus oedicnemus*)



National Lead Partner: RSPB
County Lead Partner: RSPB (01603 660066)
Associated Plans: Cereal field margin

1. CURRENT STATUS IN THE UK

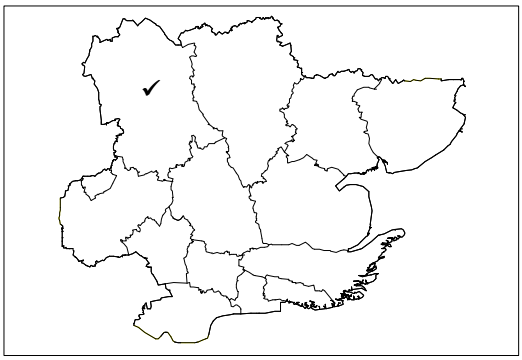
1.1 The stone curlew is a large plover-like bird which inhabits stony and/or sparsely vegetated habitats. It is a rare and localised species, now largely confined to The Brecks (Norfolk/Suffolk) and Wessex (Hampshire/Wiltshire). The population has declined by 85% since 1940s and by over 50% since 1960.

1.2 The stone curlew is included as a UK red-listed species (RSPB *et al* 1996) under three categories: as having declined by over 50% within the last 25 years; as being a rare breeder and as having an unfavourable European conservation status (SPEC 3).

1.3 The stone curlew is protected under Schedule 1 of the 1981 WCA, Annex 1 of the 1979 EC Birds Directive and Appendix II of the Bern Convention.

2. CURRENT STATUS IN ESSEX

2.1 There is a very small and declining population on chalk downland bordering NW Essex and SE Cambridgeshire. Last confirmed breeding in Essex was in 1992. Recent records probably refer to birds crossing county boundary from Cambridgeshire. Current estimates suggest that this population will be extinct in the very short term.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 **Loss of semi-natural grasslands**. The conversion of semi-natural grasslands, especially chalk and heath grasslands, to arable farmland and forestry is thought to have been the main reason behind the decline in stone curlew numbers and distribution in the UK.

3.2 **Reduction in grazing by rabbits and livestock**. There has been a decline in the area of short, grazed vegetation suitable for stone curlew due to reductions in grazing by rabbits and other livestock. Food availability has also declined through the loss of invertebrates associated with animal droppings.

3.3 **Changes in farming systems**. Stone curlews have adapted to breeding on arable fields preferring spring-sown crops which retain their open structure until June/July. A move towards winter-sown crops and agricultural intensification has resulted in a decline in suitability of much arable land for stone-curlews. Mechanical farm operations also destroy nests on arable land. In Essex, stone-curlews have been observed to breed exclusively on arable land.

3.4 **Predation**. Fox, crow and possibly stoat predation is a particular problem on grassland sites.

3.5 **Disturbance**.

3.6 **Egg collecting**.

3.7 **Others**. Other causes may include pesticide use and collisions with fences and utility lines.

4. CURRENT ACTION

4.1 A national Species Action Plan has been prepared and agreed by RSPB and English Nature.

4.2 RSPB is running an intensive species recovery programme based in the Brecks and Wessex.

4.3 RSPB monitors the south Cambridgeshire/Essex chalklands stone-curlew population and liaises with land-owners to promote management for stone curlew and to protect any nests from destruction by agricultural activities.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 To encourage stone curlew to re-colonise NW Essex.

5.2 To increase the area of land managed appropriately for stone curlew (grazed grassland, spring-sown crops) through liaison with land owners, and through agri-environmental schemes.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Promote the uptake of agri-environment schemes taking into account the habitat requirements of the stone curlew. Target = agri-environment schemes to have stone curlew prescriptions by 2003. (ACTION: FWAG, NFU, EN, MAFF, RSPB).

6.1.2 Promote appropriate set-aside management for the species. Target = set-aside in NW Essex to be managed in a condition suitable for stone curlews by 2003. (ACTION: FWAG, NFU, MAFF, EN).

6.2 Site safeguard and management

6.2.1 Implement appropriate management of sites should stone curlew nest in Essex in the future. Target = Contingency plan in place by 2000. (ACTION: RSPB, EN, FWAG).

6.3 Species management and protection

6.3.1 Implement appropriate protection programme should stone curlew nest in Essex in the future. Target = Contingency plan in place by 2000. (ACTION: RSPB, EN, FWAG, EBS, EFC).

6.4 Advisory

6.4.1 Disseminate information and advice on stone curlew conservation to landowners. Target = 1999 onwards. (ACTION: RSPB, EN, FWAG).

6.5 Future research and monitoring

6.5. 1 Continue monitoring of north Essex/south Cambridgeshire stone curlew population. Target = Stone curlew activity to be monitored annually. (ACTION: RSPB, EN, EBS, EFC).

6.5. 2 Provide data on a regular basis to JNCC or BRC and to BirdLife International for inclusion in up to date databases and red lists. Target = Data to be submitted on an annual basis. (ACTION: RSPB, EWT, EBS, EFC).

6.6 Communications and publicity

6.6. 1 Promote stone curlew conservation through media and education. Target = at least one stone curlew story in the local media annually. (ACTION: RSPB, EN, EWT).

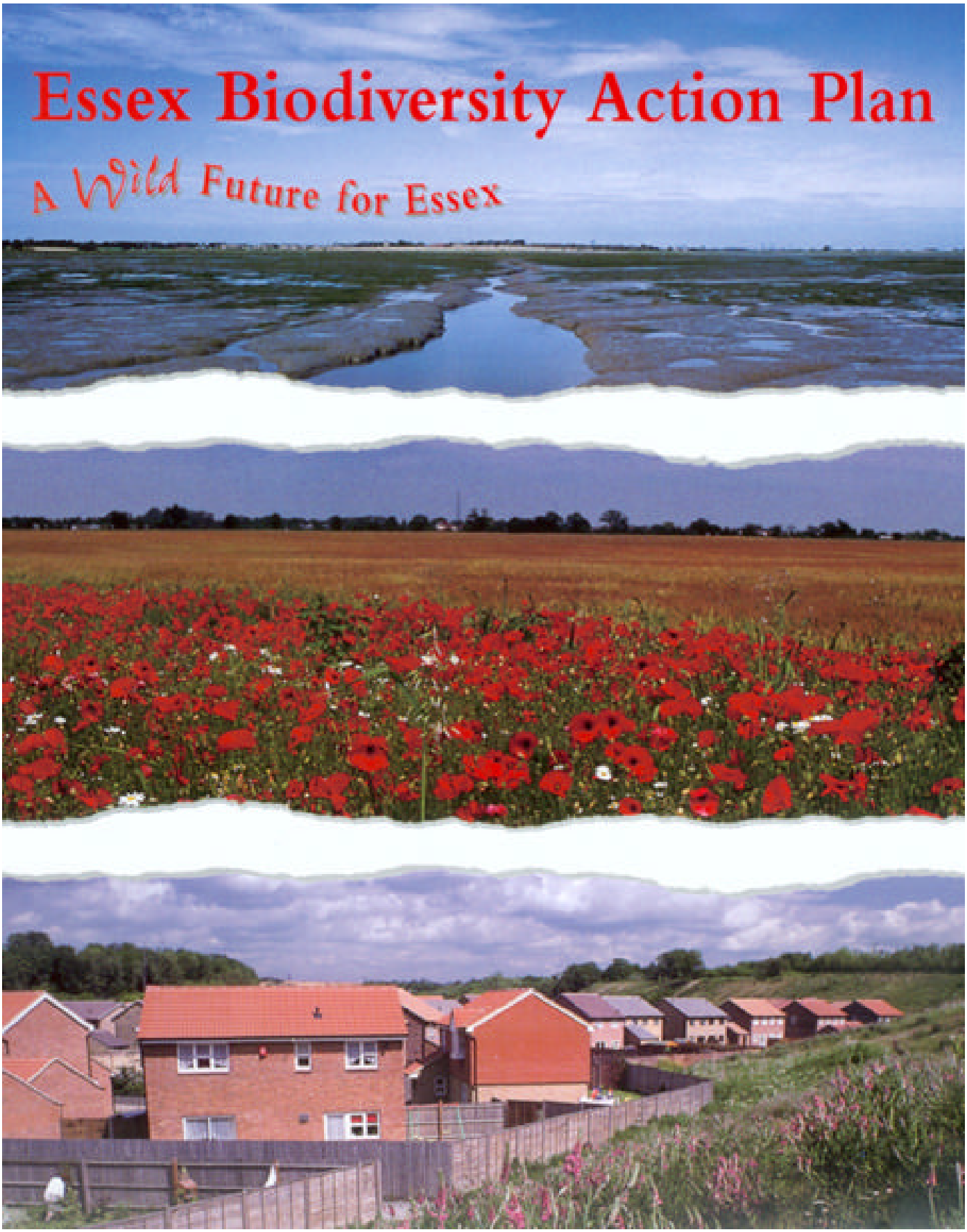
6.6. 2 Encourage bird watchers to visit Norfolk Wildlife Trust's reserve at Weeting Heath to avoid disturbing breeding stone curlew if and when there are present in Essex. Target = No disturbance to breeding stone curlew in Essex from bird watchers. (ACTION: RSPB, EN, EWT, EBS, EFC).

7. REFERENCES

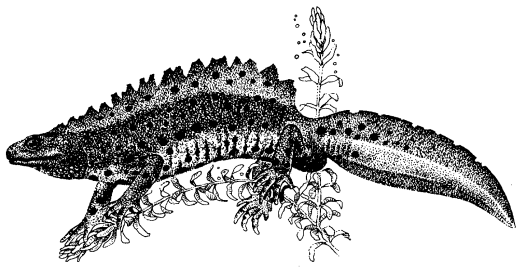
RSPB, BirdLife International, WWT, BTO, The Hawk and Owl Trust, The Wildlife Trusts & The National Trust (1996). *Birds of conservation concern in the United Kingdom, Channel Islands and Isle of Man.* RSPB, Sandy.

Essex Biodiversity Action Plan

A Wild Future for Essex



GREAT CRESTED NEWT (*Triturus cristatus*)



National Lead Partner: HCT
Froglife, BHS
County Lead Partner: EN
(01206 796666)
Associated Plans: Urban.

1. CURRENT STATUS IN THE UK

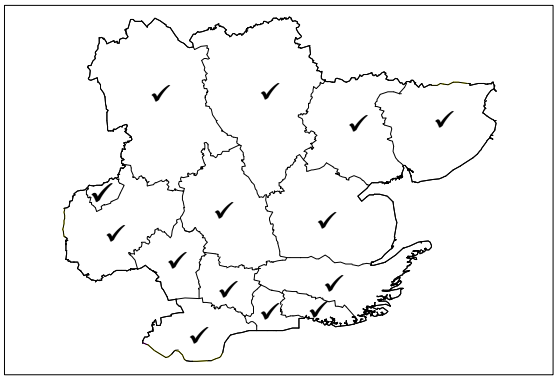
1.1 The great crested (or warty) newt is the largest of the three newt species occurring in Britain. It is still quite widespread in Britain and can be numerous locally in parts of lowland England and Wales, but it is absent from Cornwall and Devon.

1.2 The species has suffered a decline in recent years with studies in the 1980s indicating a national rate of colony loss of 2% over 5 years. The exact number of ponds available for the newts to breed in is unknown, but the findings of a recent DETR national pond survey may give a clearer estimate. The British population is amongst the largest in Europe, where it is threatened in several countries.

1.3 The great crested newt is listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention. It is protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994, (Regulation 38) and Schedule 5 of the WCA 1981.

2. CURRENT STATUS IN ESSEX

2.1 Probably widespread across the county, with good concentrations in SW to south central Essex in Harlow, Brentwood and Basildon. However their status in many districts is not known.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss of suitable breeding ponds caused by water table reduction, in-filling for development, farming, waste disposal, neglect or fish stocking.

3.2 Degradation, loss and fragmentation of terrestrial habitats used for over-wintering and after breeding.

3.3 Pollution and toxic effects of agrochemicals, including effects from resulting algal blooms.

4. CURRENT ACTION

4.1 JNCC have published a five year framework (1994-1999) for the conservation of amphibians and reptiles in the UK, in collaboration with the statutory nature conservation agencies and voluntary bodies.

4.2 EN support a post within the NGOs to develop further local Amphibian and Reptile Groups and support surveys and conservation initiatives. Such a group has recently been set up in Essex, but there has been little or no action to date.

4.3 EN recently published the results of a symposium on the species, and leaflets have been published by EN and British coal, including one for developers, which are distributed to some extent in the county.

4.4 Although the species is protected under the regulations stated above, few prosecutions occur. Newts have been translocated at several sites in Essex to allow development to continue.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Ascertain the true distribution of the species over the county by 2005.

5.2 Once known, maintain the range, distribution and viability of the existing county population.

5.3 Restore some populations to counter past losses.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek to ensure that all ponds known to hold viable populations of newts are reported to local authorities, and that the protection and enhancement of the ponds is taken into account in accordance with para 24 of DOE's Planning and Policy Guidance note: PPG9. (ACTION: LAs, EN, EWT, EARG).

6.1.2 Encourage local authorities to demand a pond and surrounding habitat check when development is proposed on or near to a pond for which no details are currently held. (ACTION: LAs, EN).

6.2 Site Safeguard and Management

6.2.1 Promote favourable management where this species known to occur. This could be on private or public land and could involve communities possibly with grants from Rural Action and Essex Millennium Project. Consider applying for Countryside Stewardship grants to manage the habitat around suitable breeding sites. (ACTION: EARG, EA, EN, FWAG, Rural Action, LAs, MAFF, parish councils).

6.2.2 Seek to maintain the number and distribution of occupied sites through habitat restoration or creation of sufficient new sites near existing ones to compensate for local losses. (ACTION: EN, LAs, EA, FWAG, BTCV).

6.2.3 Pass on any information regarding known sites to the relevant local authority and records centre. (ACTION: ALL).

6.3 Species Management and Protection

6.3.1 Ensure that the WCA 1981 is upheld and prosecutions occur if breeding or over-wintering sites are disturbed or destroyed. (ACTION: Police, EN).

6.3.2 Ensure that the needs of the species are considered when land drainage consents are sought. (ACTION: EA).

6.3.3 Continue to consider translocation exercises as a last resort if habitats are to be destroyed e.g. if planning permission has already been given. (ACTION: EN, EA, EWT).

6.3.4 Develop a reintroduction strategy so, where possible, translocations extend sustainable populations and the species range across the county. (ACTION: EN, EARG, EWT).

6.4 Advisory

6.4.1 Promote training and licensing of professional and voluntary surveyors. (ACTION: EN, EARG).

6.4.2 Promote training for others involved in the management of great crested newt habitats. (ACTION: EN, EARG, LAs, EWT).

6.4.3 Ensure that any advice leaflets are distributed to developers, LAs, land managers and others and highlight their legal obligations. (ACTION: EN, EA).

6.5 Future Research and Monitoring

6.5.1 The first action must be to carry out a county wide pond survey to identify sites supporting great crested newts and other amphibians. Also ensure that information on the habitats surrounding the ponds are surveyed and monitored. (ACTION: EWT, EN, LAs, EA, EARG).

6.5.2 Continue to monitor key great crested newt sites for population fluctuations. (ACTION: EARG, Essex Field Club, EN, EWT).

6.5.3 Ensure that any data are passed to the JNCC and BRC to update the national database and up-to-date Red List. (ACTION: EN, EWT, Records centres).

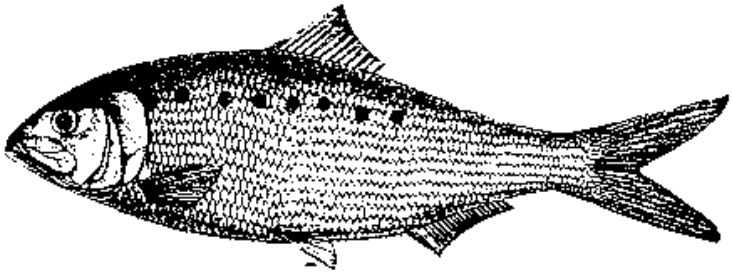
6.5.4 Monitor the health of populations after translocation to determine success. (ACTION: EARG, EN, EWT)

6.6 Communications and Publicity

6.6.1 Promote through publicity and media opportunities a wider and more sympathetic understanding of amphibian conservation in the county. (ACTION: EARG, EWT, EN).

6.6.2 Involve the wider public in a great crested newt site identification campaign by way of response forms concerning ponds. (ACTION: EARG, EWT, EN).

Allis Shad *(Alosa alosa*) and **Twaite Shad (*Alosa fallax*)**



Twaite shad

National Lead Partner: MAFF/EA
County Lead Partner: EA (01473 727712)
Associated Plans: None

1. CURRENT STATUS IN THE UK

1.1 Twaite shad and allis shad are anadromous (i.e. they reproduce in fresh water and grow in the sea) members of the herring family. They are covered with distinctive large, circular scales which form a toothed edge under the belly. The head has large eyes with fleshy eyelids, and membranes covering the front and rear parts of the eye. The body has small fins and a tail with two pointed areas of scales almost reaching a fork. The allis shad is the larger of the two species (30-50 cm in length) the twaite shad rarely reaching over 40 cm. (Anon, 1997).

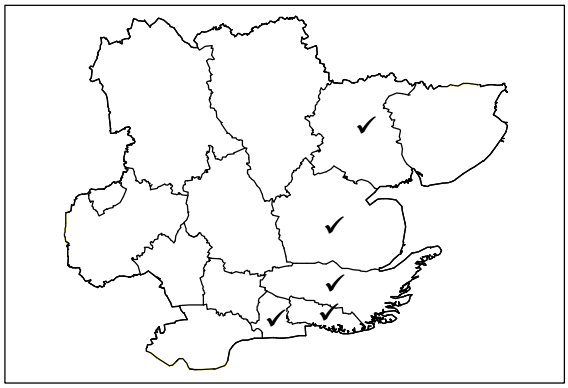
1.2 Although little is known about the preferred habitat of shad whilst at sea, both species are recorded in coastal waters and estuaries around the UK throughout the year. Before commencing their spawning migration (between April-June) maturing fish form large schools in or near the estuaries. Shad may ascend up to 150km in large rivers and there is some evidence that they detect odour and return to their parent river.

1.3 The only rivers in The U.K. known to have spawning stocks of twaite shad are the Wye, Usk, Severn and Tywi. There is evidence that a spawning population previously existed in the Thames. There are no confirmed spawning populations of allis shad although there are historical records of upstream migrations around spawning time in the rivers Wye, Usk, Severn and Tywi and in some Scottish rivers.

1.4 Twaite and allis shad are listed on Appendix III of the Bern Convention (1979) and on Annex II and V of the EC Habitats Directive, which has been implemented in the UK by the Conservation Regulations 1994. It is proposed to add both species to Schedule 5 of the Wildlife and Countryside Act in relation to Section 9(4)(a). This will make it an offence to obstruct access to spawning areas, or to damage or destroy gravels used for spawning. Allis shad are already protected under Schedule 5 in relation to Section 9(1) killing, injuring and taking.

2. CURRENT STATUS IN ESSEX

2.1 Twaite shad are caught offshore on the Essex coast and are found within the Blackwater Estuary and Thames Estuary (Greater Thames Estuary Natural Area). There are no records of allis shad.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Whilst there is no historic evidence of spawning, river and estuary barriers may now prevent the upstream migration of shad in most Essex rivers, including the Blackwater.

3.2 Water quality is thought to be the main reason for the decline in the population of shad from the River Thames. Low flows exacerbate poor water quality, especially in summer months.

3.3 River management works may have removed suitable spawning habitat.

3.4 Incidental catches of adult shad by coastal fisherman is not considered significant at present.

4. CURRENT ACTION

4.1 Reports of catches by fisherman contribute to the mapping of the current distribution and status of shad in the U.K. The presence of some barriers to upstream migrations preclude any further action. The Thames, upstream of the Yantlet line is part of Thames Region of the Environment Agency.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Continue to record catches of any shad off the Essex coast and estuaries.

5.2 Obtain samples form incidental catches (if possible) for identification of species.

6. PROPOSED ACTION WITH LEAD AGENCIES.

Most of the action for this species will be taken in other parts of the country. There is little to be carried out in this county with the exception of:

6.1 Advisory

6.1.1 Collect samples of the species to advise fishers and the general public on identification. Samples should only be from incidental catches not actively sought specimens. (ACTION: EA, LOCAL MUSEUMS).

6.2 Future research and monitoring

6.2.1 Continue to collate information on catches off the Essex and Anglian coast to help to determine distribution. (ACTION:EA, LOCAL FISHERS).

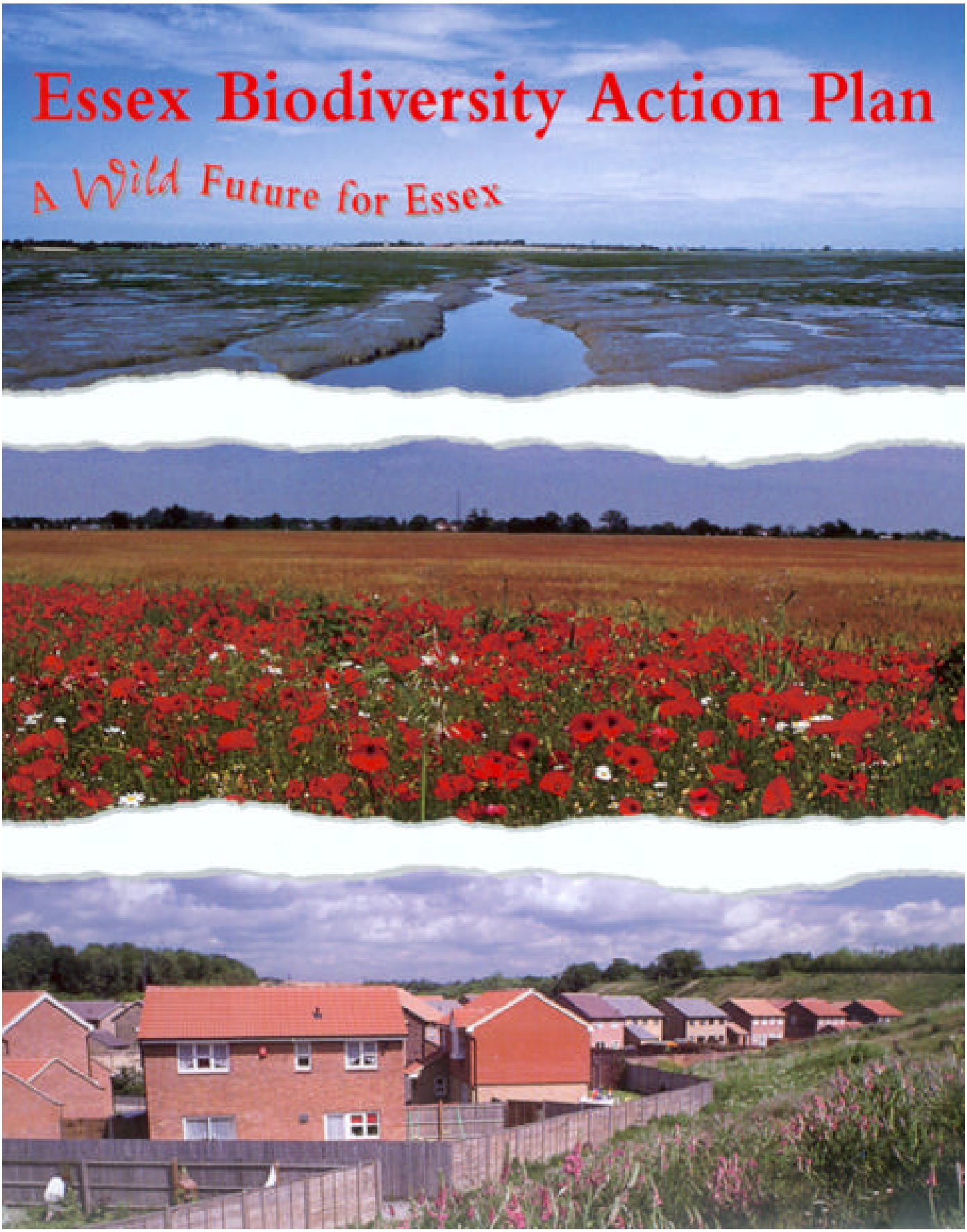
6.2.2 Pass on all information to JNCC and BRC to ensure the national data base is up to date.(ACTION: EA).

7. REFERENCES

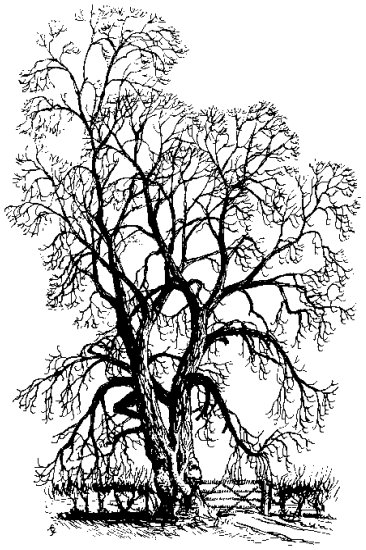
Anon (1997). *Allis and Twaite Shad a conservation message*. EN, CCW, EA

Essex Biodiversity Action Plan

A Wild Future for Essex



NATIVE BLACK POPLAR (*Populus nigra* subspecies *betulifolia*)



National Lead Partner: None
Local Lead Partner: DVSVP/EWT (01206 729678)
Associated Plans: None

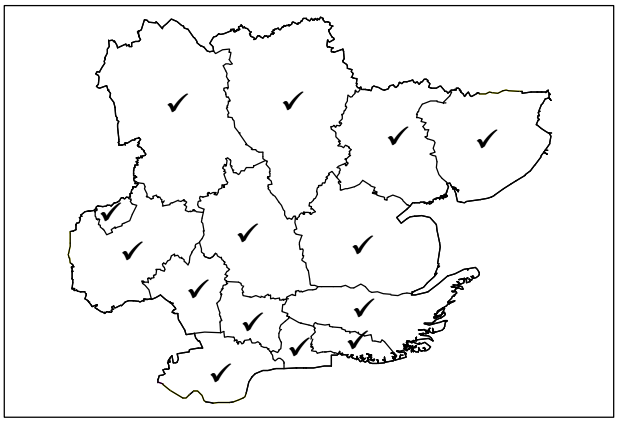
1. CURRENT STATUS IN THE UK

1.1 Of the many so called black poplars that occur in Britain only this sub-species is truly native, having colonised approximately 7000 years ago. It is considered to be the Atlantic form of *Populus nigra nigra* (John White, pers.comm). The native black poplar is a tall, broad domed tree with massive arcing branches and heavily burred trunk. It is not a woodland species rather a tree of the open countryside, especially river valleys and floodplains. Since Neolithic times it has been used for a variety of domestic purposes and has therefore been planted and moved around the countryside as cuttings at will (usually as single trees or in single rows).

1.2 It is estimated that there are currently between 4000 and 8000 trees in Britain, most south of a line from the Mersey to the Wash. It is thought that many of these trees are genetic clones, so the actual number of individual genotypes is likely to be far fewer. There are concentrations of trees in Shropshire, the Vale of Aylesbury and Suffolk. There is not much age class variation in the current population, with most trees either in excess of 120 years or recently planted cuttings. It is not thought that there is any natural regeneration through seed, since conditions are rarely suitable and there are very few females trees in existence.

2. CURRENT STATUS IN ESSEX

2.1 There are possibly upwards of 200 mature trees in Essex with approximately 150 recorded so far with 23 others known but not confirmed as still alive or truly native. It is estimated that 70+ trees have been planted since 1973, although as a result of recent media attention this number could be considerably higher. There are trees in every district with a scattering of trees in the upper Colne and Stour valleys (on both the Essex



and Suffolk sides) as well as concentrations in Hainault Forest Country Park (55) Buckhurst Hill (13) and around Harwich (14).

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Little knowledge of actual numbers and locations of trees has meant specimens may have been felled in ignorance. This lack of knowledge has been compounded until recently as it has not been easy to readily distinguish the native black poplar from the many hybrids which have slowly replaced it over the last two centuries.

3.2 The tree is widely dispersed across the county and is only rarely concentrated in any numbers. Where they are, they tend to be all males. There are therefore few concentrations of trees where effective conservation work can be targeted.

3.3 The vast majority of trees are male (so far only up to 10 trees have been suspected to be female). This has a profound effect on the reproductive capacity of the tree.

3.4 Many of the trees are post-mature and therefore natural events such as the 1987 gale can cause the loss of a number of trees.

3.5 Loss of individual trees through neglect or ignorance - grazing damage to the trunk from "urban" stock such as horses and goats and fire damage from spreading urbanisation.

3.6 Absence of their natural habitat (floodplain forest) means that opportunities for natural regeneration are extremely limited.

4. CURRENT ACTION

4.1 Using survey data collected by Edgar Milne Redhead the first list of Essex trees was compiled in 1996. This list has been regularly updated by Keith Turner (NT) and Ken Adams (EFC) as trees are either discredited or confirmed as being native black poplars and new records are added.

4.2 A clone bank has been set up at Daws Hall field centre and reserve (TL 887368) with an overspill at Loshes Meadow reserve (TL 873369). This was initiated by the Dedham Vale and Stour Valley Project (DVSVP), with assistance from the Environment Agency and Essex Wildlife Trust, It holds cuttings from trees in north Essex and south Suffolk. 12 Essex trees are currently represented.

4.3 A training day and identification workshop was held in June 1998 by the Suffolk Black Poplar Working Group in Clare (Suffolk). At this, the national status of the species and work currently underway, together with some cases histories from Norfolk were discussed.

4.4 New trees are being planted but the provenance is unknown for many of them and they are not regularly recorded.

Fiona Cooper, a student at Nottingham University, is currently researching a PhD on native black poplars funded by the EA. She is looking at leaf morphology and genetic variation in relic populations and has agreed to carry out DNA tests on some trees in Essex.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Survey all known trees to establish authenticity and sex by the year 2000.

5.2 Safeguard all known existing trees by contacting owners and raising awareness of their importance by the year 2000.

5.3 Encourage Local Authorities to serve TPOs on trees under threat.

5.4 Seek funds and establish a nursery for Essex black poplars by 2001.

5.5 Seek funds and carry out DNA profiling on a proportion of trees in the county.

5.6 Discourage new planting in inappropriate places.

5.7 Add cuttings to the clone bank whenever the opportunity arises (with permission form landowners).

6. PROPOSED ACTION WITH LEAD AGENCIES.

6.1 Policy and legislation

6.1.1 Ensure all local authorities and Environment Agency receive information on the local status of the trees within Essex or their district in the form of a county assessment containing known native black poplars and a map of their locations. LAs to serve TPOs where it is felt trees are under threat or are of particular importance for landscape or genetic value. The EA has a particularly important role to play in the future of the Black Poplar in Essex as elsewhere. It carries out management of riverside trees, it implements planting schemes along river corridors as part of its conservation and land management programmes and strongly influences planting policies on flood plains. It is essential that the EA becomes involved in black poplar conservation. Target = records to LAs and EA by 1999 and updated yearly. (ACTION: EFC, BRC, EA, LAs).

6.2 Site safeguard and management

6.2.1 Ensure the continuity of sites of existing trees by planting adjacent cuttings or truncheons (unrooted 6' setts) where possible. Trees do snap off at the base, or even (rarely) uproot but both can regenerate from the stump. ‘Impatient’ replacements should therefore not be sited within double the diameter of the original tree. Target = ongoing. (ACTION: EA, LAs, MAFF, EWT).

6.2.2 Carry out new planting in appropriate places as part of river management schemes. Target = incorporate into ongoing work. (ACTION: EA).

6.2.3 Identify suitable new sites for planting within areas managed by conservation bodies (ACTION: EWT, RSPB, NT, EN, Lee Valley, Epping Forest) and within CMP areas. (ACTION: ECC, LAs). Target = identify areas by 2000.

6.2.4 Find a small number of suitable locations within river flood plains where collections of 10 - 30 male and female trees can be established in fairly close proximity, allowing for the possibility of natural seed to be produced. Hybrid trees in the vicinity should be removed to help prevent hybridisation. Target = 3 such colonies by 2005. (ACTION: EA, EWT, NT, EN, LAs).

6.3 Species management and protection

6.3.1 Identify appropriate body or individual and establish a county nursery to complement the existing clone bank which would supply trees of known and appropriate provenance to landowners, retailers and contractors. Target = by 2001. (ACTION: Possibly Lee Valley Park Authority, EWT, LAs).

6.3.2 Test the DNA from all the current specimens in the clone bank. Target = 1999. (ACTION: LAs, DVSVP, EWT, with Fiona Cooper.

6.3.3 Add cuttings to the clone bank to ensure ex-situ conservation of genetic stock before mature trees are lost. Target = Ongoing when tree are discovered. (ACTION: LAs, EWT, ECC, FWAG, EFC).

6.3.4 Establish a numerical list of colonies and DNA type a sample from each colony if possible. Target = by 2001. (ACTION: EFC, with Fiona Cooper).

6.4 Advisory

6.4.1 Ensure landowners and managers are aware of the presence and importance of conserving this subspecies and appropriate methods of management and replacements. Target = ongoing. (ACTION: EFC, EA, EN, MAFF, LAs, FWAG).

6.4.2 Advise landowners and managers on the best positions to site new cuttings e.g. not in dry conditions, on roadsides, or females close to houses. Target = ongoing. (ACTION: EA, EN, EWT, MAFF, LAs, FWAG).

6.5 Future research and monitoring

6.5.1 Maintain central records of all newly planted trees with details of location, provenance, sex and date of planting. Target = ongoing and update regularly. (ACTION: Ken Adams, BRC).

6.5.2 From recently fallen trees cut a disc for tree ring counting and thickness measurement both to relate girth to age and to get some idea of effects of climate change on this species. Records to be kept centrally. (ACTION: All land managers

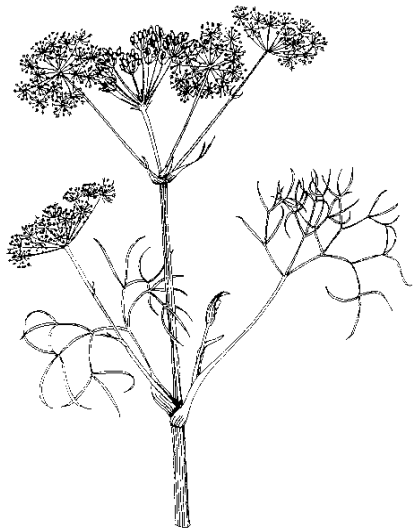
with native black poplars).

6.6 Communications and Publicity

6.6.1 Initiate a public awareness campaign for the tree and its recognition in the county, including articles and local media attention, but ensure that the need for careful and controlled planting is highlighted. Target = ongoing, at least one story in local media per year. (ACTION: EWT, EN, NT, EA, LAs).

6.6.2 Highlight the need to plant trees of local provenance if any planting is to take place on private land. Target = ongoing. (ACTION: EN, EWT, EA, FWAG).

HOG'S-FENNEL *(Peucedanum officinale)*



National Lead Partner: None
County Lead Partner: EN (01206 796666)
Associated Plans: Fisher's estuarine moth

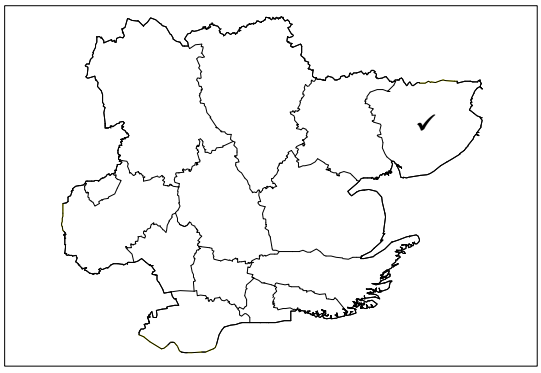
This plan is complementary to that for Fisher's estuarine moth (*Gortyna borelii lunata*) and the two should be viewed together. If fully implemented, it will make a significant local contribution to the conservation of sea wall plant and insect communities, including another RDB moth *Agonopterix putridella* which is also dependent upon this food plant.

1. CURRENT STATUS IN THE UK

1.1 Hog's-fennel is exclusively a plant of coastal grassland, from the highest level salt marshes to, exceptionally, 1km from saline water. It is restricted mainly to two broad localities, around the Walton Backwaters in Essex and from Faversham Creek to Reculver, in north Kent. Minor populations are also found in Suffolk and a further Essex site; there is also a historical record from West Sussex.

1.2 The UK population appears to be stable, although it occupies rather tenuous sites, subject to the vagaries of a changing coastline. It is therefore classed on the UK Red List as rare.

2. CURRENT STATUS IN ESSEX



2.1 Some 60% of the national population is found in Essex, the majority being on the sea walls and associated grassland around the Walton Backwaters, from Dovercourt to Walton-on-the-Naze.

2.2 There is some suggestion that this population has increased in size (though not extent) since the 1970s, but at present it is at best holding its own.

2.3 A few plants, first recorded around 1978, are to be found near St. Osyth; these may have been from seed accidentally imported on machinery. Former Essex localities at Holland Haven and Copperas Bay may also have been introductions.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Unsympathetic mowing regimes on sea walls, which support a substantial portion of the population; whilst this does not kill established plants, it may limit the potential for recruitment by seed.

3.2 Sea-level rise - hog's-fennel is intolerant of prolonged inundation by salt water and structural improvements or realignments to the walls may not take full account of this species.

3.3 Scrub encroachment, especially on Skipper's Island.

3.4 Illegal uprooting of plants by collectors searching for Fisher's estuarine moth.

4. CURRENT ACTION

4.1 Local adjustments to the sea wall mowing regime have been agreed with the Environment Agency.

4.2 A collaborative experiment to examine the impacts of differing mowing regimes was set up in 1997.

4.3 Scrub control on Skipper's Island.

4.4 The majority of plants are located within the Hamford Water SSSI, SPA and Ramsar site, many also within the NNR.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 To ensure that the full extent of its distribution and abundance are maintained, as recorded by Thornton (1990), the only recent comprehensive record of the Essex population.

5.2 To ensure that the needs of hog's-fennel are addressed in any future sea wall works, both capital and maintenance, around the Walton Backwaters.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure that the specific requirements of hog's-fennel are given prominence in all relevant sea defences policies and practices. (ACTION: EA, EN).

6.2 Site safeguard and management

6.2.1 Develop appropriate mowing regimes which leave a substantial proportion of each sub-site uncut in any one year. (ACTION: EA, EWT, EN).

6.2.2 Within the constraints of highway safety, ensure the road verges which support the plant are managed to its benefit. (ACTION: EWT, ECC).

6.2.3 Continue scrub management where necessary to maintain the local population. (ACTION: EWT).

6.2.4 Ensure that all sites outside SSSI are classified as County Wildlife Sites, and protected accordingly. (ACTION: EWT, Tendring DC).

6.3 Species management and protection

6.3.1 Investigate cultivation requirements, to ensure adequate local stocks can be made available for any future coastal realignment schemes. (ACTION: EN, EA).

6.4 Advisory

6.4.1 Provide advice on the species and management of its habitats to relevant landowners and managers, especially of populations outside the SSSI. (ACTION: EN, EWT).

6.4.2 Advise the entomological community on the illegality of uprooting hog's-fennel. (ACTION: EN, Essex Lepidoptera Panel).

6.5 Future research and monitoring

6.5.1 Comprehensive re-survey of distribution and abundance every ten years, to guide conservation policy and practice. (ACTION: EN, Dr Ken Adams).

6.5.2 Ensure results of survey and monitoring are contributed to local, national and international databases. (ACTION: EN, Dr Ken Adams).

6.5.3 Continue collaborative project to examine effects of differential mowing regimes, and implement most sympathetic acceptable regime. (ACTION:

EN, EA, EWT).

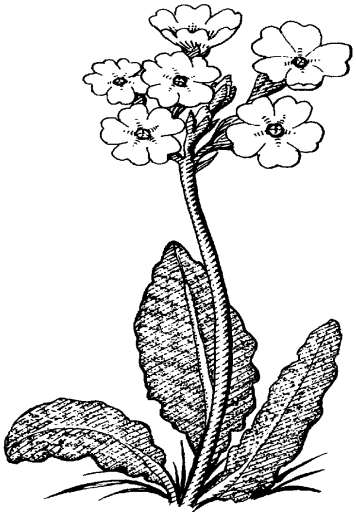
6.6 Communications and publicity

6.6.1 Seek opportunities to publicise the species, the threats to and management of its habitats, and to use it to highlight issues relating to the sustainable management of our coastline. (ACTION: EN, EA, EWT).

7. REFERENCES

Thornton, G. (1990) An environmental flora of *Peucedanum officinale*. Unpublished dissertation, University of Cambridge Board of Extra-mural Studies

OXLIP (*Primula elatior*)



National Lead Partner: None
County Lead Partner: FE (01787 455142)
Associated Plans: Ancient woodland

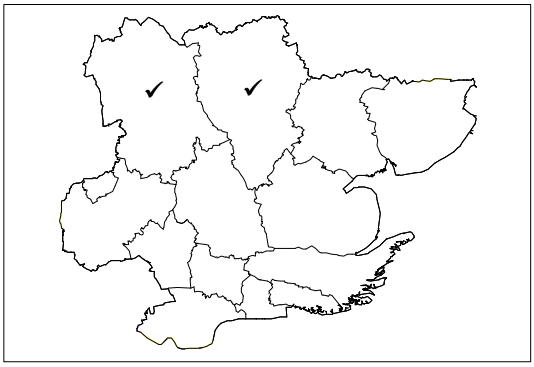
1. CURRENT STATUS IN THE UK

1.1 A medium size Primula, reproducing both by seed and vegetatively. Restricted almost exclusively to Ancient Woodland Sites (AWS) within a 40 mile radius of Cambridge (there are very small outlying colonies in Norfolk and the Thames Valley). Associated with coppice-with-standards management techniques in native broadleaf woodland (usually oak-ash type) - occurs to a lesser extent on rides and wood banks. Most sites are on chalky boulder clay.

1.2 This species is widely distributed in continental Europe up to 2700m and is often associated with coniferous woodland. Though confined to the south in England, it extends to higher latitudes (Denmark and Sweden) on the continent.

1.3 Legal protection is currently provided by the Wildlife and Countryside Act (1981) and some of the sites are protected by a variety of Tree Preservation Orders, Forestry Authority Felling Regulations, Special Sites of Scientific Interest status.

2. CURRENT STATUS IN ESSEX



2.1 Within Essex this plant is largely restricted to the north west of the county (Uttlesford and Braintree districts). Within this area it is further restricted to plateau AWS on chalky boulder clay.

2.2 Together with small leaved lime (*Tilia cordata*) and wild service tree (*Sorbus torminalis*) it is in the top rank of regional ancient woodland indicator species.

2.3 All the major oxlip sites in Essex are county wildlife sites (CWS).

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Increasing browsing pressure from rabbits, hares and deer (fallow, muntjac, roe and red).

3.2 Increasing shade (both intensity and duration) in Ancient Semi Natural Woodland (ASNW) and planted AWS.

3.3 Herbicide application around newly planted trees.

3.4 Drought due to low rainfall and increased land drainage.

3.5 Genetic tainting may be a threat from nearby exotic primula species.

3.6 Possible competition from aggressive species e.g. wood garlic

4. CURRENT ACTION

4.1 Coppice-with-Standard management is slowly increasing thus alleviating the over shading effect.

4.2 Deer population control is increasing sporadically.

4.3 Deer damage is currently controlled on some sites (with varying degrees of success) with the use of fencing, dead hedging, brash piling, brash mattressing and various deterrents.

4.4 Rabbit numbers are held to reasonable levels on some sites by shooting, ferreting, gassing and less predictably by myxomatosis.

4.5 Some hares are shot.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Increase appropriate management on current sites- usually coppice-with-standards.

5.2 Maintain existing population and create suitable conditions for a long term return to appropriate former sites.

5.3 Minimise effects of climate change.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure existing legal protection to species and sites is maintained. (ACTION: EN, ECC, LAs, EWT).

6.2 Site safeguard and management

6.2.1 Maintain and encourage current coppicing practice and extend to suitable unworked areas. Target chalky boulder clay sites fir FA grants on coppice restoration and broad leaved woodland restoration. (ACTION: FA, EN, ECC, LAs).

6.2.2 Reduce area of non site native woodland on oxlip sites. (ACTION: EN, FA, ECC, LAs).

6.2.3 Encourage minimal use of herbicide around new planting and restocking in oxlip sites and reduce area of herbicide treatment on planted sites. Draw up best practice guidelines associated with WGS. (ACTION: FA, EN, ECC, LAs).

6.2.4 Avoid excessive drainage both inside and adjacent to oxlip sites. (ACTION: EN, FA, ECC, LAs, MAFF).

6.2.5 Encourage reversion of sites under non native trees to ASNW (ACTION: EN, FA).

6.3 Species management and protection

6.3.1 Reduce deer populations - initially fallow and muntjac, roe and red to be controlled only if unacceptable damage continues (ACTION : MAFF, EN, FA).

6.3.2 Continue rabbit control. (ACTION : MAFF, FA).

6.3.3 Consider deer/rabbit fencing around new coppice coups to help successful re-growth. (ACTION: LAs, EWT, FA, landowners)

6.4 Advisory

6.4.1 Advise landowners and managers of the presence and importance of oxlips and best methods of management. (ACTION : EN, FA, EWT, LAs).

6.5 Future research and monitoring.

6.5.1 Continue to monitor populations in current, past and potential sites. (ACTION : EN, EWT, FA).

6.5.2 Research factors affecting germination. (ACTION: EN, FA).

6.5.3 Research the effects of varying soil moisture levels and competition from aggressive species such as Ramsons. (ACTION: EN, FA, EWT).

6.5.4 Continue and extend monitoring of deer populations. Study the relationship between deer numbers and oxlip populations on key sites. (ACTION : MAFF, FA).

6.5.5 Seek information on potential threat from genetic tainting (ACTION : EN).

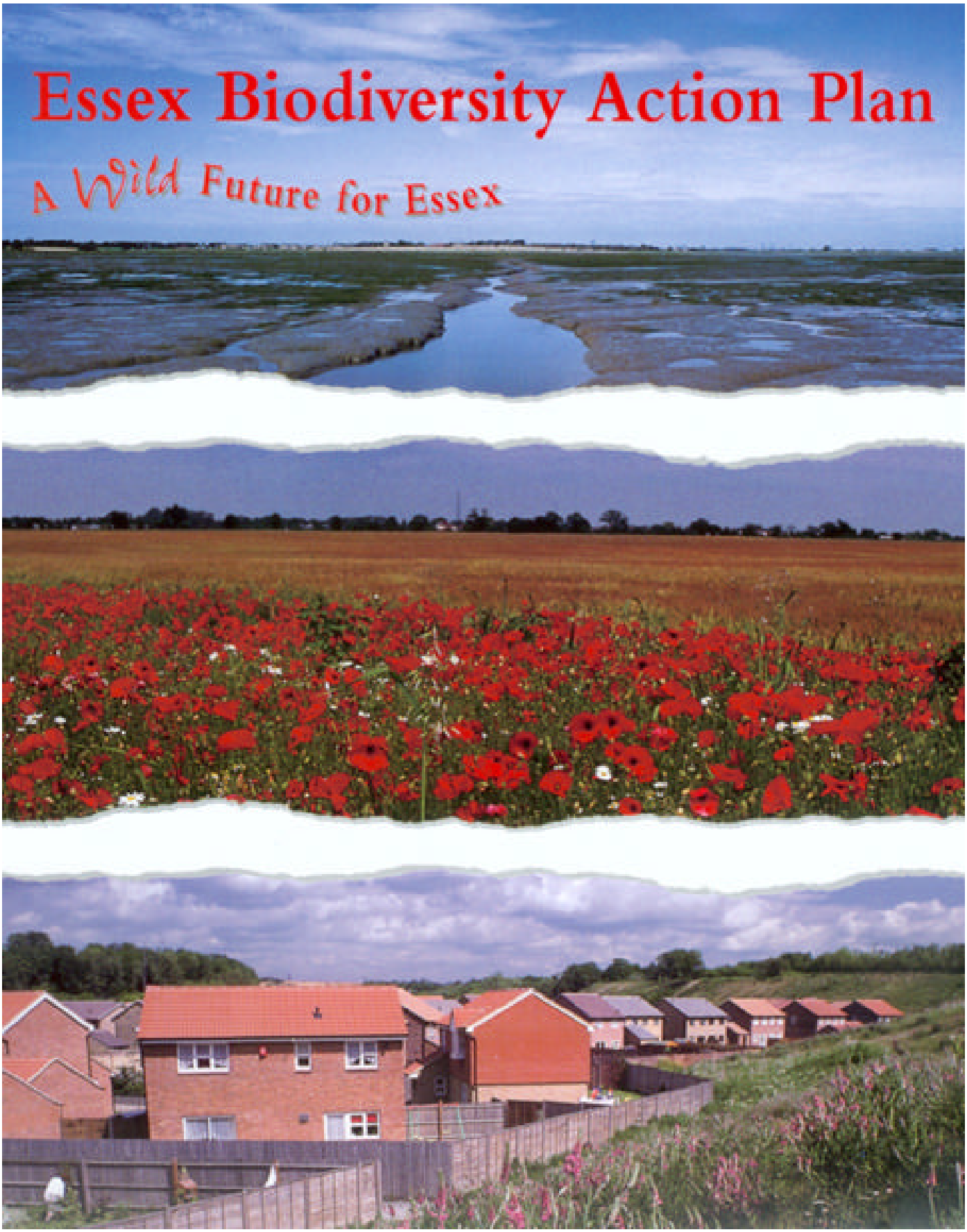
6.6 Communication and publicity.

6.6.1 Promote public awareness of oxlips especially their status as an AW indicator species and the factors that threaten it and its habitat. (ACTION: EN, FA, EWT, MAFF).

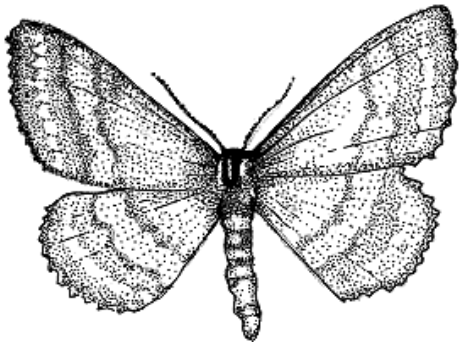
6.6.2 Encourage parish councils and local communities to replant suitable sites for future SNAW and to monitor local sites. (ACTION: LAs, FA, EN, EWT).

Essex Biodiversity Action Plan

A Wild Future for Essex



BRIGHT WAVE MOTH (*Idaea ochrata*)



National Lead Partner: Butterfly Conservation
County Lead Partner: EN (01206 796666)
Associated Plans: None

1. CURRENT STATUS IN THE UK

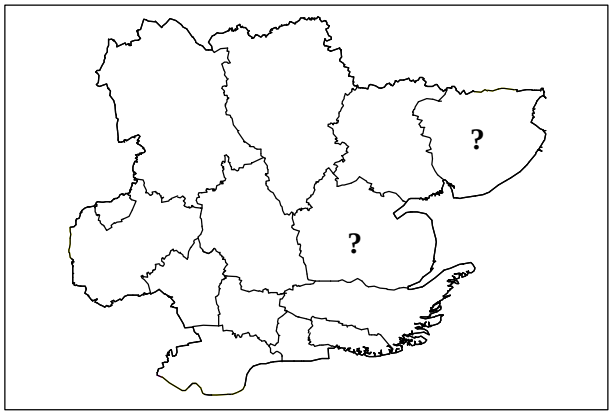
1.1 This moth is a coastal species which occurs along sandy shingle beaches and on sand hills. It has been recorded since 1980 from just three areas of coast, in Suffolk, Essex and Kent, and may be declining or extinct at two of these. Sporadic records from other localities suggest that the moth may sometimes be a windblown vagrant. The bright wave moth has also been recorded from Spain, North Africa, central and southern Europe and northern Iran.

1.2 Little is known about its ecology, although its larvae are believed to feed on the flowers of a variety of coastal plants. At a national level, research is taking place into its habitat requirements and captive breeding, using Kent stock.

1.3 The species is listed as rare in the GB Red List, but may be re-graded as vulnerable. It is listed on the short-list of UK BAP species.

2. CURRENT STATUS IN ESSEX

2.1 Apart from a presumed vagrant at Bradwell-on-sea in 1985, the only recent records are from Colne Point, in the north-east of the county. It was discovered here in the 1950s, and the latest record from this locality was in 1985. Recent specific searches have not relocated it, and the species may now be extinct in Essex.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Tidal erosion of the upper beaches which are presumed to be its primary habitat.

3.2 Recreational disturbance of these same areas.

3.3 The attentions of collectors are suspected to have been significant when it was still known from its Essex site.

4. CURRENT ACTION

4.1 Action plan published in the UK BAP.

4.2 Occasional searches have been made to try and confirm its continued presence.

4.3 The site is afforded statutory protection as an SSSI.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Confirm, or otherwise, its continued occurrence in Essex by 2000.

5.2 Identify more precisely the habitat requirements of the species.

5.3 If found still to be present in Essex, maintain a viable population at this one site.

5.4 If presumed extinct, consider re-establishment with English stock by 2005.

5.5 Review historical sites in south Essex to determine if any are suitable for reintroduction.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 No action proposed

6.2 Site safeguard and management

6.2.1 Encourage measures to limit deterioration of the site through tidal erosion and recreational disturbance. (ACTION: EN, EWT, EA).

6.2.2 Encourage positive management of the site for the species, together with potentially suitable sites within the dispersal range of the moth. (ACTION: EN, EWT).

6.3 Species management and protection

6.3.1 Carry out targeted survey of former locality, and other likely sites in north-east Essex, to determine its current status in 1999.
(ACTION: EN, Essex Lepidoptera Panel, Essex Moth Group).

6.3.2 If it is considered to be extinct, re-introduce to the former site, subject to feasibility assessment, including whether suitable source populations are available and assuming causal factors in its decline can be identified.
(ACTION: EN, ELP).

6.3.3 Once a population is established, or if a relict population is located, ensure that local site managers are fully briefed, to prevent unauthorised collection.
(ACTION: EN, ELP, EWT).

6.4 Advisory

6.4.1 Disseminate information on the current status and breeding requirements of the moth to site owners and managers. (ACTION: EN, ELP, EWT).

6.5 Future research and monitoring

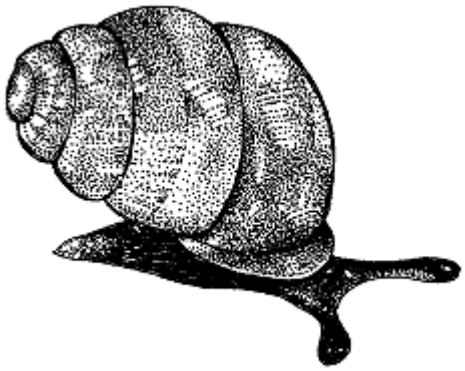
6.5.1 Contribute to national and international research into the habitat requirements, preferred larval food plants, population dynamics and dispersal abilities of the moth to aid conservation management. (ACTION: EN, ELP).

6.5.2 Contribute information gathered during survey and monitoring of this species to national and international databases. (ACTION: EN, ELP, EMG).

6.6 Communications and publicity

6.6.1 Seek opportunities to promote the appreciation and conservation of the bright wave and its habitat, whilst maintaining a sufficient level of confidentiality to safeguard populations against collectors. (ACTION: EN, ELP).

DESMOULIN'S WHORL SNAIL (*Vertigo moulinsiana*)



National Lead Partner: EN
County Lead Partner: EA
Associated Plans: Coastal grazing marsh

1. CURRENT STATUS IN THE UK

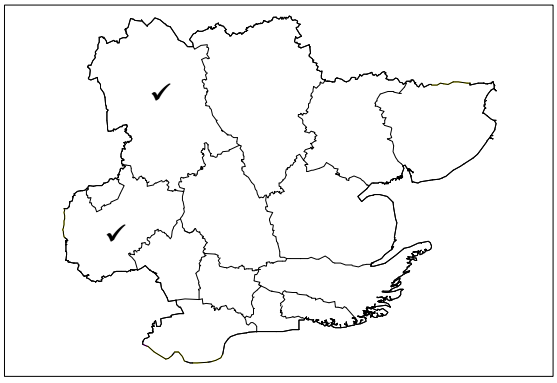
1.1 *V. Moulinsiana* is an inhabitant of long-established swamps, fens and marshes, usually bordering rivers and lakes. It is associated with living and dead stems of tall grasses and sedges, on which the snails climb; they are rarely found in litter.

1.2 Scattered colonies occur in a band from Dorset to Norfolk, with isolated sites in Northamptonshire, Shropshire and North Devon.

1.3 The snail is nationally and globally threatened and is included on Annex 11 of the EC Habitat Directive. It is listed as Rare on the GB Red List.

2. CURRENT STATUS IN ESSEX

2.1 *V. moulinsiana* is currently found along the River Stort at Sawbridge Marsh SSSI TL 491158 (in high densities), Little Hallingbury Marsh TL 492171 and Thorley Flood Pound TL 489182 (sparse populations).



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 *V. Moulinsiana* is very sensitive to habitat disturbance and is scarcely known to colonise secondary man-made sites.

3.2 Favouring overgrown, long established wetland sites means that excessive management of vegetation posses a threat to the species.

3.3 The species is in decline throughout Europe, in part due to falling temperatures since the climatic optimum.

4. CURRENT ACTION IN ESSEX

4.1 Sawbridgeworth Marsh has SSSI status.

4.2 No direct action for this species in Essex.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Ensure that identified populations of snails are protected, maintained and enhanced.

5.2 Undertake survey of former and likely sites to determine a true county distribution by the year 2005.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Seek to ensure that appropriate catchment management plans, flood defence activities, water level management plans, sea defence strategies and structures take account of the requirements of this species. (ACTION: EA, IDBs).

6.2 Site safeguard and management

6.2.1 Seek to ensure appropriate management of all known sites for this species. (ACTION: MAFF/FRCA, EN, EA, EWT).

6.2.2 Seek to ensure that all relevant SSSI and NNR management plans take into account the needs of this species. (ACTION: EN, EWT).

6.2.3 Consider the need for further sites to be notified as SSSI or SACs. (ACTION: EN).

6.3 Species management and protection

6.3.1 Ensure that the remaining populations are maintained and enhanced. (ACTION: MAFF/FRCA, EN, EWT).

6.4 Advisory

6.4.1 Ensure that landowners and managers are aware of the presence and importance of conserving this species and, following further research to identify the requirements of this species, provide advice on appropriate methods of management for its conservation. (ACTION: MAFF/FRCA, EN, EWT).

6.5 Future research and monitoring

6.5.1 Support national research into the ecology of this species to improve management advice, having regard to the very fragile nature of the colonies. (ACTION: EN, JNCC).

6.5.2 Survey all known Essex historic locations by the year 2005 to discover whether species is still present at any of them. (ACTION: EN, EWT).

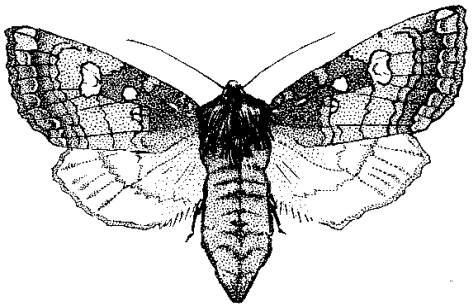
6.5.3 Ensure all known Essex colonies are mapped in detail to assist with management, and encourage regular monitoring to help identify any further threats to the species. (ACTION: EN, EWT, JNCC).

6.5.4 Survey other areas in Essex to determine if the species occurs elsewhere. (ACTION: EN, EWT, JNCC).

6.5.5 Pass information gathered during survey and monitoring of this species to JNCC or BRC so that it can be incorporated in national databases. (ACTION: EN, EA, EWT).

6.5.6 Provide information annually to the World Conservation Monitoring Centre on the Essex status of the species to contribute to maintenance of an up-to-date global Red Data list, via JNCC. (ACTION: EN, EA, EWT).

FISHER'S ESTUARINE MOTH (*Gortyna borelii lunata*)



National Lead Partner: None
County Lead Partner: EN (01206 796666)
Associated Plans: Hog's fennel

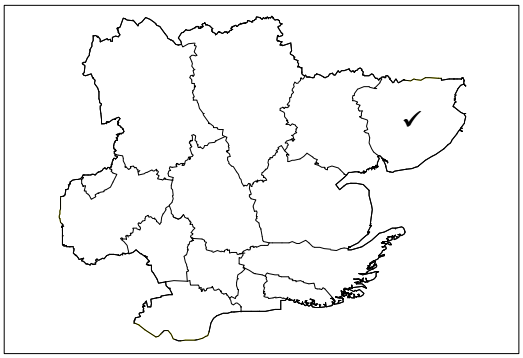
This plan is complementary with that for **Hog's-fennel (*Peucedanum officinale*)** and the two should be viewed together.

1. CURRENT STATUS IN THE UK

1.1 Fisher's estuarine moth has only ever been recorded in Britain from its Essex locality. Elsewhere in western Europe, it is extremely local in France, being limited by its narrow choice of larval food plant, hog's-fennel. Continental specimens represent a different subspecies.

1.2 It is listed on the UK Red List, and is now included on Schedule 5 of the Wildlife & Countryside Act 1981.

2. CURRENT STATUS IN ESSEX



2.1 The first definite record of this moth was in 1968, although there is some evidence to suggest it was present in its sole locality around the start of the 20th century. Subsequently, it has been located at low density throughout the main Essex population of its food plant, on sea walls, coarse grassland, upper salt marshes and road verges around the Walton Backwaters.

2.2 Young larvae may be present at a relatively high density in early summer, with individual food plants showing signs of several larval workings. However, larger larvae appear to be restricted to one per plant, perhaps limited by the fact that they make substantial borings in the rootstock, and adults are rarely recorded in large numbers, even in the most dense colonies of the food plant.

2.3 No clear trend has been detected in the abundance of the species. The number of adults recorded each year fluctuates according to search effort and weather

conditions during the flight period (late September to early October).

2.4 A single early record at Dovercourt in 1996, some 3km from the nearest breeding site, was a local wanderer. However, Fisher's estuarine moth has not been recorded at the other Essex population of the food plant, nor from the other extant populations in north Kent or Suffolk. Unauthorised attempts at introducing the species to Kent apparently failed.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Unsympathetic mowing regimes on the sea walls, on which a large proportion of the food plant is found.

3.2 Sea-level rise, adversely affecting food plants outside the sea wall, and necessitating structural improvements to or realignment of sea walls.

3.3 Scrub encroachment onto some major colonies of hog's fennel.

3.4 Collection of specimens, as adults or large larvae, the latter through illegal uprooting of the food plant.

4. CURRENT ACTION

4.1 The moth is monitored informally each year over parts of its range by the Essex Lepidoptera Panel.

4.2 Local adjustments to the Environment Agency mowing regime have been initiated to try and cater for the needs of the moth.

4.3 Scrub control around core areas for the food plant.

4.4 JNCC, with support from EN, EWT and ELP, have recommended to Government that the moth should be given statutory protection against collection.

4.5 The majority of the moth and food plant population is located within an SSSI, SPA and Ramsar site, much of it within an NNR.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 To ensure that the present distribution and abundance of hog's fennel are at least maintained, and that the core populations still support the moth.

5.2 To maintain and develop monitoring programmes, to achieve a clearer understanding of population dynamics and trends.

5.3 To ensure that the needs of both moth and food plant are addressed in any future

sea wall works, both capital and maintenance, around the Walton Backwaters.

5.4 To eliminate unauthorised and commercial collection of larvae and adults

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure that the needs of the moth and its food plant are fully addressed in all relevant sea defence policies and practices, including maintenance works (ACTION: EN, EA, ELP).

6.1.2 Ensure that the needs of the moth and its food plant are fully addressed in special road verge management policies and practices (ACTION: ECC, EWT).

6.2 Site safeguard and management

6.2.1 Where sites supporting the species must be mown annually, ensure this is carried out in August, while the moths are pupating underground (ACTION: EN, EA, EWT, ECC).

6.2.2 Develop appropriate mowing regimes which leave a significant proportion of each sub-site uncut in any one year(ACTION: EN, EA, ELP).

6.2.3 Continue scrub management to extend food plant population (ACTION: EWT).

6.3 Species management and protection

6.3.1 Enforce statutory protection for Fisher's estuarine moth (ACTION: EN, ELP, Police Wildlife Liaison Officer).

6.4 Advisory

6.4.1 Provide advice on the species and the management of its habitats to relevant landowners and managers (ACTION: EN, EA, ELP).

6.4.2 Irrespective of statutory status, advise potential collectors on the species' vulnerability, and the illegality of uprooting food plants (ACTION: EN, ELP).

6.5 Future research and monitoring

6.5.1 Continue and develop monitoring programme including more detailed quantitative assessment of its distribution in relation to the food plants e.g. at Bramble Island, where numbers appear to be unaccountably low

(ACTION: EN, EWT**,** ELP).

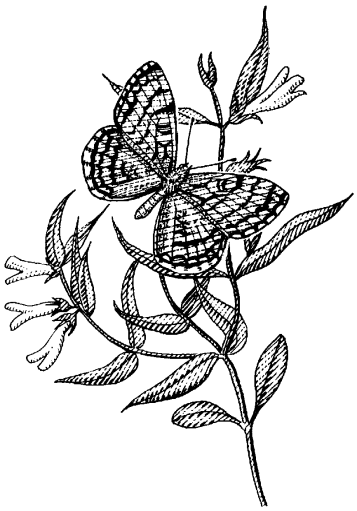
6.5.2 Ensure results of survey and monitoring are contributed to local, national and international databases (ACTION: EN, ELP).

6.5.3 Continue collaborative project to examine effects of different mowing regimes, and implement most sympathetic acceptable regimes (ACTION: EA, EN, EWT, ELP).

6.6 Communications and publicity

6.6.1 Seek opportunities to publicise the species, its status and protection, and threats to and management of its habitats, without divulging precise locations so as not to exacerbate threats from collectors. (ACTION: EN, ELP, EWT).

HEATH FRITILLARY (*Mellicta athalia*)



National Lead Partner: Butterfly Conservation
County Lead Partner: BC/EN (01206 796666)
Associated plans: Ancient woodland

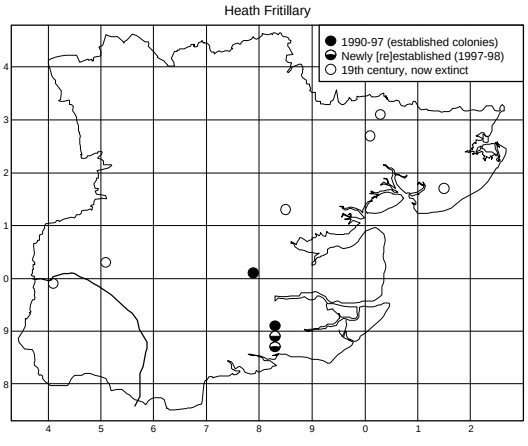
1. CURRENT STATUS IN THE UK

1.1 Within the UK the heath fritillary has only ever been recorded in England. It was formerly scattered across southern England, although it was locally abundant in parts of south-west and south-east England. Both the butterfly's numbers and its range have declined severely over the last century. In 1989 43 known colonies remained and populations now appear to be restricted to the south-west and south-east of England. There has recently been some stabilisation and in some places an increase in numbers (Warren *et al*, 1984).

1.2 The heath fritillary is listed as vulnerable on the GB Red List (RDB 2), and is protected under schedule 5 of the Wildlife and Countryside Act 1981.

1.3 The heath fritillary is listed as a Key Species within the UK Biodiversity Action Plan and has a individual national BAP.

2. CURRENT STATUS IN ESSEX



2.1 Historically the heath fritillary was scattered, in suitable habitat (see map, Corke 1997), across the east and south of Essex - mainly the London Basin Natural Area (North Thames Basin Character Area). It was lost as a breeding species around 1890. There have been several failed attempts this century to re-establish the butterfly in south Essex. There are currently two established re-introduction sites - Thrift Wood, Woodham Ferrers SSSI (Thrift Wood, Bicknacre EWT Reserve) (1984) and Hockley Woods SSSI (1987) and two further recent re-introductions to Great Wood and Dodd's Grove SSSI (Belfairs Wood) (1997) and Pound Wood EWT Reserve (1998). The 1984 re-introduction used Kent butterfly stock from Thornden Wood in the Blean Complex; the 1987 from Thrift

Wood; the 1997 from Hockley Woods; and the 1998 from Thift and Hockley Woods.

2.2 Heath fritillary in Essex, and Kent, breeds solely on common cow-wheat in open coppice clearings, open sunny rides and sunny woodland edges, whereas in the south-west of England it also feeds on ribwort plantain and is to be found in heathland and species-rich grassland. The woodlands are mainly mixed oak and hornbeam woodlands (National Vegetation Classification community W10 - *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland).

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

In Essex the heath fritillary is currently not in decline or being lost. However, factors that have in the past and may in the future cause this are:

3.1 Loss of suitable or potentially suitable woodland sites.

3.2 The isolation and fragmentation of suitable habitat, thus affecting the viability of colonies.

3.3 The degradation of suitable habitats by the cessation of sympathetic habitat management i.e. active coppice management. This may arise through: a lack of knowledge or understanding of the heath fritillary's requirements, by woodland managers; the inability to coppice e.g. through deer browsing or financial constraints, such as a lack of market for coppice products.

4. CURRENT ACTION

4.1 Butterfly Conservation are leading the English Nature Species Recovery Programme for the heath fritillary and have developed a detailed plan - Barnett L.K. & Warren M.S. (1995)

4.2 In 1997 Butterfly Conservation (Essex Branch) and English Nature re-established heath fritillary at Great Wood and Dodd's Grove SSSI, after the establishment of sympathetic management by Southend Borough Council.

4.3 In 1998 Butterfly Conservation (Essex Branch), Essex Wildlife Trust and English Nature established heath fritillary at Pound Wood, an EWT Reserve which is under on-going sympathetic management.

4.4 All known Essex populations (re-establishments) are within areas designated as SSSI or EWT reserves.

4.5 Conservation management specifically for the heath fritillary is being undertaken by four organizations in Essex. These are Butterfly Conservation and EWT in Thrift

Wood, Woodham Ferrers SSSI (Thrift Wood, Bicknacre Reserve) and Pound Wood Nature Reserve, Rochford District Council in Hockley Woods SSSI and Southend-on-Sea Borough Council in Great Wood and Dodd's Grove SSSI. This management is being supported by English Nature's Reserve Enhancement Scheme - for EWT at Thift Wood, Woodland Grant Scheme for EWT at Pound Wood, Woodland Grant Scheme and English Nature Management Agreement/agreed Site Management Statement - for both Rochford and Southend-on-Sea Councils.

4.6 Essex heath fritillary populations are being monitored by the woods' managers and volunteers

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Monitor the extent and condition of heath fritillary populations in Essex.

5.2 Increase existing re-established populations by maintaining and where appropriate expanding positive management suitable for heath fritillary.

5.3 Increase the population and range within Essex through further re-establishments/introductions within the butterfly's former range (see 2.1 above).

Targets

Present	10 Years	50 Years
2 (4) sites	5 Sites	10 sites
2 (4)	8 colonies	15 colonies

NB. With current and extinct records there are ten tetrad records for heath fritillary in Essex, i.e. at least 10 sites (see dot map above).

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Ensure future re-establishments/introductions are on sites that are SSSI or County Wildlife Sites and that they follow the invertebrate re/introduction guidelines produced by English Nature and Butterfly Conservation (account must be taken of any existing interest). (ACTION: EN and All).

6.1.2 Ensure incentive schemes include suitable management that will produce favourable conditions for heath fritillary. (ACTION: EN, FA, FE, FRCA).

6.1.3 Target incentive schemes to woodland owners/managers where re-

establishment/introductions are to be of greatest gain. (ACTION: EN, FA, FE, FRCA)

6.2 Site Safeguard and Management

6.2.1 Ensure that any sites that hold colonies are protected to a degree that will enable long term sympathetic management. This protection may include SSSI notification or reserve acquisition. (ACTION: EN, EWT, BC, LAs).

6.2.2 Restore favourable management on sites before any re-introduction. (ACTION: EN).

6.2.3 Promote the uptake of financial incentives available for the management of woodlands, to continue and extend coppice management in the butterfly's former range in Essex, and encourage the market for coppice produce. (ACTION: EN, BC, FE, FA, ECC, LAs).

6.3 Species management and Protection

6.3.1 Continue to manage the habitat of all heath fritillary colonies, to maintain and enhance populations. (ACTION: BC, EWT, RDC, SBC).

6.3.2 Continue or begin to implement suitable management in woodland near to existing sites (within 300m of a known colony) and also on new sites in the former range, if there is a possibility of re-creating suitable breeding habitat. (ACTION: FE, FA, LAs, EWT, FWAG).

6.3.3 Conduct strategic re-introductions into suitably restored habitats, with appropriate licenses having been obtained. (ACTION: EN, BC).

6.3.4 Agree site management plans, that include specific references to heath fritillary, on all sites with heath fritillary colonies. (ACTION: EN).

6.4 Advisory

6.4.2 Ensure landowners and managers are aware of the presence and legal status of the species and advise them on practical habitat management for the heath fritillary (this may include visits to established colonies), and keep them updated with results from research. (ACTION: EN, EWT, BC).

6.5 Future Research and Monitoring

6.5.1 Continue the existing butterfly monitoring on heath fritillary sites using timed counts and ensure annual monitoring of all colonies. (ACTION: EN, EWT, RDC, SBC, BC).

6.5.2 Collate monitoring data to compare trends on individual sites. (ACTION: BC).

6.5.3 Conduct a thorough survey of former and potentially new sites to enable an up-to-date assessment of the habitat suitability for heath fritillary , this should include habitat suitability maps. (ACTION: EN, EWT, BC).

6.5.4 Collate and disseminate relevant research on heath fritillary, habitat and food plant. (ACTION: BC).

6.5.5 Continue research into the habitat requirements of this species in woodland, and in particular the ecology of the host food plant, common cow-wheat. (ACTION: EN, BC, higher education establishments).

6.5.6 Review and assess effects of habitat management in the light of monitoring at least every 5 years. (ACTION: EN, EWT, BC, RDC, SBC)

6.6 Communications and Publicity

6.6.1 Publicise the decline of the heath fritillary and the measures needed to conserve it, and, where appropriate, involve local communities (e.g. schools). (ACTION: EN, BC, EWT).

6.6.2 Publicise how the heath fritillary illustrates the problems of the decline of active coppice management in woodlands, and of woodland management in general. (ACTION: EN, BC, FA, EWT).

6.6.3 Ensure adequate consultation with relevant bodies especially during planning and reporting of introductions. (ACTION: All).

6.6.4 Ensure effective liaison with responsible bodies in Kent and disseminate any appropriate information to the Essex bodies. (ACTION: EN, BC).

6.6.5 Pass information gathered during survey and monitoring of this species to JNCC, BRC and/or BC so that it can be incorporated in national databases. (ACTION: EN, BC).

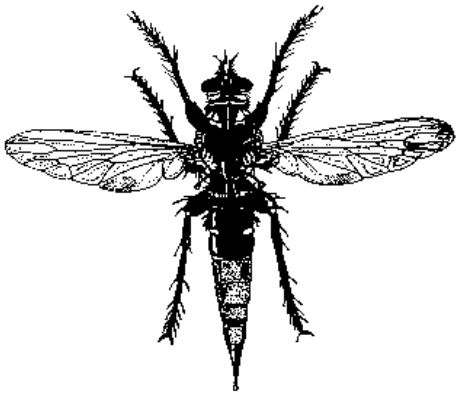
7. REFERENCES

Barnett L.K. & Warren M.S. (1995). *Species Action Plan Heath Fritillary Mellicata athalia*. Butterfly Conservation, Wareham Dorset.

Corke, D. (1997). *The Butterflies of Essex*. Lopinga Publications, Essex.

Warren, M. S., Thomas, C. D. & Thomas, J. A. (1984). The status of The Heath Fritillary *Mellicata athalia* Rott., in Britain. *Biological Conservation* **29**, 287-305.

HORNET ROBBERFLY (A*silus crabroniformis*)



National Lead Partner: CCW
County Lead Partner: EN (01206 796666)
Associated Plans: Coastal grazing marsh, lowland heathland

1. CURRENT STATUS IN THE UK

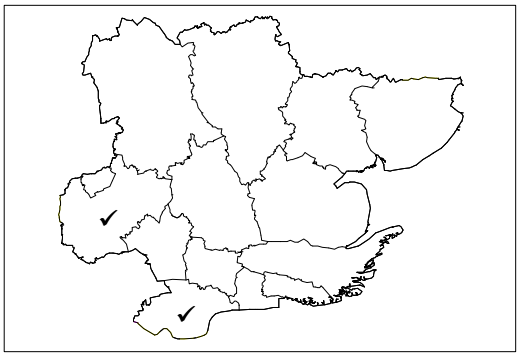
1.1 This large and spectacular fly is found in unimproved grassland and heath in southern England and Wales. Since 1970, it has been recorded from only about 40 ten km squares; it seems to have been lost from numerous localities, especially on the periphery of its range, and even in the core of its distribution numbers fluctuate considerably from year to year.

1.2 Its larvae are believed to prey upon the larvae of large dung beetles, and the adults upon a variety of insects, including grasshoppers, beetles and flies. As such, it requires suitable grassland swards, usually grazed by horses, ponies, cattle or rabbits, to support its prey community.

1.3 The hornet robberfly is a short-list species on the UK BAP, and classed as nationally notable.

2. CURRENT STATUS IN ESSEX

2.1 Recorded in recent years from only a handful of sites in south Essex, especially remnant species-rich grassland on Thames terrace gravels, and former grazing marshes around Tilbury. One recent record from Epping Forest, and a few older records from elsewhere in the county.



2.2 None of the main sites currently benefit from statutory protection.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Loss and fragmentation of unimproved grassland sites, as a result of urban and industrial development and agricultural intensification.

3.2 Changes in stock management and availability.

3.3 Use of persistent parasite treatments for stock (e.g. Ivermectins) which kill dung beetles.

4. CURRENT ACTION

4.1 Action plan published in the UK BAP.

4.2 The areas of south Essex from which is known are the subject of detailed entomological survey.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Ensure the retention and appropriate management of all post-1980 sites.

5.2 Monitor the occurrence and population dynamics of the hornet robberfly at all known sites, to guide conservation management practices.

5.3 Identify key sites for the species, and ensure they receive appropriate conservation designation (as SSSIs and/or county wildlife sites).

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Promote stock management policies and practices which do not rely on the use of Ivermectins, through SSSI, ESA and Countryside Stewardship agreements. (ACTION: EN, FRCA).

6.2 Site safeguard and management

6.2.1 Identify and designate as SSSI (if meeting national guidelines) all key sites. Broom Hill (West Tilbury) and nearby Terrace Gravel sites would appear to be especially relevant in this context. (ACTION: EN, Essex Field Club).

6.2.2 Identify and notify all remaining sites as County Wildlife Sites. (ACTION: EWT, Essex Field Club).

6.2.3 Ensure that all designated sites are protected against adverse planning decisions. (ACTION: Local Authorities, EN, EWT).

6.2.3 Ferry Fields (Tilbury), a known site, is currently under development.

Mitigation measures to support this and other rare invertebrate species should be incorporated into detailed permissions wherever possible (ACTION: EWT, Thurrock Council, EN).

6.2.4 Promote favourable management (horse/cattle grazing, at moderate density, with no use of Ivermectins or improvement of the grass) on all sites where it occurs. (ACTION: EN, EWT).

6.3 Species management and protection

6.3.3 Investigate the potential for captive breeding, with a view to future restocking. (ACTION: EN, Zoo Federation members e.g. Colchester Zoo).

6.4 Advisory

6.4.1 Disseminate information about the species, its habitats and their management, and especially the effects of Ivermectins to owners and managers of sites where it does or may occur. (ACTION: EN, EWT).

6.5 Future research and monitoring

6.5.1 Continue survey and monitoring of known and likely sites (using *Invertebrates of the South Essex Thames Terrace Gravels* Phase 1 report as a guide), to improve our knowledge of its distribution and population dynamics (ACTION: EFC, Conservators of Epping Forest).

6.5.2 Collate existing and appeal for new records of potential larval prey species, especially *Geotrupes* beetles, to guide future survey. (ACTION: EFC).

6.5.3 Contribute to national research into ecological requirements of the species, including its preferred larval prey species, to guide future management advice and practice (ACTION: EN, EFC).

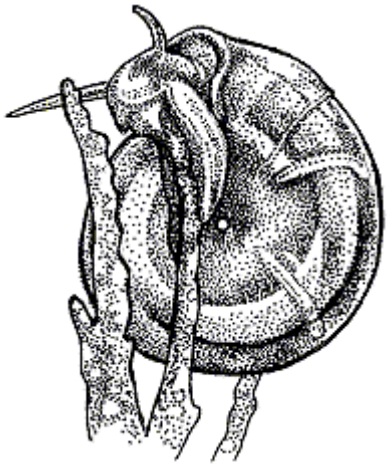
6.5.4 Contribute to national research into the effects of Ivermectins and alternatives. (ACTION: EN, EFC).

6.5.5 Ensure results of survey work are contributed to local, national and international databases. (ACTION: EN, EFC).

6.6 Communications and Publicity

6.6.1 Seek opportunities to publicise the species and its management, and to use the hornet robberfly to highlight the issues facing insects associated with dung. (ACTION: EN, EWT, LAs, EFC).

SHINING RAMSHORN SNAIL (*Segmentina nitida)*

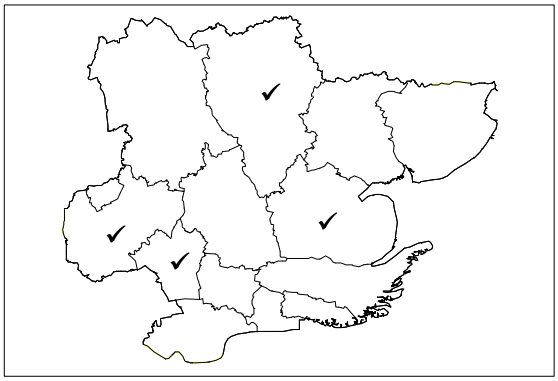


National Lead Partner: EA
County Lead Partner: EA (01473 727712)
Associated Plans: Coastal grazing marsh

1. CURRENT STATUS IN THE UK

1.1 This snail lives in unpolluted, usually calcareous water in ponds and drains of grazing marshes. It is often associated with a rich variety of freshwater molluscs, including other rare species. It can be found locally throughout Europe, northwards to southern Scandinavia. In Britain, this snail has shown a dramatic decline this century. It is now confined mainly to the Norfolk Broads and Pevensey Levels. The species is listed as endangered in the GB Red List.

2. CURRENT STATUS IN ESSEX



2.1 The only recent records of *S. nitida* are unconfirmed reports from the Biology Section of the Anglian Region, Eastern Area, Environment Agency. Sites include Bourne Brook, Gosfield TL 785290, River Chelmer Back Cut at Hoe Mill TL 808082 and River Wid, Mountnessing Hall Footbridge TL 646964. As these are unconfirmed records there is the possibility that the species is extinct in Essex.

2.2 The last confirmed records were in March 1993 (Nigel Holmes) from 2 SSSIs - Waltham Abbey and Cornmill Stream and Old River Lea.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Excessive ditch clearance.

3.2 Eutrophication of water courses due to fertiliser run off.

3.3 Conversion of grazing marshes to arable farming with associated water table lowering.

4. CURRENT ACTION IN ESSEX

None

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Confirm all existing Essex populations by the year 2000.

5.2 Ensure that these populations are protected, maintained and where possible enhanced.

5.3 Undertake surveys of former and potential sites to determine a more accurate county distribution.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Seek to maintain favourable water quality at currently occupied, and recently discovered sites. (ACTION: EA, IDBs, MAFF/FRCA).

6.1.2 Ensure that the needs of this species are taken into account when considering any possible expansion of ESAs to cover marshes containing occupied watercourses. (ACTION: MAFF/FRCA).

6.2 Site safeguard and management

6.2.1 Consider the development of safeguards in SSSI management plans, both where the snail is already present and where it has potential to colonise. (ACTION: EN).

6.2.2 Ensure that site managers implementing these management plans are trained in appropriate habitat management for this species. Distribute ditch management best practice. (ACTION: EN, EA).

6.2.3 Develop a ditch management cycle that allows the re-colonisation of cleaned stretches from adjacent sections. (ACTION: MAFF/FRCA, IDBs, EA, EN).

6.3 Advisory

6.3.1 Disseminate national guidelines for site managers and landowners. (ACTION: MAFF/FRCA, EA, EN).

6.4 Future research and monitoring

6.4.1 Undertake a survey of all post-1950 sites by the year 2000, to establish the current distribution of the species. (ACTION: EA, EN, EWT).

6.4.2 Encourage regular monitoring of known Essex sites, including the use of fixed point monitoring stations. (ACTION: EA, EN, EWT).

6.4.3 Support national research on ecological requirements of the species, including habitat requirements and distribution. (ACTION: EN, JNCC).

6.4.4 Pass information gathered during survey and monitoring of this species to JNCC or BRC so that it can be incorporated in national databases. (ACTION: EN, EWT, EA).

6.4.5 Provide information annually to the World Conservation Monitoring Centre on the Essex status of the species to contribute to maintenance of an up-to-date global Red Data List, via JNCC. (ACTION: EN, EA, JNCC).

SHRILL CARDER BEE (B*ombus sylvarum*)

National Lead Partner: WWF
County Lead Partner: EN (01206 796666)
Associated Plans: None

1. CURRENT STATUS IN THE UK

1.1 This bee was widespread and common in the 19th and early 20th centuries, especially in southern England. However, post-1960 records suggest a dramatic decline, to just seven sites by the 1980s, and perhaps just three (despite intensive searching) by 1997, when it was considered to be close to extinction in Britain.

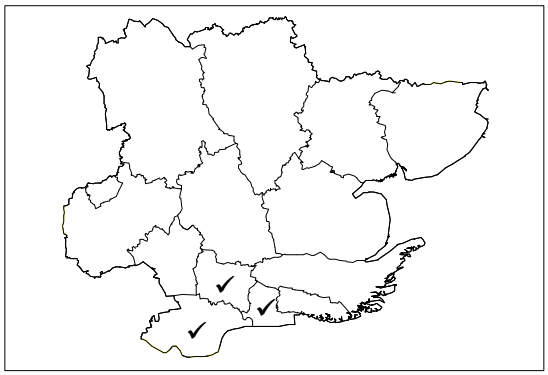
1.2 It appears to require relatively large areas of suitable flower-rich habitat for foraging (legumes and red bartsia have been suggested as particularly favoured), together with more rough areas (e.g. hedge banks, scattered scrub in coarse grassland) for nesting. Flowery salt marshes are also a favoured foraging habitat.

1.3 The species is classed as nationally notable, although recent declines may mean that this should be revised. It is a UK BAP priority list species.

1.4 In continental Europe, it is still widespread, although likely to be in decline in areas of higher-intensity farming.

2. CURRENT STATUS IN ESSEX

2.1 There are confirmed post-1980 records from three Essex sites: Ferry Fields (Tilbury), Broom Hill (West Tilbury) and Wat Tyler Country Park (Pitsea). The Ferry Fields site is likely to be destroyed in the near future by industrial developments. The species was also recorded at several locations on Benfleet Downs in 1998.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

The factors listed are those which generally affect members of the genus *Bombus*, but do not explain why *B. sylvarum* has declined to a greater extent than other species; more research into this is clearly of vital importance.

3.1 Loss and fragmentation of herb-rich grassland through agricultural intensification, and neglect.

3.2 Loss of nesting sites through the loss and over-management of hedges, banks and other boundary features.

3.3 Reduction in the extent and vegetation cover of salt marshes, due to relative sea-level rise.

4. CURRENT ACTION

4.1 Action plan published in the UK BAP.

4.2 The bumblebees of Essex are currently the subject of recording by members of the Essex Field Club.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Continue survey work to ensure accurate assessment of status by 2000.

5.2 Identify all existing populations and maintain their habitats.

5.3 Restore sufficient tracts of suitable habitat in former localities to support three sustainable populations in Essex by 2010, using re-introductions if necessary (and if possible).

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure that agri-environment schemes are targeted towards areas which could be restored to promote this species, and that the restoration of large tracts of suitable habitat is identified as a priority. (ACTION: FRCA, EN).

6.2 Site safeguard and management

6.2.1 Ensure that the management of protected sites which support the species reflect its needs, for foraging and nesting (ACTION: EN, EWT, Basildon

Council).

6.2.2 Ensure that sites which support a population of the species are considered for statutory protection as SSSI, and/or as County Wildlife Sites; key sites in this respect are likely to be Broom Hill and nearby Terrace Gravel sites. (ACTION: EN, EWT).

6.2.3 Ferry Fields, a known site, is currently under development. Mitigation measures to benefit this and other rare invertebrate species should be incorporated into detailed permissions, wherever possible (ACTION: EWT, Thurrock Council, EN).

6.2.4 Ensure that appropriate management provisions for this species are included in Countryside Stewardship agreements in areas where it does or is likely to occur (ACTION: FRCA).

6.3 Species management and protection

6.3.1 Investigate the potential for captive breeding or rearing, with a view to future restocking. (ACTION: EN, Zoo Federation members e.g. Colchester Zoo).

6.4 Advisory

6.4.1 Provide advice on the species and the management of its habitats to relevant land owners and managers (ACTION: EN, EWT, FRCA).

6.5 Future research and monitoring

6.5.1 Continue survey and monitoring of known and likely sites, to improve our knowledge of its distribution and population dynamics . One target site should be Fobbing Hill, where its occurrence was suspected in 1996. Speculative survey should focus upon sites identified in the *Invertebrates of the South Essex Thames Terrace Gravels* Phase 1 survey report, the grazing marshes along the Thames Estuary, and possibly also around the Blackwater and Crouch Estuaries (ACTION: EFC).

6.5.2 Make particular efforts to locate breeding sites: thus far, only workers have been recorded, and it may be that they are from only outlying foraging areas, remote from the nest. (ACTION: EFC).

6.5.3 Identify former localities shown only on a 10km square basis in the 1980 ITE bumblebee atlas. (ACTION: EN, EFC).

6.5.4 Contribute to national research into ecological requirements, foraging distances etc. of the species, to identify more precisely reasons for decline and guide future management advice and practice. A local expert working group should be established to facilitate this, which should include a

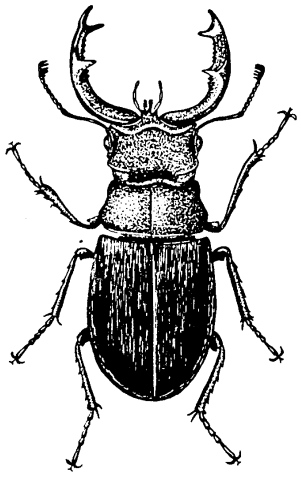
representative from the Bumblebee Working Group. (ACTION: EFC, Prof. Ted Benton, EN).

6.5.5 Ensure results of survey work are contributed to local, national and international databases. (ACTION: EN, EFC).

6.6 Communications and publicity

6.6.1 Seek opportunities to publicise this species, the threats to and management of its habitats, and to use it to highlight issues relating to the conservation of threatened bumblebees and insects in general. In Essex, the following bumble and cuckoo-bees are giving rise to concerns (and may be addressed in future action plans): *B. subterraneus* (no post-1980 records), *B. ruderatus* (about two post-1980), *Psithyrus rupestris* (3 sites), *B. muscorum* and *humilis* (both estuarine species, in national decline). (ACTION: EN, EWT).

STAG BEETLE (*Lucanus cervus*)



National Lead Partner: PTES
County Lead Partner: Colchester museum (01206 282936)
Associated Plans: Urban, Ancient woodland, Ancient hedgerows and green lanes

1. CURRENT STATUS IN THE UK

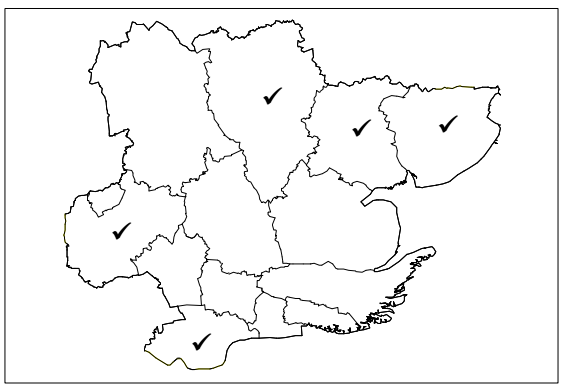
1.1 The stag beetle is the largest terrestrial insect in Britain. Its name is derived from the large antler like jaws of the male which are mainly used for wrestling with other males. Adults are black with chestnut wing cases and are most likely to be seen in the summer months when they fly to find mates and may be attracted to lights in houses. The species breeds in rotting tree stumps and other sources of decaying wood, where the larvae will remain for 4 years.

1.2 This beetle is widespread in southern England, especially in the Thames Valley, north Essex and south Suffolk, south Hampshire, west Sussex and fairly frequent in the Severn valley and south western coastal areas. Older records from outside these areas suggest a contraction in range.

1.3 The stag beetle is included on Annex II of the EC Habitats Directive which carries an obligation to ensure its survival in the UK. In 1998 the species received protection under the quinquennial review of the Wildlife and Countryside Act (1981), under section 9(5) prohibiting unlicensed sale. In addition the species has been accorded nationally notable b status.

2. CURRENT STATUS IN ESSEX

2.1 The map, based on recent data, shows two distinct centres of population in north east Essex (V.C. 19) and south west Essex (V.C. 18). The south western colonies probably form part of a wider Thames valley population extending westwards through London, whilst those in the north east are part of a larger population centred around the Colne and Stour and extending into Suffolk.



2.2 Within these areas the species can be abundant e.g. in Colchester, but in other parts if its range it is only present at low densities. Old records of males from the Southend area may represent wanderers from a colony at Sheerness in Kent. There is also anecdotal evidence of a colony in the Langdon Hills near Basildon.

2.3 The beetle is found in gardens and parkland in urban and suburban areas as well as in hedgerows and semi-natural habitats in the wider countryside.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Although there does not seem to be a decline in populations at present (at least in the north east of the county) stag beetles are vulnerable to future depletion of their primary breeding sites, i.e. dead wood. For example, dead Elm stumps and roots resulting from the Dutch Elm Disease epidemic will soon be exhausted. The length of the life cycle (nearly four years) makes habitat continuity important.

3.2 Collection and trade are not thought to be a problem in the county at present.

4. CURRENT ACTION

4.1 Survey completed in 1996 in north east Essex, (Report in Essex Naturalist vol 14 1997). Surveys currently in progress in Greater London area including south west Essex.

4.2 National survey carried out in 1998 by PTES. Forms were circulated in Essex and results are awaited.

4.3 Research projects into stag beetle ecology are currently being formulated nationally (PTES).

4.4 Epping Forest proposed as a SAC, the stag beetle being a secondary criteria under the Habitats Regulations.

4.5 Two stag beetle pyramids and a site for relocation of displaced larvae have been established in Colchester Borough during 1998.

5. ACTION PLAN OBJECTIVES

5.1 Maintain and increase breeding populations by ensuring continued supply of suitable dead wood throughout the urban, suburban and rural range of the beetle. Target = increase usable dead wood resource by 20% over 20 years.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 No action proposed

6.2 Site safeguard and management

6.2.1 Set up wood piles in suitable sites as breeding refugia, e.g. stag beetle pyramids and stag beetle nurseries based on German research. Target = 30 pyramids/nurseries by 2004. (ACTION: LAs, EWT, FC).

6.2.2 Encourage planting of trees in new hedgerows and allow these to age and provide future dead wood resources. All new hedgerows to have a proportion of hardwood standards. Target = 1998 onwards. Note ancient and species rich hedgerow plan.

6.3 Species management and protection

6.3.1 Protect adult beetles through communications with the general public to stress their harmlessness. Target 1998 onwards. (ACTION: EWT, EN, LAs).

6.4 Advisory

6.4.1 Produce publicity pack and best practice by 2004. (ACTION: LAs, EN, EWT, FWAG, NFU).

6.4.2 Distribute best practice guidance to educate land owners and managers of the value of dead wood and to discourage over-tidiness. (ACTION: LAs, EN, EWT, FWAG, NFU)

6.5 Future research and monitoring

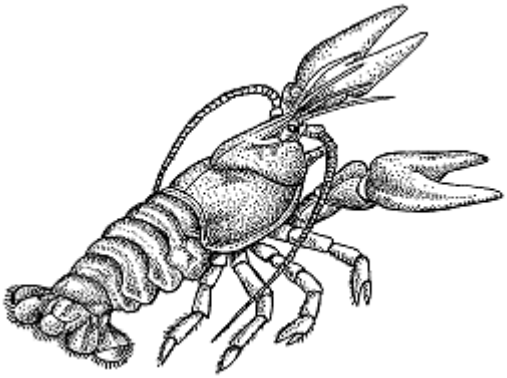
6.5.1 Actively promote further distributional surveys in all districts, together with monitoring and research into breeding/habitat requirements. Ensure details are forwarded to PTES and BRC. Target = All future surveys. (ACTION: EWT, EN, LAs, Recording centres).

6.6 Communications and publicity.

6.6.1 Use the stag beetle as a flagship species to promote deadwood invertebrates in general. Target 1998 onwards. (ACTION: EWT, EFC, Local Natural History Societies).

6.6.2 Incorporate stag beetle information into any new wildlife gardening leaflets/talks. Target = 1998 onwards. (ACTION: EWT, LAs, EN).

WHITE CLAWED CRAYFISH (*Austropotamobius pallipes)*



National Lead Partner: EA/ TGCT
County Lead Partner: EA (01473 727712)
Associated Plans: none

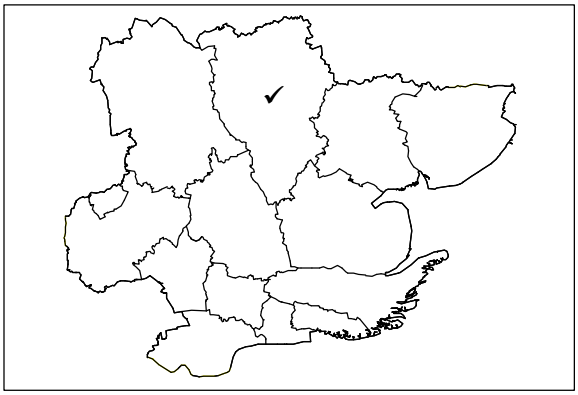
1 CURRENT STATUS IN THE UK

1.1 The white clawed crayfish is the only native species of freshwater crayfish in the UK. It is found in clean, calcareous streams, rivers and lakes in England and Wales and occurs in a few areas in Northern Ireland. Populations have suffered dramatic losses in recent years due to a number of factors (see below).

1.2 The species is listed in Appendix III of the Bern Convention and Annexes II and V of the EC Habitats Directive. It is classed as globally threatened by IUCN/WCMC. It is also protected under Schedule 5 of the Wildlife and Countryside Act (1981) in respect to taking from the wild and sale, and is proposed for addition to Schedule 5 of the Wildlife (Northern Ireland) Order 1985.

2 CURRENT STATUS IN ESSEX

2.1 White clawed crayfish are currently present in the Rivers Stour, Pant, Blackwater and in Stebbing and Robins Brooks. These are included in the East Anglian Plain and London Basin Natural Areas.



3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 The habitat requirements of this species are very vulnerable to modifications through the management of rivers and changes in water quality.

3.2 Native crayfish are out competed by non-native crayfish (Signal and Turkish) which are present in several rivers in Essex.

3.3 Crayfish plague is present in the county and effects the native species of crayfish only.

4. CURRENT ACTION

4.1 The Environment Agency is undertaking trapping surveys of rivers in Essex, Norfolk and Suffolk to establish the presence of native and non-native crayfish species. All main river fisheries survey sites will be surveyed for crayfish by 2000. Surveys will be undertaken as part of a 3 year fisheries surveying rolling programme.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Maintain the present distribution of this species within the county by 2000.

5.2 Limit the spread of non-native crayfish species.

5.3 Maintain and create suitable habitat conditions on appropriate riverine sites.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Use section 14 of the WCA to prevent further spread of non-native crayfish into areas that contain natural populations. (ACTION: MAFF, EA).

6.1.2 Designate “no-go” areas for the keeping of non-native crayfish. (ACTION: MAFF, EA).

6.1.3 Ensure Bylaws to control baiting with crayfish by anglers are in line with national proposals. (ACTION: EA).

6.1.4 Seek to control the keeping and trade of non-native crayfish in Essex. (ACTION: MAFF).

6.2 Site safeguard and management

6.2.1 Existing SSSI and CWS with riverine habitat should be assessed for existing and potential habitat for the species. (ACTION: EA, EA).

6.2.2 Ensure appropriate habitat management is undertaken as part of routine maintenance and management of key sites. (ACTION: EA, EN).

6.3 Species management and protection.

6.3.1 Undertake eradication programmes and monitor success. Trapping of signal crayfish being undertaken at Wixoe on the Stour to stop their transfer to the River Pant. (ACTION: EA, EN).

6.3.2 If feasible, establish reintroduction programmes at selected sites. (ACTION: EA, EN).

6.3.3 Licenses should not be issued for release of non-natives where there are inadequate precautions to prevent escapes into no-go areas. (ACTION: MAFF, EN).

6.4 Advisory

6.4.1. Provide advice to those involved in conservation of natives and management of non-natives. (ACTION: EA, MAFF, EN).

6.4.2. Provide advice on disinfection procedures to prevent transmission of plague. (ACTION: EA, EN).

6.5 Future research and monitoring

6.5.1 Monitor existing known populations and survey for new sites as part of fisheries rolling survey program - complete one round by 2000. (ACTION: EA, EN).

6.5.2 Advise on trapping in non-main river sites within the county. (ACTION: EA)

6.5.3 Investigate and monitor closely any suspected outbreaks of crayfish plague. (ACTION: EA, EN).

6.5.4 Assess morphological and genetic variability across range before decisions on stocks for re-introductions are made. (ACTION: EA).

6.5.5 Pass information from surveys and monitoring to University of Nottingham, JNCC or BRC to be incorporated in national databases. (ACTION: EN, EA).

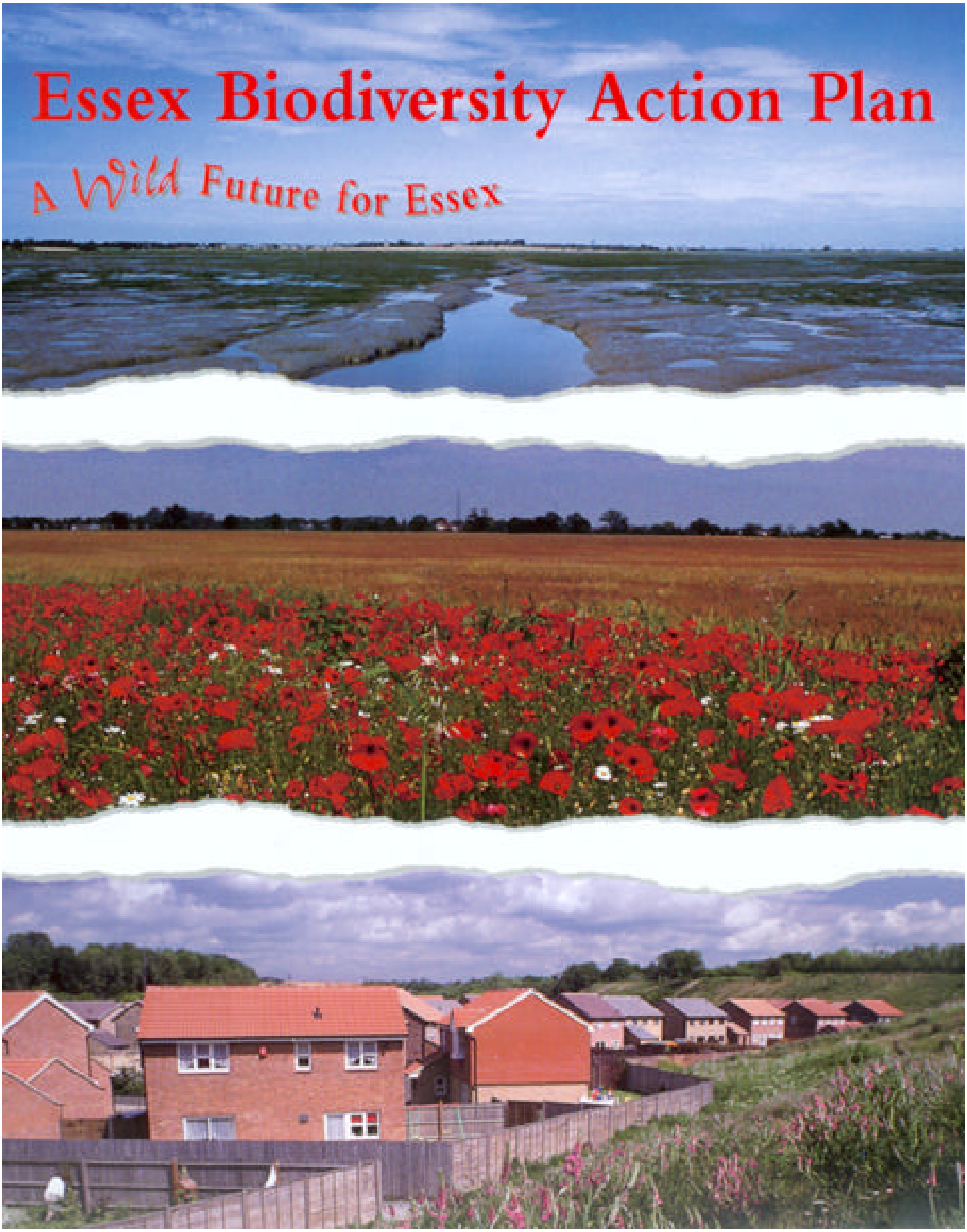
6.6 Communication and publicity

6.6.1 Increase public awareness on the presence and threat to the native species. Publicise need for conservation and how public can help update databases. (ACTION: EN, EA, EWT, LAs, local anglers associations).

6.6.2 Ensure anglers and visitors to SSSIs and LNRs containing crayfish are made aware of risks of spreading plague and releasing non-native species. (ACTION: EA, EN, LAs).

Essex Biodiversity Action Plan

A Wild Future for Essex



ANCIENT AND/OR SPECIES RICH HEDGEROWS AND GREEN LANES.

National Lead Partner: None
County Lead Partner: ECC (01245 437655)
Associated Plans: Stag beetle, pipistrelle bat, grey partridge, song thrush, dormouse.

1. CURRENT STATUS IN THE UK

1.1 Ancient hedgerows and green lanes tend to be those which support the greatest diversity of plants and animals, and are defined legally in the Hedgerow Regulations as being those which were in existence before the Enclosure Acts, and specifically before 1875. Species rich hedgerows are generally taken to be those which contain 5 or more native woody species in an average 30 metre length. Hedges which contain fewer woody species but have a rich ground flora of herbaceous plants are also included, as are recently planted species rich hedges. Where hedges are associated with a green lane, ditch, bank or verge, these features are also considered to form part of the hedgerow. Hedgerows usually contain standard trees; these may be of great age, and are often pollards, and will add greatly to the biodiversity of the hedge.

1.2 Nationally, hedgerows are important habitats for at least 47 species of conservation concern, including 13 globally threatened or rapidly declining species. This is more than for most other key habitats. Associated UK BAP species: **Bullfinch, linnet, reed bunting, spotted flycatcher, tree sparrow, turtle dove, barberry carpet moth** (no recent records), **heart moth** (no recent records). Hedgerows are especially important for butterflies and moths, the smaller farmland birds and dormice, while hedgerow trees are an important habitat for the larger birds and bats and dead wood invertebrates including stag beetles. Hedgerows are important as wildlife corridors for many species, including reptiles and amphibians, allowing dispersal between habitats.

1.3 Hedges are important not just for biodiversity, but also for farming, landscape, cultural and archaeological reasons.

2. CURRENT STATUS IN ESSEX

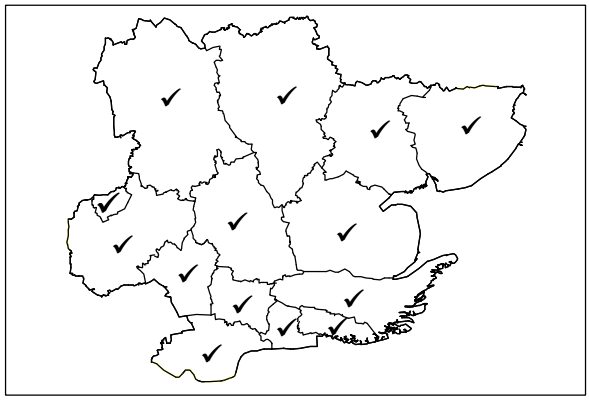
2.1 Essex hedgerows can be divided into four categories, some of which are found in all districts:

i) Ancient species rich hedgerows found mainly on the chalk and chalky boulder clay soils of north central and north west Essex.

ii) Ancient species poor hedges, e.g. the elm dominated hedges of the rectilinear field systems of Thurrock and Maldon.

iii) Enclosure and post enclosure species poor hedges.

iv) Modern species rich hedges often planted under grant schemes e.g. the MAFF Countryside Stewardship Scheme or ECC Landscape Conservation Programme.



2.2 There is no accurate figure presently available for the length of hedgerows in Essex, nor of the length of green lanes. However, there are 6502 km of footpaths, 800 km of bridleways, and 194 km of byways in Essex most of which are associated with hedges along long-established routes. One fairly typical arable farm of 789 hectares in north Essex, which has been studied in depth, has 39.4km of hedges, all of which are pre-enclosure, and 25% (9.9km) of which are considered to date from the Tudor period or earlier. Extrapolating this data to the whole of Essex (345,619ha) indicates a figure of 17237km of pre-enclosure hedges, including 4338km dating from the Tudor period or earlier.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Since 1945 there has been a drastic loss of hedgerows through removal, neglect, and changes in management practice. The net loss in England between 1984 and 1990 was 21% with a higher proportion in East Anglia. Accurate figures for hedgerow loss in Essex are not available, though some parish studies have been implemented.

3.2 The loss of hedgerows has been largely due to agricultural improvement, encouraged up until the early 1970s by government policy, but has also been caused by mineral working, road construction and general developments. The use of herbicides, pesticides and fertilisers particularly the use of sterile brues, in adjacent fields has changed the composition of the plants in hedgerow bottoms, leading to a decline in species diversity. This has been further exacerbated by the loss of mature hedgerow trees through senescence and felling, usually without any replacements being brought on. In the 1980s, Dutch Elm Disease destroyed many hedges, particularly in the south and east of Essex, and is still a recurring feature of the landscape in the late 1990s.

3.3 As a result of changes in agricultural practice, some hedges are no longer managed, and are gradually changing into lines of trees with substantial gaps in between. More commonly frequent and badly timed cutting has had a similar effect, and has led to a similar decline in the quality of the habitat. The proliferation of rabbits has damaged hedgerow regeneration, and in places destroyed the herbaceous material in the hedge bottom and undermined the hedge bank. The increase in the deer population has also had a limiting effect on the development of hedgerows, particularly newly planted ones.

3.4 Hedgerow decline, and especially the decline of standard trees within the hedgerow, has been further exacerbated by deep ploughing and drainage, which has destroyed root and changed water availability, causing stress and die back

3.5 Conversely, changes in attitudes amongst the farming community and the introduction of grants, initially through the Farm and Conservation Grants Scheme and Local Authority Grant Schemes, and more recently through the Countryside Stewardship Scheme, has led to the planting of a considerable length of new hedgerow. These are usually mixed hedges consisting of indigenous species, planted either on existing field boundaries or in order to create new ones. Where new field boundaries are being created, these hedgerows are rarely associated with a new ditch or bank, and it is perhaps too early to say how their habitat value will develop.

4. CURRENT ACTION

4.1 Legal Status

4.1.1 The Environment Act 1995 enabled the introduction of the Hedgerow Regulations 1997, which came into effect on the 1 June 1997. These Regulations introduced a system, whereby it is illegal to destroy hedgerows which fall within the scope of the Regulations without first notifying the local authority of the intent to do so. Having received such notification, the local authority must assess the hedgerow against a number of historic, ecological and landscape criteria, and if the hedgerow satisfies one or more of these criteria, the local authority can serve a hedgerow retention notice. Although there have been a large number of enquiries, there had been very few hedgerow removal notifications submitted by landowners in Essex by the end of October 1997, and there have been no enforcement actions. It is therefore difficult to assess the impact of these Regulations. However, it is widely held that the Regulations do not have a sufficiently wide scope, and that there are several problems with applying some of the criteria. The Hedgerow Regulations are therefore currently being reviewed.

4.1.2 The Forestry Act 1967 requires a landowner to have a Felling Licence from the Forestry Commission before felling more than a given volume of trees of a specified size. Licences may be refused ,or issued with conditions, and it is a criminal offence to exceed the felling limits without a licence. Tree Preservation Orders operated by the local authority have a similar effect. However, while these measures can protect the trees in a hedgerow, they cannot protect the hedge itself.

4.1.3 Article 10 of the European Community Habitats Directive requires member states to encourage the management of hedges in their landuse planning and development policies with a view to improving the ecological coherence of the Natura 2000 network. This is reflected in the Conservation (Natural Habitats, etc.) Regulations 1994, which recognises that such linear features are essential for the migration, dispersal and genetic exchange of wild species. PPG9 (Nature Conservation 1994) further encourages the development of policies for the management of hedgerows.

4.1.4 Structure and Local Plans, prepared by local authorities, contain policies which aim to protect and reinstate hedgerows through the development control process. Planning permissions frequently contain conditions requiring the retention or planting of hedgerows. For example, the restoration of mineral workings can bring benefits for wildlife and the landscape, through the establishment of new tree and shrub planting.

4.2 Management, Research and Guidance

4.2.1 The Ministry of Agriculture Fisheries and Food through the Farming and Rural Conservation Agency operates the Countryside Stewardship Scheme which offers grants for hedge restoration work and the management of the associated field margins. Grants of up to 30% are also offered for hedge planting and occasionally for management work under Essex County Council's Landscape Conservation Programme. Braintree District Council also operates a similar scheme. The several Countryside Management Projects in the county, for example Epping Forest Countrycare and Brentwood Countryside Management Service also implement small scale hedgerow management and planting programmes and the River Colne Countryside project has undertaken a parish hedgerow survey. During the period 1991/92 to 1996/7 73.8 km of hedgerow planting were grant aided under the County Council's Landscape Conservation Programme.

4.2.2 The Essex Coast is an Environmentally Sensitive Area, and payments are available under this scheme for appropriate hedgerow management.

4.2.3 The County Council has carried out limited hedgerow survey work, particularly at Bovingdon Hall Farm, Bocking; Hill Farm, Hempstead and land in Cressing parish around Cressing Temple Barns. The Archaeology Section of Essex County Council has developed this work by comparing field boundary information on the Tithe Award and First Edition 6" Ordnance Survey Maps for Cressing, with the presence of hedges on the ground.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 **To halt the net loss of species rich hedgerows and green lanes through neglect and removal by the year 2000, and to halt all loss of hedgerows and green lanes which are both ancient and species rich by 2005.** These targets for halting loss of ancient species rich hedgerows are based on a need to stop the loss as soon as possible, because they are irreplaceable features of the countryside.

5.2 **To achieve the favourable management of 25% of species rich and ancient hedgerows and green lanes by the year 2000, and of 50% by 2005**. The majority of hedges will need some management in the long term, and if left for more than 30 years they will either change beyond a recoverable state or become so open that they cease to be hedges. This target is difficult to set, due to the practical difficulties of establishing where these hedges are and how their extent and condition may be monitored.

5.3 **To maintain overall numbers of hedgerow trees within each county or district at least at current levels by planting or natural regeneration, in order to ensure a balanced age structure**. Most surveys have shown that hedgerow tree numbers have been declining and that there is a shortage of younger age classes. Some hedgerow trees will

continue to be lost so new ones are needed to keep the total number steady. In key hedges, such as parish boundaries, some of these new trees should be managed as pollards to ensure the continuation of this unique landscape and habitat feature. This target is therefore the minimum needed to allow the continuation of this important biological resource.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Ensure that grant aid for the management, restoration and establishment of hedgerows and green lanes is available to farmers. As part of this process consider a standard payment for hedge works across all land management schemes to facilitate uptake and administration. (ACTION: MAFF, CLA, FRCA, LAs).

6.1.2 Promote the uptake of and consider extending the scope of Environmentally Sensitive Area, Countryside Stewardship and Landscape Conservation Programme grants for the management and restoration of ancient and/or species rich hedgerows and green lanes, for the planting of new hedgerows and for the establishment of hedgerow trees. When promoting the management and restoration of hedgerows and green lanes, priority should be given to those hedgerows which can be defined as important using the criteria in the Hedgerow Regulations 1997.
(ACTION: MAFF, CLA, FRCA, FWAG, LAs).

6.1.3 Lobby to ensure that the Hedgerow Regulations 1997 are amended to bring more hedges within the scope of the legislation, and to simplify the assessment and administrative procedures. (ACTION: All)

6.1.4 Promote the use of practices that can protect hedgerows from fertilisers and pesticides such as Conservation Headlands and set-aside strips. (ACTION: MAFF, EWT, FRCA, CLA, FWAG, LAs).

6.1.5 Enforce the Hedgerow Regulations 1997, and ensure that any notifications involving the removal of trees, are referred to the Forestry Authority.
(ACTION: LAs).

6.1.6 Enforce the requirement for felling licences for hedgerow trees, and encourage the planting of replacements. (ACTION: FA).

6.1.7 Ensure that planning policies and development control decisions promote the protection and management of ancient and/or species rich hedgerows and green lanes within and around developments, and seek to minimise the adverse impacts on hedgerows of planning proposals. (ACTION: LAs

6.2 Site Safeguard and Management

6.2.1 Encourage the retention and favourable management of ancient and/or species rich hedgerows and green lanes that form an integral part of, enhance, or link Natura 2000 sites. (ACTION: EN, LAs - through hedgerow regulations).

6.2.2 Encourage favourable management of ancient and/or species rich roadside hedgerows, including favourable cutting practices and management of standards. (ACTION: LAs, Highways Agency, DoT, EWT).

6.3 Advisory

6.3.1 Develop hedge management skills through training for contractors and land owners, and distribute information on best management practices.
(ACTION: Agricultural Training Board, LAs, FWAG).

6.4 Future Research and Monitoring

6.4.1 Carry out survey work in order to establish registers of ancient and/or species rich hedgerows and green lanes. (ACTION: LAs, EN, FWAG, EWT).

6.4.2 Involve parishes and local groups in monitoring local hedgerows. Ensure that these surveys are all carried out with the same methodology e.g. CoCo/CPRE. (ACTION: LAs, ECC, EN, EWT)

6.5 Communications and Publicity

6.5.1 Continue to promote an awareness amongst the public and land managers of the importance of hedgerows and their associated features for wildlife, of the continuing loss of hedgerows and for the need for management to maintain biodiversity. (ACTION: LAs, EWT, FWAG).

ANCIENT WOODLAND

National Lead Partner: None
County Lead Partner: ECC/BBC (01245 437655)
Associated Plans: Dormouse, pipistrelle bat, heath fritillary, stag beetle, oxlip

1. CURRENT STATUS IN THE UK

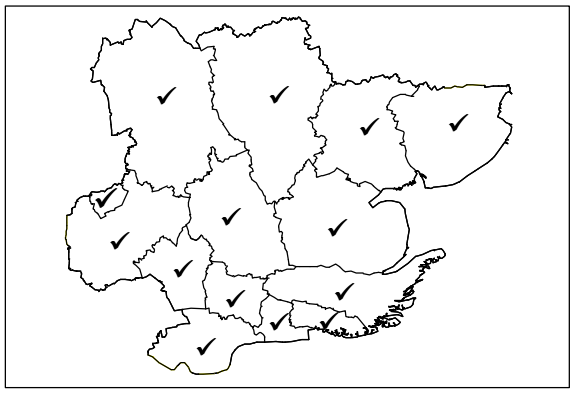
1.1 Ancient woodlands usually support the greatest diversity of plants and animals compared to other types of woods, so long as they have been managed sympathetically over time. They have also significant value for their historical, cultural and landscape importance.

1.2 Ancient woodlands are those which have been in continuous existence since before 1600. Most are likely to have existed since the end of the last Ice Age (primary) although some were cleared and then re-established before this date (ancient secondary). Ancient woodlands are important because they can contain a wide range of flora and fauna, much of which are confined to ancient woods because they are unable spread between sites by natural means. The following species occur in appropriately managed ancient woodland in Essex, are included on the UK priority BAP list, and have current UK action plans: **barbastelle bat, brown hare, dormouse, pipistrelle, bullfinch, spotted flycatcher, heath fritillary** and **stag beetle**. Increasingly the importance of the undisturbed nature of the soils with their associated fungi, bacteria and other micro-organisms is becoming understood. It is this system which is the most difficult to try to recreate. The presence of old, "veteran" trees and dead wood, both standing and fallen is essential for there to be a full range of potential species present. Woodlands often contain within them other habitats such as ponds, streams, glades and scrub.

1.3 New woodland can and should be created on suitable sites and can provide an important habitat. The species mix, design, stand types and future management are important components to be considered when creating new woods, especially those close to existing ancient woodlands. For those sites adjoining existing woods consideration should be given to natural regeneration. However it is not possible to recreate ancient woodland habitat, with its complex interrelationships of plants and animals, geology and soils, nutrient cycling systems as well as cultural and historical values.

2. CURRENT STATUS IN ESSEX

2.1 In Essex the Phase One Habitat Survey, completed in 1992, showed that woodland cover was 5.76% of the County, well below the national average. However this is not spread evenly across the county with the coastal districts such as Maldon and Tendring containing only 3% compared to those such as Brentwood and Epping Forest with 9% cover. Approximately 3.5% of the County (12774ha) was covered by ancient woodland - some in every district. The Nature Conservancy Council Ancient Woodland Inventory of 1982 compared the current woodland cover with the first edition Ordnance Survey maps. This showed a loss of 931 hectares from the 9503 hectares shown on the original maps. Of the remaining 8572 hectares 7200 hectares were considered to still comprise of semi-natural stand types, with 1372 hectares of plantations. (The disparity in the figures is due to the Phase One Survey including all woodlands whereas the Ancient Woodland Inventory included only those above 2 ha).



2.2 Ancient woodlands have benefited from more detailed studies compared to most other habitat types, for example Rackham's work on the woods in South-east Essex. All ancient woodlands over 2 hectares are recorded in the Ancient Woodland Inventory, and this together with field surveys was used to record these and smaller sites on the Phase One Habitat Survey SINC Maps. Detailed information on species, for example invertebrates is usually very scarce.

2.3 **Woodland Types**. All ancient woodlands in Essex have been managed at some stage in the past and this has resulted in different habitat characteristics and future management requirements. Past management can therefore be a means of categorising woods.

2.3.1 **Coppice (with standards)**: A large percentage of woods in Essex contain significant levels of coppice. Ash, field maple and hazel coppice is the major stand type in Essex, especially on the chalky boulder clay, with hornbeam, sweet chestnut and small-leaved lime being dominant in other areas. In most cases there has been little or no coppicing for at least 50 years due largely to the loss of markets for coppice products. This problem is exacerbated in smaller woods where there are fewer opportunities to market the products. Most woods contain some standard trees of species such as oak. There may be very few where timber trees were removed for example during the World Wars. In other cases there is a high density of standard trees as a result of failure to thin them in the past.

2.3.2 **Plantation**: The majority of plantations were planted on non-woodland sites dating from the seventeenth century onwards. These are therefore outside the

scope of this Plan. However some plantations were planted on ancient woodland sites where the natural species were cleared. These may still have relict stands of the original flora present. In Essex, Forestry Enterprise has had a policy to convert conifer plantations back to semi-natural stand types, which has been very successful. Rackham (1986) cites Soane or Bullock Wood, Colchester as a fragment of a much larger wood where there is evidence that the site was enclosed and sown with trees around 1242. This can be classified as an ancient secondary wood. Despite its age it still is less floristically rich than other woods in the area.

2.3.3 **High Forest**: These were woods managed for timber and most are likely to have been planted. Some ancient woods such as Hartswood in Brentwood are now largely high forest.

2.3.4 **Wood Pasture**: Associated with deer parks, commons and Forests wood pasture is where trees are grown, often as pollards, to produce wood whilst cattle or deer are grazed beneath. Many sites have been lost over the centuries as trees were felled to increase grazing or left to become woodland. Examples include areas of Epping Forest, Hatfield Forest and Thorndon Country Park. The old pollards often have important bryophytes, lichens and invertebrates associated with them. They also provide homes for hole nesting birds and bats.

2.3.5 **Small Farm Woods and Game Coverts**: Many farms still have small copses and shaws, which are often ancient. These are unlikely to be managed, as woodland operations are more expensive per unit area. They do have value for rough shooting. Game coverts have often been dramatically altered with the planting of evergreen exotic species to increase shelter.

3. CURRENT FACTORS AFFECTING THE HABITAT

3.1 **Lack of function and neglect**. Woodlands have suffered on most estates from the decline in demand for traditional wood products, leading to woods being grubbed out, coniferised or neglected. Neglect has increased as there is a lack of knowledge on how to manage these sites and of markets for products.

3.2 **Agricultural intensification and new development**. Loss of woodland due to agricultural intensification has largely stopped, with the threat now coming from new development.

3.3 **Pest damage**. Increasing deer numbers, primarily fallow and muntjac, are having a serious impact especially where coppicing or planting is being carried out. Grey squirrels can also be a significant problem affecting a range of species. High rabbit or hare numbers can destroy new trees and coppice.

3.4 **Inappropriate management**. The removal of large old trees, uncontrolled grazing by deer and livestock can damage the age structure and prevent regeneration. This can allow invasive species such as rhododendron or sycamore to become established. In the past the introduction of coniferous trees has been a serious problem.

3.5 **Recreation use/pressures**. Public access can put pressures on woodland and wildlife within it and also require safety works such as the removal of dead, standing trees. Even walkers can cause significant damage over time. Horse riding can be a localised problem in some woods. Illegal use e.g. motorbike riding can exacerbate the problems. Games like paint balling can cause damage to sensitive sites.

3.6 **Amenity factors restricting management**. Many woods, particularly urban and urban fringe sites have significant amenity value. There is frequently public concern at attempts to manage the sites especially if operations such as coppicing are proposed.

3.7 **Dumping**. Many woods suffer from dumping, especially in urban fringe areas. Garden waste can change fertility and introduce exotic species to sites.

3.8 **Loss of dead wood**. The tidying of many woods, often associated with enhancing amenity and ensuring safety, has led to the loss valuable habitat for a wide range of invertebrates, for example the stag beetle, and fungi.

3.9 **Isolation from other habitats**. Woods separated from other habitats by arable fields or housing for example will be prone to the loss of those species that cannot spread easily.

3.10 **Climate change**. Whilst it is not certain what effects climate change will have on habitats such as woodland it is likely that it will alter the viability of some species which may result in changes to the character of woods.

4. CURRENT ACTION

4.1 **Legal status**: Woodlands have better legislative protection compared with many other habitat types. They can be protected by Tree Preservation Orders (TPOs), if they contribute to the amenity of their local area. This makes it a criminal offence to cut any live wood on a protected tree. Orders can cover individual trees, groups or whole woodlands. A Felling Licence is required from the Forestry Authority for tree felling of more than 5m3 per calendar quarter or 2m3 per calendar quarter if the timber is to be sold.

A number of woods in Essex are designation Sites of Special Scientific Interest and so are protected under the Wildlife and Countryside Act 1981.

Sites of Importance for Nature Conservation have now been incorporated into all of the Local Plans in Essex as areas worthy of protection. Planning Policy Guidance Note No. 9 states that regard should be given to sites of substantive nature conservation value including those of local significance.

The Forestry Commission has had a presumption against the clearance of woodland for other land use unless a clear conservation gain can be demonstrated or the

clearance is in accordance with planning permission granted by a local authority. Appendix 1 lists the grants that are available to help fund management.

4.2 **Management, research and guidance**: There are genetic differences between those trees that naturally occur in ancient woodland and those which have been planted especially if they are from imported stock. Therefore natural regeneration should be used to provide replacement trees in ancient semi-natural woodland. Where this is not possible then the manager should seek to use stock from local provenance. This also applies when extending an ancient woodland.

There are several bodies in Essex that give management advice to woodland owners. Some of these are listed in Appendix 2.

To ensure that management of woodlands is undertaken and sustained in the long term it is necessary to find markets for a wide range of woodland products. Often there can be a large amount of poor quality produce with limited economic value in normal markets. The Anglian Woodland Project was established as a partnership between four County Councils and the Forestry Authority to provide advice particularly on markets for wood and timber to stimulate interest in managing woods. This must be ongoing to encourage owners to begin to actively manage their woods again.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS.

5.1 Halt the further loss of ancient woodland and ensure no more areas are lost in the future.

Losses to agriculture in Essex have in effect ceased. It is necessary to ensure that no further losses occur due to new development or future changes in agricultural policies.

5.2 Double the area of ancient woodland in agreed management schemes by 2005.

Neglect and inappropriate management are major threats to the sustainability and biodiversity of many woods. It is necessary to increase the number of woods that are actively managed to prevent further significant decline.

5.3 Ensure that all Local Authority woods are in agreed management schemes with management plans by 2005.

Local authorities have a key role in setting good examples of appropriate management to other landowners.

5.4 Continue work to develop markets for a range of woodland products to help establish the sustainable management of the woodlands. (Target = ongoing).

Large numbers of woods are privately owned, often quite small. To encourage the owners to manage these woods sensitively in the long term they need to have the costs offset by grants and the sale of produce from the wood.

5.5 Ensure that future management of woodland takes into account the need to maintain levels of dead wood, veteran trees, and other habitats such as ponds, rides and glades where appropriate. (Target = ongoing).

To maximise the wildlife potential of the woodland consideration should be given to how best to promote biodiversity.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure that grant schemes for woodland management continue to be developed and promote schemes effectively. (ACTION: All).

6.1.2 Seek more resources for additional advisors to assist woodland owners. (ACTION: All)

6.2 Site safeguard and management

6.2.1 Encourage the retention and favourable management of all ancient woodland sites. (ACTION: LAs, FC, MAFF, FWAG, EWT, NFU, CLA).

6.2.2 Local authorities to protect and manage their ancient woodland sites. (ACTION : LAs, FC).

6.2.3 Ensure management of woods takes into account other habitats within them. (ACTION: All).

6.2.4 Where appropriate form Deer Management Groups. (ACTION: FC, EN, FWAG, NFU, CLA, LAs, EWT)

6.3 Advisory

6.3.1 Organise training sessions for owners across the County on woodland management and marketing produce. (ACTION: FWAG, ECC/AWP, EWT, CMPs, ATB Landbase).

6.3.2 Develop more detailed management guidance for woodlands of different stand types. (ACTION: ECC, LAs, FA, EWT, FWAG).

6.4 Future research and monitoring

6.4.1 Prepare Strategy for the County amongst which will be included a detailed up to date inventory of woodland in Essex to provide baseline data for the future. (ACTION: ECC, FA, EWT, LAs).

6.4.2 Identify which ancient woods are not in a management scheme. (ACTION: FA).

6.4.3 Continue to investigate and develop markets for woodland produce. (ACTION: FA, AWP).

6.5 Communications and publicity

6.5.1 Promote opportunities to manage and market wood products to woodland owners. (ACTION: ECC/AWP, FWAG, EWT, NFU, CLA).

6.5.2 Promote importance of sites to the public through improved access to appropriate sites and to land managers. (ACTION: All)

7. REFERENCES

BTCV (1980) – Woodlands
Peterken, G (1981) – Woodland Conservation and Management
Rackham, O (1986) – The History of the Countryside

APPENDIX 1

GRANTS AVAILABLE FOR MANAGEMENT

Woodland Grant Scheme (WGS) – currently all new grant aid is offered through the WGS which will grant suitable new planting, replanting and management of existing woodlands. Grants designed to encourage management include an Annual Management Grant at a fixed rate of £35 per hectare per annum.

Woodland Improvement Grant (WIG) – these are designed to meet up to 50% of agreed costs for work to improve public access, management of neglected woodlands, management for biodiversity.

Challenge Fund – additional sums of money are available for under managed woods of less than 10 hectares where, if approved, all of the agreed costs will be met.

APPENDIX 2

A SUMMARY OF PUBLIC AND VOLUNTARY SECTOR SOURCES OF ADVICE

Anglian Woodland Project – provides advice particularly on markets for wood and timber to stimulate interest in managing woods. Contact Stephen Westover at Essex County Council (01245 437655)

Essex Farming and Wildlife Advisory Group – Advice to farmers on how to manage their land to benefit wildlife. Fiona Wells (01245 420705)

Forestry Authority – advice on management and Woodland Grant Scheme (01394 450214).

Local authorities – Stephen Westover at Essex County Council (see above). Some District Councils are also able to provide advice either through their arboricultural officers or countryside management staff.

Thames Chase Community Forest - advice may be available for landowners within the Forest boundary (parts of Thurrock and Brentwood) (01708 641880)

There are private organisations and consultants who would also be able to provide advice.

CEREAL FIELD MARGINS

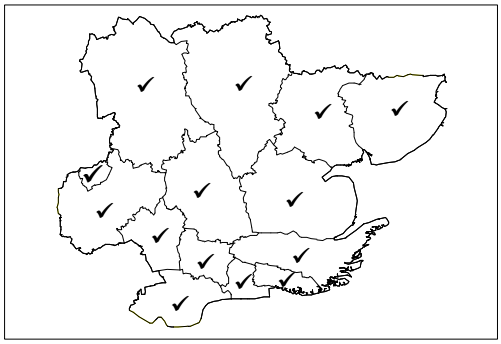
National Lead Partner: MAFF
County Lead Partner: FWAG (01245 420705)
Associated Plans: Brown hare, grey partridge, skylark

1. CURRENT STATUS IN THE UK AND ESSEX

1.1 Definition: For the purposes of this Action Plan the term "Cereal field margin" refers to strips of land lying between cereal crops and the field boundary and extending for a limited distance into the crop, which are deliberately managed to create conditions which benefit key farmland species. They can take a variety of forms, the principal types being:

i) A 'Wildlife Strip' 6m wide adjacent to a cereal crop, together with a 1m 'Sterile Strip' between the wildlife strip and the crop. The wildlife strip is cultivated once a year, but not cropped; the Sterile Strip is maintained so as to prevent aggressive arable spreading into the adjacent cereal crop.
ii) A 'Conservation Headland' either 6m or 12m wide forming the outer margin of the crop and separated from an adjacent field boundary or other vegetation by a 1m sterile strip. The Conservation Headland is cropped with cereals , but is managed with reduced inputs of pesticides so as to favour wild arable plants and invertebrates.
iii) A combined Wildlife Strip and Conservation Headland, separated by a Sterile Strip and managed as described above.
iv) Game crops, stubble or grassland fallows lying between annually cropped land and the field boundary.

1.2 The focus on cereal rather than arable field margins in this, and the national action plan, reflects the dominance of cereals among arable crops. Cereals account for 51% of the total area of arable land in the UK and approximately 65% of total area in Essex. Other crop margins have not yet been studied in a way which would enable reliable estimates of wildlife benefits and farming costs to be made. However, it is hoped that margins will be added to other crop types in Essex and the results forwarded to help national research. Cereal field margins currently occur in all districts in Essex.



1.3 The margins of cereal fields can be managed in ways which will benefit wildlife, without having serious detrimental effects on the remaining cropped area. Estimating average field size to be 12 ha suggests that there are about 8342 km of cereal field edge in Essex. If all such boundaries included a 6m managed margin, some 5000 ha of land would be brought into sensitive management in Essex alone.

1.4 Cereal field margins as described in this plan could provide nesting and feeding sites for game birds and passerines. Many species of butterfly, grasshopper and plant bugs are associated with such sites. Many polyphagous invertebrates breed in crops, spending the winter in grassy banks at the interface of crops, hedges and other features. Also dependent on cereal field margins are rare arable flowers, many of which have undergone serious declines in recent years.

Species on the national priority BAP list associated with field margins
Mammals: Brown hare, Pipistrelle
Birds: Grey partridge, Skylark, Linnet, Reed bunting, Corn bunting, Tree sparrow Turtle dove
Plants: Broad-leaved spurge, Corn Buttercup, Corn Cleavers, Cornflower, Corn Parsley, Field Gromwell, Shepherd's needle, Spreading Hedge-parsley, Rough Marsh-mallow.
Possibly extinct plants: Ground -pine, Pheasant's Eye, Purple Cow-wheat, Purple ramping-fumitory, Red hemp nettle.

2. CURRENT FACTORS AFFECTING THE HABITAT

The main factors which have reduced the wildlife value of cereal crops are:

2.1 Intensification of cereal production, including the use of herbicides to ensure a weed free monoculture, and summer use of insecticides.

2.2 The shift to winter cropping and the associated loss of winter stubbles.

2.3 The reduction in rotation of cereal crops with other land covers (including grass leys and fallows).

2.4 Reduction in undersown areas associated with the shift to winter cropping.

3. CURRENT ACTION

3.1 Under the Food and Environment Protection Act 1985 it is illegal to spray pesticides into hedge bases, unless there is a specific label recommendation or a specific off-label approval. Under the current procedures for pesticide registration and review, some compounds have statutory label exemptions preventing their use on the outermost 6m wide strips of crops. These restrictions are designed to prevent over spraying of water courses and protect non-cropped habitats.

3.2 The Environment Act 1995 enabled the introduction of the Hedgerow Regulations 1997. These Regulations introduced a system, whereby it is illegal to destroy hedgerows which fall within the scope of the Regulations without first notifying the local authority, who will then assess the hedge and either give permission or serve a retention notice.

3.3 Cereal field margins are targeted under two basic management options several environmental schemes including Environmentally Sensitive Areas (Essex Coast ESA) and the Countryside Stewardship Scheme. The options available in Essex are 'wildlife strips' and 'conservation headlands'. Cereal field margins are also being managed either voluntarily or with Government support, as 'grass wildlife strips'.

3.4 The Arable Stewardship Scheme run by MAFF is currently being piloted in two areas, one of which covers an area in north Essex. This scheme gives the first real grant aid opportunity for conservation headlands, but to date has not been subscribed to as much as it could in Essex.

3.5 Farmers can meet their set-aside requirements by setting aside field margins of a minimum 20m width. The scheme literature advises how best to manage the margins to benefit wildlife, however, set-aside has a limited life and the percentage of land included is variable on an annual basis.

4. ACTION PLAN OBJECTIVES AND TARGETS

4.1 Maintain, improve and restore by management the biodiversity of some 500-750 hectares of cereal field margins in Essex by 2010. These figures represent up to 5% of the planned UK total.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1 Policy and Legislation

5.1.1 Assess the most appropriate areas of the county to target specific cereal field margin options. Target = By end of 1999. (ACTION: MAFF/FRCA, FWAG, NFU).

5.1.2 Ensure that any findings from national research programmes on pesticides which are relevant to the management of cereal field margins are communicated to nature conservation bodies and local farming groups in the county. Target = annually. (ACTION: MAFF)

5.2 Site Safeguard and Management

5.2.1 Promote management favourable to cereal field margins by encouraging the uptake of ESA and CSS across the county. (ACTION: MAFF/FRCA, NFU, FWAG, EN, RSPB, EWT).

5.2.2 Encourage the uptake of the pilot Arable Stewardship Scheme in eligible areas. Target = 10 more Essex farms in the scheme before the end of the pilot study. (ACTION: FRCA, NFU, FWAG, RSPB, EWT, EN).

5.2.3 Establish better links between the Game Conservancy Trust and other nature conservation and farming groups in Essex. Target = meetings in 1999 and then work ongoing. (ACTION: NFU, GCT, FWAG, EN, EWT).

5.2.4 Continue to hold and promote the FWAG farm conservation competition stressing the importance of field margins to biodiversity resource in Essex. Target = annual competition with publicity. (ACTION: FWAG).

5.3 Advisory

5.3.1 Develop training courses on cereal field margin management and target land management advisors, groups of farmers, and major landowners. Include information about current grant schemes. Target = By 2001 one per year. (ACTION: FWAG, FRCA, NFU).

5.3.2 Create an advisory network to provide up to date information on favourable conservation management practices. This could include landowners and managers who have achieved good results for biodiversity species and wildlife in general, including winners/ finalists of the FWAG farm conservation competition. (ACTION: MAFF, FWAG, NFU, RSPB, EN).

5.4 Future Monitoring and Research

5.4.1 Monitor how effectively the prescriptions in ELMS are contributing towards the conservation of key indicator species of this habitat (both national and local indicators). (ACTION: MAFF/FRCA, RSPB, EBS, EFC, EN, EWT).

5.5 Communications and Publicity

5.5.1 With associated species such as brown hare, skylark and grey partridge, highlight the impact of modern farming on the biodiversity of the Essex countryside. Target = Minimum of at least one story in local press per year, plus at least one other article or information piece by partner organisations. (ACTION: All).

COASTAL GRAZING MARSH

National Lead Partner: EN
County Lead Partner: EN (01206 796666)
Associated Plans: Brown hare, skylark, water vole, Desmoulin's whorl snail, shining ramshorn snail.

1. CURRENT STATUS IN THE UK

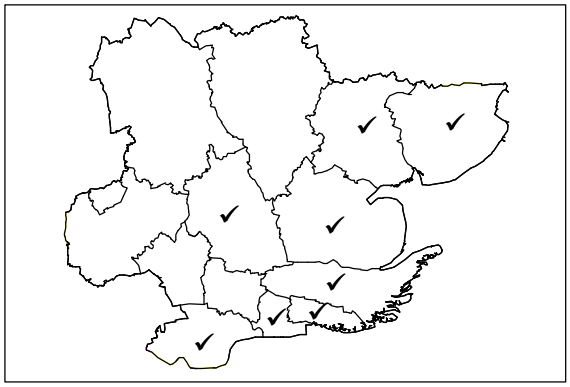
1.1 Coastal grazing marsh is defined as periodically inundated pasture or meadow with ditches which maintain the water level, containing standing brackish or fresh water. These meadows are in the low lying coastal belt, usually just behind the sea walls, and are created by enclosing the salt marshes. The ditches are especially important as they are an important micro-habitat for particular species of plants and invertebrates. Almost all are grazed and some are cut for hay or silage.

1.2 The total extent of grazing marsh in the UK is estimated to be 300,00 ha

1.3 Grazing marshes are particularly important for many species of plants and animal. In particular breeding birds such as shelduck, garganey, shoveler, gadwall, snipe, redshank, yellow wagtail, lapwing, and curlew are dependant on coastal grazing marshes for breeding. Winter migrants such as brent geese, teal, wigeon, lapwing, and golden plover feed and roost on the marshes.

2. CURRENT STATUS IN ESSEX

2.1 Coastal grazing marshes have declined in Essex by as much as 72% since the 1930s. Particularly hard hit have been the areas along the Thames and around the Dengie peninsula where conversion to arable and urban use have been the main causes of loss.



2.2 It is estimated that there is 6,500 hectares of grazing marsh in Essex today in all the coastal districts. This compares with 7,030 in the 1980s and 25,402 in the

1930s. This constitutes an estimated 5.5% of the national resource of coastal grazing marsh..

2.3 The Essex Coast Environmentally Sensitive Area scheme was set up in 1994 to protect and encourage beneficial management of such coastal grazing marshes in the county. It is estimated that 3,700 hectares of the total 6,500 left in the county are in the scheme. A further 400 hectares is estimated to be in the Countryside Stewardship Scheme.

2.4 Some other areas of grazing marsh have been protected from development and urbanisation as a result of their identification as SSSI, inclusion in green belt land and other 'safe zones' such as around refineries. The MOD own and control a large area of the habitat for safety zones around firing ranges, but these measures do not always protect the marshes from conversion to arable use, or the impact of large scale development such as road and rail schemes. It is estimated that approximately 1200 ha of grazing marsh lies outside the various schemes or protective measures and are thus vulnerable.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Conversion to Arable Use: Drainage, improvement and conversion of grazing marshes to arable use has been the single biggest cause of loss of this habitat in the last 50 years. It is estimated that since the 1930s nearly 10,000 hectares of grazing marsh in Essex has been converted to arable use.

3.2 Development and Urbanisation: Coastal grazing marshes are often viewed as marginal land by both land economists and planners, with a perceived low agricultural value. As a result there has been extensive loss of marshes to development in Essex over the past 60 years, with the majority of the loss occurring along the Thames. It is estimated that between 1970 and 1980 26% of the marshland lost from the Essex area of the Greater Thames Estuary was lost as a result of urban and industrial development.

3.3 Sea level rise: Global warming and isostatic readjustment of the UK after the last ice age are the main causes of relative sea-level rise in Essex. Estimated at between 1-6 mm per annum, this process threatens all coastal habitats with flooding over the medium to long term.

3.4 Drought and Eutrophication: Recent changes in the weather patterns, with decreased winter rainfall and extended hot summers resulting in drought places severe threats on grazing marshes which need high water levels in the winter and spring periods. Although a relatively recent phenomenon, if such droughts continue they pose a serious threat to those species of plant and animal that require saturated ground conditions during the first half of the year. High levels of fertiliser use on land adjacent to gazing marshes can subsequently drain into the slow moving water courses in these habitats, causing eutrophication of the water bodies, a problem that is exacerbated by drought years when water levels are low.

3.5 Mismanagement:. The decline in area of grazing marsh has all but halted in the last 5 - 10 years but there has been a continuing decline in quality of much of those that remain, with adoption of hay-cutting and silage-cutting regimes taking the place of the more traditional sheep or cattle grazing.

3.6 Pollution: Direct pollution from organochlorines and pesticides used on adjacent arable areas, together with application of non-organic fertilisers to grassland, all reduce the diversity and quality of such coastal grazing marshes. Indirect pollution from organic fertilisers (slurry and sewage farm outfalls), PCBs from industrial uses, and oestrogenic compounds in the water courses all add threats to marshland species.

3.7 Water Level Management: Drainage of marshlands was a major threat in the past. Although no longer grant aided, the improvements in drainage both on-site and on adjacent improved or arable land around grazing marshes results in accelerated run off and loss of important winter rainfall from these sites. Lack of suitable water level management to halt this effect results in decreased diversity and condition of the marsh.

3.8 Managed realignment: As sea level rise continues to put pressure on the sea wall system and salt marshes outside the sea wall, so the cost effectiveness of maintaining such walls is being re-considered. Currently the cost benefit analysis of sea-walls is strongly skewed in favour of urban and arable land, with grazing marsh being classified as one of the lowest economic benefits. Selection of managed retreat areas is therefore biased towards high conservation value grazing marshes.

3.9 Unmanaged realignment: Catastrophic breaching of sea walls during flood and storm surges has always been a threat to coastal grazing marshes. However, as with managed retreat above, with the current cost-benefit analysis basis of sea wall repair, it is unlikely that breaches in sea defences in front of grazing marshes will be repaired, unless an arable or urban area is also affected.

Grazing stock and CAP: Changes in the Common Agricultural Policy towards cattle or sheep on lowland areas can significantly affect the level of management of coastal grazing marshes. Reductions in the subsidies to livestock or increase in subsidies to other arable and industrial crops affects the attractiveness of traditional farming on the sites and increase pressure for conversion to arable use. Other recent factors in the availability of grazing stock have been the BSE effects on the cattle trade, and low market price of sheep

4. CURRENT ACTION

Many of the coastal grazing marshes in the county are covered by legislative protection. SSSI, Ramsar or SPA designations cover almost all the coastal grazing marshes in the county, with only the Mucking / West Canvey / Fobbing / Vange complex not being completely covered (only 260 hectares of the 1100 hectares in the complex is covered by SSSI

Elsewhere in the county there are small fragments lying outside SSSI protection and many of these are identified as Wildlife Sites / Sites of Importance to Nature Conservation in the local plans. It is estimated therefore that only 5% of the counties coastal grazing marshes are not covered by some degree of legislative or planning protection, and many of these will be considered in upcoming reviews of SSSIs and WS.

4.2 MAFF operate both the Essex Coast ESA scheme (Environmentally Sensitive Area) and the Countryside Stewardship schemes which cover coastal grazing marsh. The ESA scheme is specifically targeted at this type of habitat and covered 3,700 hectares in 1997. It is anticipated that a further 1000 hectares is likely to be entered into the scheme in the next 12 months.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain the existing extent of Grazing Marsh habitat (6,500 hectares) within the county.

5.2 Ensure there is no further degradation of the existing coastal grazing marsh resource in the county Where loss of low value grazing marsh is likely (i.e. coastal realignment to allow saltmarsh or mudflat expansion) appropriate mitigation and creation of equivalent.

5.3 Restore any grazing marsh which has fallen into disuse or poor condition (estimated at 1200 hectares) within the last 20 year, by the year 2010.

5.4 Re-create sufficient habitat to increase the area of grazing marsh in the county to 1980s levels (500 ha) by the year 2010

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and Legislation

6.1.1 Safeguard remaining large blocks of un-protected grazing marshes (e.g. West Canvey) against development by applying appropriate statutory protection - e.g. SSSI, SPA etc. (ACTION: EN).

6.1.2 Ensure that local planning restrictions, WS designations and other, non-statutory protective measures are applied to remaining CGM sites. (ACTION: LAs).

6.1.3 Ensure that county structure plan, shoreline management plan and estuary management plans acknowledge the importance of coastal grazing marshes and allow for their maintenance and development. (ACTION: EN,EA,ECC, LAs)

6.2 Site safeguard and management

6.2.1 Promote the existing programme of water level management plans (WLMPs) for grazing marsh SSSIs. Ensure either WLMPs or ESA Conservation Plans are established on all grazing marsh SSSIs by 2005. (ACTION: EA, FRCA).

6.2.2 Ensure that flood defence works carried out on sea walls are ecologically sound and flood defence measures are engineered to maintain grazing marshes. Ensure that grazing marshes be given an appropriate value in the cost-benefit analysis of all flood defence schemes. (ACTION: EA).

6.2.3 Ensure that other statutory undertakers maintaining facilities (e.g. pipelines, cable routes etc.) in grazing marsh areas minimise damage to the sites and restore affected areas to as near original condition as possible. (ACTION: Statutory Undertakers).

6.3 Advisory

6.3.1 Promote key sites for demonstration areas of coastal grassland management - both inside the ESA area and outside the ESA area. (ACTION: RSPB, EWT, EN, MAFF/FRCA).

6.3.2 Provide information and advisory support to land-owners throughout the Essex coast on grazing marsh management. (ACTION: RSPB, EWT, EN, MAFF/FRCA).

6.3.3 Promote sheep flock / cattle herd use and management suitable for coastal grazing marsh. (ACTION: RSPB, EWT, EN, MAFF/FRCA).

6.4 Future research and monitoring

6.4.1 Set up method for continual monitoring of area of grazing marsh in the county, including aerial photography. (ACTION: EN, MAFF/FRCA).

6.4.2 Maintain regular monitoring of all sites covered by SSSI and non-SSSI protection to include condition, management and species. (ACTION: EN, MAFF/FRCA).

6.4.3 Establish trial / demonstration sites for coastal grazing marsh recreation from arable land. (ACTION: RSPB, EWT, EN, MAFF/FRCA).

SEAGRASS BEDS

National Lead Partner: EHS (NI)
County Lead Partner: EN (01206 796666)
Associated Plans: None

1. CURRENT STATUS IN THE UK

1.1 The seagrass beds around the British coast are composed of 3 species of eelgrass (*Zostera* spp.). The dwarf eelgrass, *Zostera noltii* is found highest on the shore, sometimes even adjacent to salt marsh vegetation especially *Spartina*. The narrow-leaved eelgrass, *Zostera angustifolia* (some authorities believe this is a variety of *Zostera marina*) prefers the mid to lower shore and eelgrass, *Zostera marina* is predominantly found on the lower shore to a depth of 4 metres. Morphologically, *Zostera* species are very variable and consequently their taxonomy is still the subject of some conjecture.

1.2 Although they are called 'grasses', sea grasses are closely allied to the pondweeds (*Potamogeton* spp.) and tassel weeds (*Ruppia* spp.). They are among the few flowering plants which are truly marine. *Zostera marina* in particular, is known to form dense undersea meadows in sheltered waters such as lagoons and lochs. It is most frequent in south western Britain and particularly in western Scotland.

1.3 Eelgrass beds are important for many reasons. They contribute substantially to the overall biological productivity and biomass of estuarine habitats and they stabilise the substrate with their extensive root systems. Indeed, they may be of great importance in protecting saltmarshes from serious erosion.

1.4 Eelgrass beds provide a unique environment for many invertebrate species, including those which bury in the substrate, fasten themselves to the foliage, graze on the abundant algal growth that covers the leaf blades and those which feed on the grazers. Many species of invertebrate including some stalked jellyfish, Nemerteans, polychaete worms, molluscs, sea slugs and crustaceans are only found amongst eelgrass or are less common in other habitats. Eelgrass beds are also important spawning grounds for cuttlefish, shrimps and fish. The name 'eelgrass' implies their importance for eels and indeed large beds, particularly of *Zostera marina*, provided excellent fishing grounds for eels prior to the 1930s when such large beds became much scarcer. Two species of pipefish are particularly associated with *Zostera* beds, as is the eelpout, a common fish in Essex estuaries which feeds on crustacea amongst eelgrass.

2. CURRENT STATUS IN ESSEX

2.1 The species most commonly found in Essex are the dwarf eelgrass, *Zostera noltii* and the narrow-leaved eelgrass, *Zostera angustifolia*. In most eelgrass beds around the Essex coast they grow in a mosaic closely following variations in environmental factors, particularly the nature of the substrate. *Zostera noltii* prefers firmer

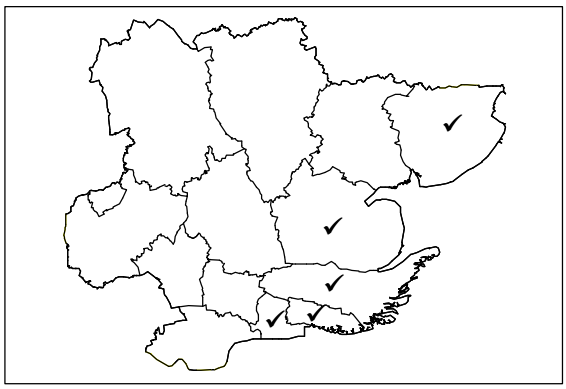
sediments than *Zostera angustifolia*, however, both species are quite plastic and able to adapt to varying conditions of exposure, salinity and type of sediment.

2.2 Eelgrass beds are very important to herbivorous wildfowl such as brent geese and widgeon. The beds are thought vital to the first incoming flocks of the internationally scarce dark-bellied race of the brent goose. At the time when they arrive in Essex in October and November, the leaves of *Zostera noltii*, in particular, are still green and luxuriant and provide necessary sustenance for the hungry geese. Indeed in November, there may be 40-50% of the British population (about 20% of the world population) on the *Zostera* beds in the Foulness, Two Tree Island area.

2.3 The two species of eelgrass found in Essex, *Zostera noltii* and *Zostera angustifolia* are both species of intertidal mudflats, particularly in estuarine waters. They are frequently associated, especially in nutrient-rich areas with green macro-algae such as *Enteromorpha.* The eelgrass beds of the Essex coast are extensive and of international importance. In the Thames estuary off Foulness is the largest single expanse of *Zostera noltii* (over 300 hectares) in the whole of Europe.

2.4 Unfortunately, accurate mapping of *Zostera* beds is not easy. None have been produced since those drawn up by the Nature Conservancy over 20 years ago. These were precipitated by the proposed development of a huge airport complex on Maplin sands. The most feasible method of mapping would be by aerial photography, though there is difficulty in distinguishing *Zostera* from *Enteromorpha*. However, this problem could be overcome by using infra-red or multispectral scanners.

2.5 The following information is taken from the maps produced by the Nature Conservancy Council during the Maplin airport enquiry and from Flora of Essex (Jermyn, 1974).



- Stour estuary, in Jacques Bay west to Netherhall and Copperas Bay east to Wrabness.
- Hamford Water, small bed immediately south of Horsey Island in the Wade.
- Colne estuary, on Colne Point nature reserve in Ray Creek near Sandy Point.
- Blackwater estuary, south-west of Osea Island and lower down in St. Lawrence Bay near Ramsey Island.
- Dengie Flats (Jermyn, 1974, not recorded by NCC).
- Foulness, extensive beds on Maplin sands extending from Foulness Point to Wakering Staris and Suttons.
- Two Tree Island, south east of the island.

3. CURRENT FACTORS AFFECTING HABITAT

3.1 Overall, there is a distinct lack of ecological information. For instance what conditions are necessary for the establishment of *Zostera* beds, the relationship between different *Zostera* species., the diversity of fauna found within the beds, especially when beds are flooded. Lack of knowledge of effects of man's activities. Lack of knowledge as to even which species grown in Essex (taxonomic problems) and their relative distribution.

3.2 Disease. In the early 1930s, eelgrass beds along the coasts of north America and Europe were devastated by a 'wasting disease'. In Britain it was first reported to the Ministry of Agriculture in 1932. Prior to the 1930s seagrass meadows were prolific and economically important as shrimping grounds and for fish, particularly eels and grey mullet with high densities of periwinkles and cockles. By the 1940s, eelgrasses were considered scarce in British waters. Recovery began in the late 1950s, though it was not well documented. *Zostera marina* was particularly badly affected and was less successful in re-occupying its former range. The disease reappeared in 1992 in the Exe and Solent, but was over by 1994. The causal organism is thought to be fungal (*Labyrinthula macrocystis* of the Phylum *Labyrithomorpha*).

3.3 Bait-digging. This is a common occupation around the Essex coast and its destructive effects can clearly be seen in the Thames area around Two Tree Island. In eelgrass beds, the plants, roots and all are dug up and piled up beside the resulting hole. Although the effect is very local, no studies have been undertaken to determine its long term effects.

3.4 Cockle fishing. There is some dredging for cockles amongst *Zostera* beds in Essex e.g. off Two Tree Island. This dredging occurs after the plants have lost their leaves. There is obviously disturbance and clear trails made by the dredges can be seen on the mud. However, *Zostera noltii* is perennial and it is unknown whether this activity is harmful to rhizomes.

3.5 Boat mooring. Boats anchored within *Zostera* beds can cause severe damage in a localised area by their constant swinging on mooring chains.

3.6 Coastal development, including Coastal protection. Large scale structural developments may have a severe effect on *Zostera* beds. *Zostera* grows in areas where there is a dynamic equilibrium with the erosional losses of sand and mud, just counterbalanced by accretion or building up of sediment. Major schemes such as the now abandoned marina at Southend may have easily upset this balance.

3.7 Nutrient enrichment. At low levels this increases the productivity of *Zostera* beds, however higher levels of nitrates may benefit the macro algae at the expense of the *Zostera*.

3.8 Marine pollution. The effects of an oil spill could devastate eelgrass beds as could toxic chemical spillages. Eelgrass is known to accumulate Tributyl tin, heavy metals and organic pollutants. These are known to reduce nitrogen fixation of the plant and lower its viability. There are also unknown consequences for animals higher up the food chain.

4. CURRENT ACTION

4.1 The importance of the Essex coast for biodiversity is reflected by the number of protected areas which recognise its national and international importance, particularly for migrant wildfowl.

Foulness and Maplin Sands area	SSSI, Ramsar, SPA & candidate (c)SAC.
Dengie Flats	SSSI, NNR, Ramsar , SPA, cSAC.
Two Tree Island Mudflats	SSSI, NNR, Ramsar, SPA, cSAC.
Stour Estuary	SSSI, Ramsar, SPA, RSPB, NR (Copperas Bay)
Blackwater Estuary	SSSI, Ramsar, SPA, cSAC, potential NNR
Hamford Water	SSSI, Ramsar, SPA, NNR

4.2 The Environmental Agency currently undertakes aerial reconnaissance of saltmarsh habitats in Essex. However, *Zostera* beds are not specifically monitored.

4.3 Research into the ecology of eelgrass beds in Essex is being undertaken by students of Queen Mary and Westfield College (University of London) under the supervision of Dr. R. G. Hughes (School of Biological Studies).

4.4 Pilot schemes for the establishment of eelgrass beds have been conducted by students of Queen Mary and Westfield College at a management retreat site at Bradwell.

4.5 Monitoring of the effects of cockle fishing being undertaken by Southend Borough Council.

5. ACTION PLAN OBJECTIVES AND TARGETS

5.1 Increase knowledge of the distribution, extent and quality of *Zostera* beds in Essex. Determine relative distribution of different species. Surveys needed to assess changes in distribution since last surveys were made over 20 years ago. *More knowledge is required before informed decisions can be made on what is the best means of maintaining and enhancing the current resource. Surveys are needed to provide initial baseline requirements as well as on-going future monitoring demands.*

5.2 Increase knowledge of the ecology of *Zostera* beds and assess their importance as a habitat for marine invertebrates. *There is much scope for future research into the biodiversity and ecological relationships which exist in this habitat.*

5.3 Identify and quantify natural and human factors affecting eelgrass beds. *The effects of cockle-fishing, bait digging and possibly other human activities need to be assessed. There is also a considerable lack of knowledge of which natural factors affect the vitality of eelgrass beds. Informed decisions on how best to maintain*

and enhance the resource will only come after the 'true' factors affecting it have been identified.

5.4 Seek to halt any decline in *Zostera* population in Essex resulting from human impacts. *This is a nationally scarce habitat. Essex holds the largest eelgrass beds comprising Zostera noltii and Zostera angustifolia in Britain. Any threats from human activities should be addressed and halted. It is important that this resource does not diminish further.*

5.5 Seek to increase the current size of the *Zostera* resource in Essex. *There may be scope for establishing new Zostera beds, especially in sites designated as management retreat areas where sea defences have been deliberately allowed to deteriorate or have been removed. Areas where the ground level is too low for the development of saltmarsh may be ideal for Zostera. However, the exact requirements of Zostera species allowing them to thrive and produce stable beds is still not known for certain.*

5.6 Raise the profile and increase public awareness of eelgrass beds and their associated species. *There is much scope for raising public awareness of the importance of Zostera beds for wildlife. A greater awareness would increase public and national support for Zostera conservation measures.*

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Ensure appropriate management for sites is included in any new coastal management plans. (ACTION: EN, EA)

6.2 Site Safeguard and Management

6.2.1 Induce action to identify and quantify issues affecting seagrass resource, both natural and human. (ACTION: EN, EA, MAFF)

6.3 Advisory

6.3.1 Provide advice to Local Authorities and other organisations on how best to minimise impacts to the seagrass resource. (ACTION: EN, EA).

6.3.2 Produce a set of guidelines for management of areas which have seagrass beds. (ACTION: EN, EA).

6.4 Future Research and Monitoring

6.4.1 Encourage and initiate surveys of coastal areas of Essex to assess the distribution, extent and quality of *Zostera* species. (ACTION: EN, EA, MAFF, EFC, LRC)

6.4.2 Develop and distribute a methodology and protocol for surveying seagrass beds. (ACTION: EN, EA, EFC)

6.4.3 Identify key regional sites for monitoring feasibility. (ACTION: EN, EA, MAFF).

6.4.4 Encourage research into ecology of *Zostera* beds, including interspecific interactions and reproductive strategy. (ACTION: EN, EA, MAFF).

6.4.5 Investigate the feasibility of developing a seagrass restoration programme if deemed necessary. (ACTION: EN, EA)

6.4.6 Encourage pilot studies as to the possibility of creating new seagrass beds at management retreat sites. (ACTION: EN, EA, NT)

6.5 Communication and Publicity

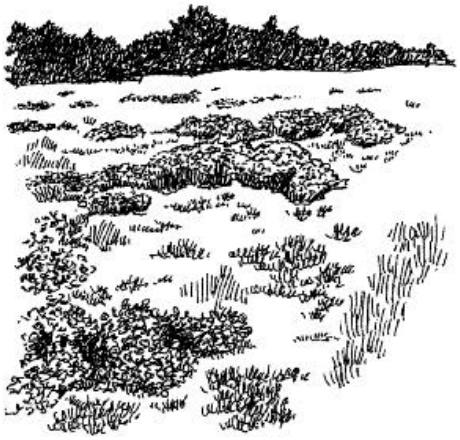
6.5.1 Produce articles in newsletters and journals to increase awareness and understanding of the Essex seagrass resource and biodiversity action process. (ACTION: EN, EWT, EA, LAs, NT, MAFF)

6.5.2 Provide interpretative material for key sites. (ACTION: EN, LAs, EWT).

7. REFERENCES

Jermyn, S.T. (1974) *Flora of Essex*. Essex Naturalists Trust.

HEATHLAND



National Lead partner: EN
County Lead Partner: EN (01206 796666)
Associated Plans: Skylark

1. INTRODUCTION AND STATUS IN THE UK

1.1 British lowland heathland vegetation is a cultural habitat, which is part derived from human activity. Heath formation began during the Mesolithic period, when woodland was first cleared and increased when woodland clearance intensified during the Bronze Age.

1.2 Lowland heaths lie below 300m altitude and are characterised by

heather. They are characteristically found on acidic, nutrient poor, sandy,

heathland generally consists of an intimate patchwork of different

heathland can include a diverse range of habitats including scrub, woodland,

important for a range of invertebrate species.

1.4 : Lowland heath is a rare and threatened habitat internationally and

an extensive habitat throughout England. Today only one sixth of the
exists covering less than 0.3% of England's

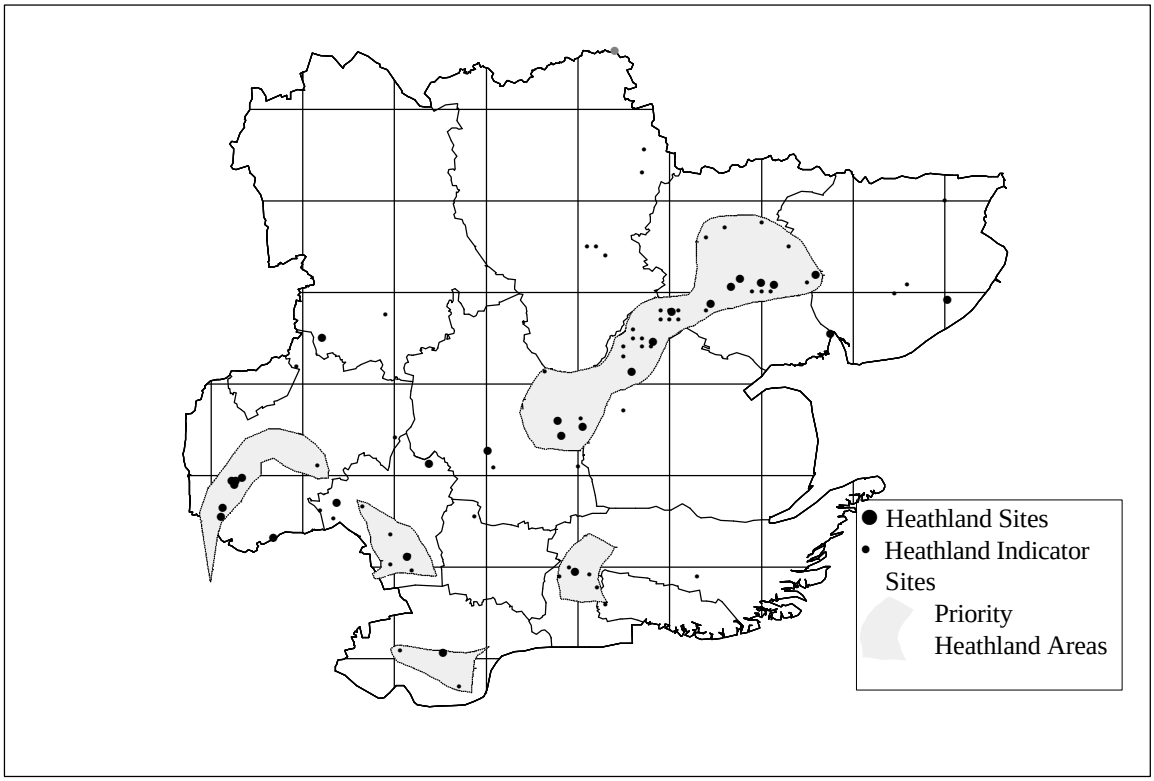
UK priority list BAP species with associated action plans
Nightjar and
Other species typically associated with Essex
Plants *Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), bell heather (*E. cinerea*), pill sedge (*Carex pilulifera*), oval sedge (*C. ovalis*), purple moor grass (*Molinia caerulea*), heath-grass (*Danthonia decumbens*), heath bedstraw (*Galium saxatile*), tormentil (*Potentilla erecta*) and gorse (*Ulex* sp).
Reptiles - Common lizard (*Lacerta vivipara*), slow worm (*Anguis fragilis*) and adder (*Vipera berus*).
Birds - Skylark (*Alauda arvensis*), tree pipit (*Anthus trivialis*), meadow pipit (*Anthus pratensis*).

Invertebrates - many specific to heathland plants or requiring the bare ground element of the habitat e.g. Mottled grasshopper (*Myrmeleotettix maculatus*), heather beetle, tiger beetles (Cicindelidae) and aculeate Hymenoptera.

2. STATUS IN ESSEX

2.1 Distribution: Heathland once covered an extensive part of Essex, however today only a few remnant heaths remain. The heathland of Essex encompasses dry heath, wet heath and lichen heath, all of which are made up of a mosaic of acid grassland and heath. Dry heath is the most common form, with wet dwarf shrub heath mainly found in the Epping Forest complex. In Essex, present records indicate there is only 5.5 ha of Calluna heath in Essex, out of a total of 58,000 ha in the UK. This represents less than 0.01 % of the national resource. There is also 231 ha of acid grassland recorded making this the more dominant habitat in the county. Although the remnant heaths are small they are significant in a county context.

Map 1: Heathland Distribution in Essex



2.2 Open, lowland heathland in Essex is concentrated in a small number of sites, of which nine are Sites of Special Scientific Interest (SSSI). The largest of these forms part of Epping Forest SSSI, with 15ha of existing and degraded heathland. Other significant sites include Thundersley Great Common SSSI, the Danbury Complex SSSIs and Tiptree Heath SSSI. The remaining sites are typically small and fragmented, with less than 2 hectares of dry heath and acid grassland at each site.

2.3 Heath and acid grassland sites are concentrated in a band running from the south west of Essex to the north east, with a few outlying sites in south Essex and on the Naze to the east of Colchester (Map 1). This pattern reflects the underlying geology of Essex, following the ridge of glacial sands and gravels across the county, and the few outlying deposits in south Essex. This geology, together with the distribution of heathland indicator species (as noted in section 1.5) can help to identify areas where heathland was likely to have been found in the past but where it has now all but disappeared under developing woodland. Heathland management, restoration and creation should be targeted at these 'priority areas' to reinstate heathland habitat (Map 1).

3. CURRENT ACTION

3.1 At present, several sites in Essex have active management and restoration programmes to conserve and enhance this rapidly dwindling resource. Major heath restoration works are concentrated in Epping, Danbury and Tiptree, where substantial pockets of heathland and acid grassland remain. In addition 80 ha of heathland is being created on ex-arable land at Gosbecks Archaeological Park in Colchester.

3.2 Heathland management occurs at the following sites in Essex:

SITE	**RESTORATION**
Epping Forest SSSI	~5 ha restored by litter removal to expose buried seed-bank, promoting natural regeneration. Grazed by long horn cattle.
Tiptree Heath SSSI	Restoration by bulldozing scrub and removal of litter layer.
Danbury Common SSSI	3ha restored by litter removal and reseeding with local brashings.
EWT Danbury Reserves	Scrub removal to extend heath and acid grassland.
Galleywood Common LNR	1 ha restored by tree and litter removal.
Mill Green	Various management trials being tested**.**
Thundersley Great Common SSSI	Scrub clearance to extend heath and acid grassland.
Fordham Heath	Scrub clearance to extend heath and acid grassland.
Woodland sites	Glade and ride management to extend heath and acid grassland.

3.3 At present, management and restoration of heaths is not specifically funded under any schemes such as Environmentally Sensitive Area or Countryside Stewardship, although Countryside Stewardship does fund grassland management and scrub removal. The review of Countryside Stewardship in 1999/2000 may consider funding heath restoration techniques and management.

4. CURRENT FACTORS AFFECTING THE HABITAT

Agricultural intensification and afforestation in the 20th century have been the primary cause of loss of heath but this is no longer the case. Current factors affecting heathland include:

4.1 DEVELOPMENT: High demand for housing, industry or leisure facilities e.g. golf courses has had a serious impact on the remnant heathland sites in Essex. There is scope to protect, manage and create heathland in future developments, especially on mineral sites and golf courses.

4.2 NEGLECT & MISMANAGEMENT: Heathland vegetation develops spontaneously from native plants, however it requires active management to maintain the vegetation communities. A significant threat to the remaining heathland in Essex is lack of management. The traditional grazing practices which enabled heathland to develop have gradually declined and successional ecological processes have affected the majority of the heaths in Essex. Some heaths (such as Great Holland Pit and Glemsford Pit SSSIs) are only maintained through rabbit grazing. Elsewhere, only occasional unintentional burning knocks back invasive plant growth (although this is not a preferred management technique). Essex heathlands have a significant problem with developing scrub, and if left unmanaged will rapidly convert to woodland.

4.3 Another significant threat to many heaths and acid grasslands is over management by **frequent 'amenity' cutting**. The majority of heathland on commons and greens (outside of major sites at Tiptree, Fordham, Epping, Thundersley and Danbury) is rapidly being lost as a result of this practice. Inappropriate management of roughs on golf courses can also lead to a loss of heathland, as can changes to irrigation and the additions of fertilizers.

4.4 RECREATIONAL PRESSURES: Heathlands are popular sites for informal recreation. It is important to consider access as part of integrated site management plans, to protect heathland species which cannot tolerate disturbance. Increased use of heaths for informal recreation also increases the fire risk.

4.5 PUBLIC OPPOSITION: Public outcry at tree removal on historical heathland sites often prevents or curtails ambitious heathland management or restoration projects from happening. Raising awareness about the management requirements of heathland through publicity material and practical events is vital if restoration plans are to succeed.

4.6 ATMOSPHERIC POLLUTION: There is also a threat of atmospheric pollution affecting remaining heathland sites. Nutrient enrichment and chemical changes through pollution could alter the soil characteristics and in turn affect the character of heath plant communities.

5. ACTION PLAN TARGETS AND OBJECTIVES

5.1 Secure the integrity of all areas of existing heath from future loss or damage from development or other uses.

5.2 Maintain and enhance the wildlife value of existing heathland through appropriate management schemes.

5.3 Establish restoration and management projects on 20ha of degraded heathland, within priority areas, by 2010.

5.4 Create 20ha of new heathland, within priority areas, by 2010.

5.5 Increase awareness and appreciation of the conservation status and management requirements of heathland within Essex.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1. Ensure Development Plans include protection, management and creation policies for heathland in the county, with stated targets in line with EBAP. Target = in next development plan reviews. ACTION: ECC, LAs, EN, EWT & RGO

6.1.2. Ensure all existing areas of heathland are safeguarded through statutory and non-statutory designations. Target = by 2001. ACTION: LAs, EN, EWT.

6.1.3. Designate appropriate sites as Local Nature Reserves. Sites to investigate: Tiptree Heath SSSI, Thundersley Great Common SSSI, Hatfield Heath, Fordham Heath, West Bergholt Heath and at least one site from the Danbury complex and the Epping complex. Target = by 2001.

6.1.4. Ensure new areas of heathland creation are protected in the future through management agreements and / or LNR designation. Target = Designate as LNR within 5 years of creation. ACTION: EN, LAs.

6.1.5. Encourage FRCA to include heathland as a target habitat under Countryside Stewardship at the forthcoming review in 1999/2000. Target = 1999/2000 and if unsuccessful at each subsequent review. ACTION: ECC, EWT, EN, R

6.2 Site safeguard and management

6.2.1 Review management of all heathland sites listed in Appendix 1. Ensure

all heathlands are under appropriate active management (eg grazing or cutting) and that sites have current management plans. Target = by 2004. ACTION: LAs, EN, CMS, NT, EWT, BTCV.

6.2.2 Identify sites and implement a programme to restore 40ha of heathland, in priority areas. Target = Identify sites by 1999, implement by 2009. ACTION: HAG, EWT, LA, EN, CMS, FRCA, landfill trusts.

6.2.3 Contact all managers of major golf courses and mineral sites, within the priority areas, to secure the appropriate management of existing heathlands on site and promote heathland restoration and creation. Target = by 2001. ACTION: EWT, EN, LAs, club managers and mineral companies.

6.2.4 Identify appropriate sites for the creation of 30ha of heathland, in priority areas. Target = Identify sites by 2000, implement by 2010. ACTION: HAG, EWT, LA, EN, CMS, FRCA, landfill trusts and mineral companies.

6.2.5 Promote the uptake of grants available for heathland management, restoration and creation within target areas. Target = ongoing. ACTION: HAG, CMS, FWAG, FRCA, Landfill authorities.

6.2.6 Identify and establish demonstration sites in Epping Forest SSSI and Tiptree SSSI, showing appropriate management and restoration of heathland and acid grassland. Target = by 2000. ACTION: EN,CoL, LAs.

6.2.7 Promote Gosbecks Archaeology Park and a restored mineral / landfill site as demonstration sites for different heathland creation methods. Target = by 2003. ACTION: CBC, EN ,EWT, mineral company, ECC.

6.3 Advisory

6.3.1 Set up a Heathland Advisory Group (HAG) as a focus for monitoring Heathland Action Plan targets, and to promote heathlands and share resources between land managers. Target = by 1999. ACTION: EN, EWT, EFC, Museums, CMS.

6.3.2 Develop best practice advice/material for use in community consultation with regard to heathland restoration and management. Target = 2000. ACTION: HAG, LAs, Parish Councils.

6.4 Future research and monitoring

6.4.1 Monitor and feedback on all heathland management, restoration and creation schemes to ensure they meet the objectives of the Heathland Action Plan for Essex. Target = every 2 years. ACTION: HAG, BRCs, land

managers.

6.4.2 Publicise restoration techniques and methods of public consultation, through existing communication networks. Target = ongoing. ACTION: HAG.

6.4.3 Promote public participation in heathland monitoring, through public surveys of local commons. Target = Local Commons Survey by 2000. ACTION: LAs, RCC, EWT, Parish councils.

6.5 Communications and publicity

6.5.1 Target Hatfield Heath, Thundersley Common and Layer Breton initially for community participation projects to develop greater understanding and participation in local heathland management. Target = 2000. ACTION: ECC, EN, EWT,CMS, BTCV.

6.5.2 Actively promote heathlands and their management, through events and publicity in National Heath Week and Essex Biodiversity Week. Target = 1 event on a key heathland site, every July. ACTION: All site managers, Heathland Advisory Group.

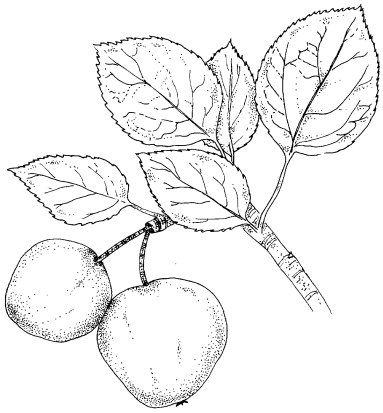
Appendix 1

Existing Heathland Sites in Essex

Site name	Grid ref.	District	Info source	Status
Glemsford Pits	TL840464	Braintree	ENLHI	SSSI
Mill Green Heath	TL638012	Brentwood	ENLHI	CWS
Navestock Heath	TQ537970	Brentwood	ENLHI	CWS
Thorndon Park	TQ614911	Brentwood	ENLHI	SSSI
Thundersley Great Common	TQ797894	Castlepoint	ENLHI	SSSI
Blakes Wood and Lingwood Common (Danbury Complex)	TL778060	Chelmsford	ENLHI	SSSI
Danbury Common (Danbury Complex)	TL782043	Chelmsford	ENLHI	SSSI
Galleywood Common	TL702027	Chelmsford	ENLHI	CWS, LNR
Abberton - Layer	TL998208	Colchester	CM	CWS
Roman River	TM000210	Colchester	ENLHI	SSSI
Roman River	TM014208	Colchester	CM	CWS
Fingringhoe	TM045195	Colchester	ENLHI	SSSI
Fordham Heath	TL945264	Colchester	ENLHI	CWS
Chest Wood	TL977214	Colchester	CM	CWS
Layer Breton	TL945187	Colchester	ENLHI	CWS
Tiptree	TL882146	Colchester	ENLHI	SSSI
Pods Wood	TL902178	Colchester	CM	CWS
West Bergholt Heath	TL961278	Colchester	ENLHI	CWS
Layer de la Haye	TL967206	Colchester	CM	CWS
Epping Forest, Long Running	TQ434997	Epping	ENLHI	SSSI
Epping Forest, Dullsmead Heath	TQ427994	Epping	ENLHI	SSSI
Epping Forest, Deer Shelter Plain	TQ426990	Epping	ENLHI	SSSI
Epping Forest, Sunshine Plain	TQ423993	Epping	ENLHI	SSSI
Epping Forest, Strawberry Hill Heath	TQ413965	Epping	ENLHI	SSSI
Epping Forest, Warren Hill	TQ411954	Epping	ENLHI	SSSI
Hainault Forest extension	TQ468931	Epping	ENLHI	CWS
Great Totham Pits	TL859113	Maldon	CM	
Woodham Walter - Common	TL791065	Maldon	ENLHI	SSSI
Thrift Wood	TL805053	Maldon	CM	CWS
Arlesford	TM059219	Tendring	CM	CWS
Great Holland Pits	TM203192	Tendring	ENLHI	CWS
Mucking Heath	TQ653806	Thurrock	ENLHI	
Hatfield Heath	TL521150	Uttlesford	ENLHI	CWS

ENLHI = English Nature Lowland Heathland Inventory
CM = Colchester Museum

OLD ORCHARDS



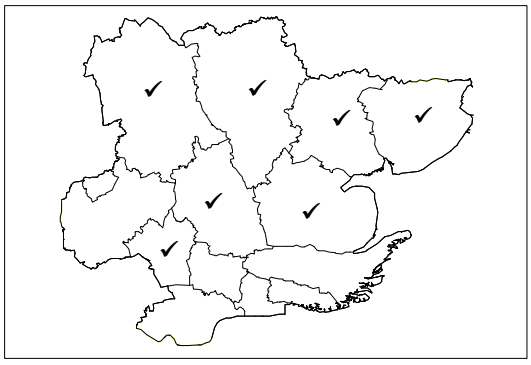
National Lead Partner: None
County Lead Partner: EN (01206 796666)
Associated Plans: Dormouse, pipistrelle, song thrush, stag beetle, grey partridge.

1. CURRENT STATUS IN ESSEX

1.1 Essex was once a major contributor to orchard produce in England. There are still a number of old orchards left in the county which pay tribute to this legacy and these make a substantial contribution to the local landscape, our cultural heritage and to the variety of animals and plants which they support. As well as providing habitat for birds, invertebrates and small mammals, old orchards also hold the main genetic resource of old local fruit varieties that have otherwise virtually disappeared from production.

1.2 Essex mainly produces apples, predominantly the Cox's and Bramleys which are well suited to the windy and coastal aspects, and Worcesters in the chalkier regions of Uttlesford. Essex also has the only Quince orchard in the country. A great many tall standard orchards were grubbed up between 1961 and 1995, in response to agricultural subsidies for intensification of land use, with a 45% decline in non-commercial orchards between 1970 and 1996. Now commercial orchards are intensively managed with dwarf varieties and abundant chemicals, which limits their wildlife habitat potential.

1.3 **Extent:** 65ha of registered, non-commercial orchards exist in Essex and 1093ha of commercial orchards (MAFF, 1996) The majority of orchards occur in Tendring, Colchester, Maldon, Chelmsford and Braintree.



1.4 Key species associated with old orchards:

General

Mistletoe
Birds: Owls, woodpeckers
Bats
Lichens
Unimproved grassland species

Other national BAP species

Dormouse
Pipistrelle
Grey partridge
Turtle dove
Linnet
Bullfinch
Song thrush
Spotted flycatcher
Tree Sparrow
Stag beetle
Buttoned snout moth
White spotted pinion moth
Square spotted clay moth

2. CURRENT FACTORS AFFECTING THE HABITAT

2.1 Continued removal of orchards and individual fruit trees for agricultural intensification or development.

2.2 Neglect and loss of fruiting capacity, when surrounded by secondary woodland.

2.3 Lack of knowledge of traditional varieties.

2.4 Use for inappropriate grazing and amenity use which has led to tree damage.

3. CURRENT ACTION

3.1 The level of protection for old orchards is low, with few covered by existing nature conservation designations. No orchards exist within SSSIs and only two orchard WS are known - Sweetings Meadow and Barnes Spinney, both EWT reserves. EWT have recently acquired another orchard reserve, Sergeants Orchard. Tree Protection policies are common in Local Plans, but these generally refer to native and standard trees, and TPO status is rarely given for fruit trees. Occasionally old orchards may be protected by landscape policies and open space designations.

3.2 At present, financial assistance can be given to help restore and manage old orchards through Countryside Stewardship grants (FRCA) and Rural Action grants often help communities set up and plant new orchards. Other incentives are being researched at present, such as payments for organic fruit production (HDRA) and the RSPB's Eco-labelling of wildlife -friendly orchards.

3.3 Campaigns and publicity about orchards are spearheaded by CommonGround, whom initiated the national Apple Day celebrations and promotes community orchards. A number of community orchards have been set up across Essex (especially in Thames Chase Community Forest) to reflect the varieties of apples associated with Essex.

4. ACTION PLAN OBJECTIVES AND TARGETS

4.1 Prevent further loss of existing old orchards.

4.2 Restore and manage existing old orchards.

4.3 Create new orchards (community / school / private) using locally characteristic stock.

5. PROPOSED ACTION WITH LEAD AGENCIES

5.1 Policy and Legislation

5.1.1 No action proposed

5.2 Site Safeguard and Management

5.2.1 Include orchards in Local Plan Policies on the consideration/protection of natural features within planning proposals. Target: Within next policy review. (ACTION: LAs).

5.2.2 Plant and manage new orchards - community orchards / school / and private - to restore orchard coverage to 1970 levels (144ha). Target: By 2018. Two new community orchards a year. (ACTION: CMP, Thames Chase, Local groups, Parish Councils, Learning Through Landscapes, Landfill Trusts).

5.3 Advisory

5.3.1 Set up orchards steering group, to coordinate and facilitate plan. Target: By 1999. (ACTION: EWT, BRCs, Writtle).

5.3.2 Promote Countryside Stewardship and other grants for management and restoration of existing orchards. Target: Information on CS and other grants/advice to all orchard owners on Orchard Register by 2000. (ACTION: FRCA, CMS, Thames Chase CF, FWAG, NT, RCC).

5.3.3 Deliver training courses on traditional orchard management, management for biodiversity, and grant availability. Target: 1 per year. (ACTION: Orchards steering group, BTCV, RCC).

5.3.4 Produce and promote simple best practice guidance notes on management of fruit trees and orchards for wildlife. Target: By 2002. (ACTION: Orchard steering group, CommonGround).

5.4 Future Research and Monitoring

5.4.1 Investigate extent and wildlife value of old orchards across Essex by public survey and desk top study. Target: By 2000. (ACTION: LRCs, Universities, Writtle College, LAs).

5.4.2 Set up Orchard Register of Essex, to include locations, owners and varieties. Target: Start by 2000, catalogue ongoing. (ACTION: Writtle, LAs, EWT, MAFF, Brogdale).

5.4.3 Ensure orchards are surveyed and evaluated in the next review of Essex County Wildlife Sites. Target: Develop WS criteria before review. (ACTION: EWT, LBRC, EN).

5.5 Communications and Publicity

5.6.1 Promote events to celebrate Apple Day (October 21st) and promote community orchards. Target: 3 every years, countywide. (ACTION: Community orchard owners, Commercial orchard owners, Writtle, CommonGround, EWT).

7. REFERENCES

MAFF (1996). June Agricultural and Horticultural Census. (Annual Survey)

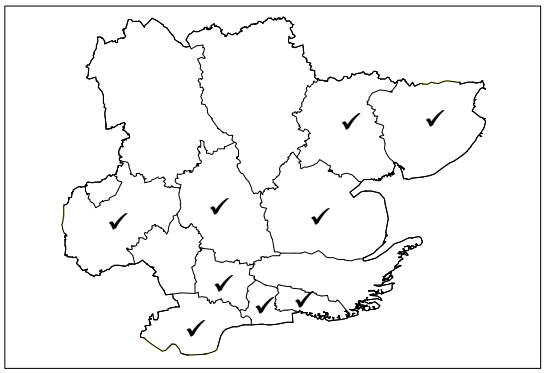
REEDBEDS

National Lead Partner: EN
County Lead Partner: RSPB (01603 660066
Associated Plans: Bittern, saline lagoons

1. CURRENT STATUS IN THE UK

1.1 Reedbed is defined in this plan as *Phragmites* dominated habitat and includes both fresh and salt water communities. Water levels are usually at or above ground level for most of the year and the habitat is likely to include ditches and other areas of open water and sometimes carr woodland, wet grassland and fen vegetation.

2. CURRENT STATUS IN ESSEX



2.1 Reedbed is a rare habitat in Essex, generally occurring as small fragments and largely concentrated in coastal areas. The 1993 RSPB Reedbed Inventory suggests around 135 ha in Essex although this is thought to be an underestimate. Using 1993 Inventory data and reedbed definitions, Essex holds approximately 2.75% of the resource in England and 2% in Great Britain. See appendix 1 for estimated distribution of current resource.

2.2 A number of species in Essex are either wholly or partly dependent on reedbeds. Of the five GB Red Data Book invertebrates that are closely associated with reedbeds, one, *Senta flammea* (flame wainscot), occurs in Essex. Other notable or very local invertebrates associated with *Phragmites* that occur in Essex are *Mythimna obsoleta* (obscure wainscot), *Archanara geminipunctata* (twin-spot wainscot), *Simyra albovenosa* (reed dagger), *Cosmopterix lienigiella* and *Schoenobius gigantella* (all Lepidoptera) and *Plateumaris braccata* (Coleoptera) (J. Bowdrey, *pers comm.*). Also *Clubiona juvensis* and *Hypomma fulvum* (Arachnids) and *Passaloecus clypealis* (Hymenoptera) P. Harvey, *pers. comm.* Further details on these species can be found in Appendix II.

2.3 Bearded tit and Cetti's warbler are both Amber List species and localised breeders in Essex, confined to reedbed sites. Bittern and marsh harrier are both red list species associated with reedbeds that could be expected to breed in Essex given a

suitable quality and extent of habitat (marsh harriers have successfully bred in Essex this decade in arable fields, and bitterns regularly winter in the county).

2.4 Although not confined to this habitat, the harvest mouse (*Micromys minutus)* will inhabit reedbeds when building breeding nests in the summer. This species is thought to have undergone a recent national decline due to a reduction in suitable habitat.

3. CURRENT FACTORS AFFECTING THE HABITAT

3.1 Sea-level rise, coastal erosion and increasing potential for saline incursion on coastal sites.

3.2 Lack of biological information, particularly concerning reedbed invertebrates, is preventing the successful protection of important sites.

3.3 Lack of knowledge of the state of reedbeds with respect to management, pollution, hydrology etc.

3.4 Lack of appropriate management of some existing reedbeds leading to drying and scrub encroachment.

3.5 Loss and damage by excessive water abstraction and, in the past, land drainage and conversion to intensive agriculture.

3.6 Inappropriate water level management.

3.7 Small and fragmented nature of sites - especially reedbeds associated with borrowdykes.

3.8 Lack of co-ordinated approach to survey and management - especially reedbeds associated with borrowdykes.

3.9 Lack of SSSI designation of some sites, especially in the Thames Estuary. Denotification has occurred at Mucking Pits (Stanford Warren).

4. CURRENT ACTION IN ESSEX

4.1 Appendix I indicates whether sites are SSSIs and/or managed for nature conservation.

4.2 The Environment Agency holds information on reedbeds within borrowdykes from a survey of sea walls in Essex in the 1980s (and due to be repeated in 1999). EA are extending this survey over the next 5 years to include the whole Essex coast with information on borrowdyke flora and habitats.

4.3 Old Hall Marshes is receiving funding within a three year EU-funded LIFE project for reedbed management for bitterns.

4.4 Water Level Management Plans (WLMPs) prepared or in preparation for major sites.

4.5 Lee Valley Site Action Plan (working draft) identifies creation of 10 ha of new reedbed at Cheshunt Gravel Pits as a priority.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 Maintain existing area and quality as a minimum. Identify and establish rehabilitation programme by the year 2002 for the priority areas of existing reedbed which are not currently at favourable conservation status.

5.2 Create 40 ha of new reedbed to replace East Anglian reedbeds likely to be lost to rising sea levels in advance of loss. These should be located as near as possible to existing sites on areas of current low nature conservation interest.

5.3 Create an additional 50 ha of new reedbed safe from future threat of sea level rise within Essex by 2010. This will be on areas of current low nature conservation interest.

5.4 Create 10 ha of new reedbed specifically at Fishers Green/Cheshunt Gravel Pits in the Lee Valley, as part of the Lee Valley Park Biodiversity Action Plan.

6. PROPOSED ACTIONS WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Designate all sites qualifying as SSSI. Target = all qualifying sites designated as SSSI by 2000. (ACTION: EN).

6.1.2 Designate as CWS all non-SSSI reedbeds meeting CWS criteria. Target = all sites identified in next CWS review. (ACTION: EWT, EN, LAs).

6.1.3 Undertake strategic identification of feasible creation sites. Map areas with potential for reedbed creation using agreed method (example methods have been developed elsewhere in East Anglia). Target = Identify and map feasible reedbed creation sites by 2001. (ACTION: RSPB, EN, EWT).

6.1.4 Lobby MAFF to include reedbed creation prescriptions in Essex Coast ESA. Targets = in next review. (ACTION: EN, RSPB, EWT, FRCA).

6.1.5 Input reedbed creation targets in local plans: Shoreline Management Plans, LEAPs, Structure Plan and Minerals Plan. Target = all local plan

revisions to contain reedbed creation targets. (ACTION: EN, EA, ECC, LAs).

6.1.6 Develop a county-wide strategy for borrowdyke management. Target = borrowdyke management strategy in place by 2000. (ACTION: EA, EN).

6.1.7 Develop a county-wide strategy to promote, co-ordinate and prioritise floodplain restoration and wetland creation. Target = floodplain restoration and wetland creation strategy in place by 2001. (ACTION: EA, EN).

6.2 Site safeguard and management

6.2.1 Ensure local authority development plans and schemes give adequate protection to SSSIs and Wildlife Sites including control of developments in the vicinity of sites which could affect their integrity. Target = no damage to reedbed SSSIs and WS as a result of development. (ACTION: LAs).

6.2.2 Ensure adequate water quality is ascertained and available for all key reedbeds. Targets = water requirements for all key reedbeds identified and provided by 2003. (ACTION: EA).

6.2.3 Ensure that future abstraction applications potentially affecting key reedbed sites take nature conservation requirements into consideration. (ACTION: EA).

6.2.4 Ensure Water-Level Management Plans (WLMPs) pay due regard to nature conservation requirements of reedbeds. Target = all relevant WLMPs to contain conservation objectives for reedbeds. (ACTION: EA, IDB, MAFF, EN).

6.2.5 Extend WLMP process to include non-SSSI key reedbed sites. Target = WLMPs written for key sites by 2005. (ACTION: EA, IDB, MAFF).

6.2.6 Ensure implementation of WLMPs. Targets = progress of WLMPs checked annually. (ACTION: all reedbed managers).

6.2.7 Prioritise suitable sites (e.g. urban surface water sewer outfalls) for reedbed creation and undertake feasibility studies to identify future action for the most appropriate sites. Target = Feasibility study undertaken by 2001. (ACTION: EN, EA, RSPB, EWT, NT, LAs).

6.2.8 Promote selected sites for inclusion in LA development plans & LEAPs. Target = Identify selected sites by 2000. (ACTION: EA).

6.2.9 Resolve any potential conflicts between reedbed creation, landscape conservation and the protection of agricultural land. - meet with LPA and MAFF to establish general principles. Target = Meetings to be held and blockages to be identified and resolved by 2000. (ACTION: EWT, RSPB, EN, ECC, MAFF).

6.2.10 Consider improved management agreements for key sites where current practices do not allow full potential to be realised. Target = Identify sites being managed sub-optimally by 2000. (ACTION: EN, RSPB, EWT, LAs).

6.2.11 Ensure that coastal land acquisition for priority habitats is sustainable. Target = review coastal land acquisition strategies by 2000. (ACTION: All conservation landholders).

6.2.12 Ensure favourable management of SSSIs and improvement where necessary of other sites. Target = Review management of SSSIs containing reedbeds by 2000. (ACTION: EN to lead).

6.3 Advisory

6.3.1 Undertake an audit of the reedbed resource to identify key reedbeds for advice. (ACTION: EN, EWT, RSPB, FWAG).

6.3.2 Contact Water Companies to discuss the possibility of taking up reedbed creation as a tertiary method of sewage treatment. (ACTION: EA, EN).

6.3.3 Promote reedbed creation where possible as integral to agricultural reservoirs stressing their importance for nature conservation. (ACTION: EA, EN, FWAG, NFU, CLA).

6.3.4 Reedbed management training workshops and seminars to be targeted at owners/ managers of key reedbeds in need of restoration. Sympathetic landowners to be contacted and persuaded of the need to create new reedbed on existing agricultural land. Co-ordinated approach needed. (ACTION: EN, RSPB, EWT, FWAG, ECC).

6.3.5 Hold one reedbed training course in East Anglia in 1998. (ACTION: RSPB, EN).

6.4 Future research and monitoring

6.4.1 Promote research into ecology of key reedbed species, particularly invertebrates, through co-ordinated local action involving low-cost specialists and universities. Target: list of research needs compiled by 2000, implementation and monitoring to begin as soon as possible subsequently. Ensure this is co-ordinated. (ACTION: EN, RSPB, EFC).

6.4.2 Maintain monitoring of national populations and resource by the appropriate national organisations with co-operation by local organisations/site managers. Target = Local monitoring schemes designed and implemented by 2000. (ACTION: EN to lead).

6.4.3 Co-ordinate monitoring of abiotic factors, e.g. water quantity and quality, with monitoring guidelines. Target = Monitoring schemes designed and implemented by 2000. (ACTION: EA).

6.4.4 Conservation partners to encourage MAFF/EA/IDBs to undertake environmental monitoring in reedbeds to facilitate pollution control (e.g. water levels, water quality). Target: MAFF/EA/IDBs have an agreed environmental monitoring strategy by 2001. (ACTION: with EN, EWT, NT, RSPB).

6.4.5 Ensure reedbed management is linked to research and ongoing monitoring to ensure that desired conservation goals are being achieved. Target = Monitoring schemes designed and implemented by 2000. (ACTION: All reedbed managers).

6.4.6 Include extent and quality of borrowdyke reedbeds in the 1999 Essex sea wall survey. Target = 1999 Essex sea wall survey to include extent and quality of borrowdyke reedbed. (ACTION: EA).

6.5 Communications and publicity

6.5.1 Provide information (possibly a handbook) on borrowdyke management. Target = Handbook produced by 2001. (ACTION: EA, EN).

6.5.2 Include reedbeds and associated wildlife in educational work. Target = at least one reedbed associated activity per year. (ACTION: EWT, RSPB, EN).

6.5.3 Publicise the value of reedbeds in suitable media and at demonstration sites. Target = At least one reedbed related output in the local media annually from 1999. (ACTION: RSPB, EN, EWT, NT, NFU).

Appendix I - **Sites from RSPB Reedbed Inventory 1993 - Essex**

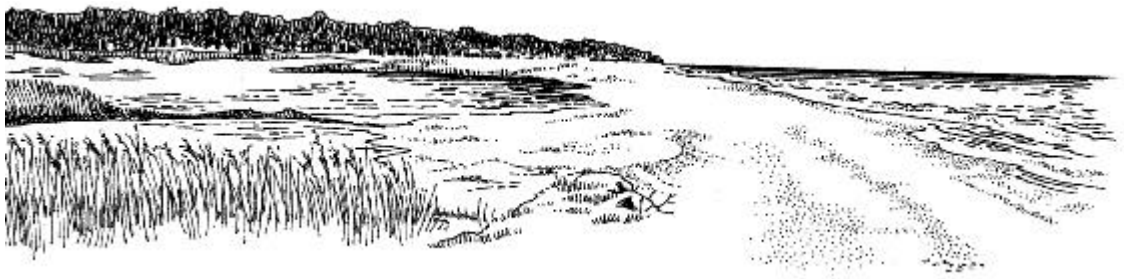
SITE NAME	GRID REF	SSSI Y/N	Ha REED 1993	FRESH OR SALTWATER	MANAGED FOR CONSERVATION Y/N
Abberton Reservoir	TL970180	Y	9.9	F	part
Benfleet & Southend Marshes	TQ847854	Y	0.6	B	N
Brightlingsea	TM098180		0.8	F/B	N
Canvey Lake	TQ795842	N	?	B	Y
Cattawade Marshes	TM090329	Y	2.6	F	N
Dengie	TM045030	Y	?	?	?
Dovercourt	TM235315	Y		F	N
Epping Forest	?	Y	1.9	?	?
Fobbing Marshes	TQ730842	Y	2.7	B/F	Y
Glemsford Pits	TL840464	Y	3.2	F	part
Great Oakley Works	TM213265	Y	5	B	N
Hanningfield Reservoir	TQ730980	Y	11.5	F	part
Langenhoe	TM045171	Y	5.39	B	N
Lee Valley (Fishers Green)	TL378028	Y	ca 10	F	Y
Little Oakley	TM239278	Y	7.8	B	N
Mucking Pits / Stanford Warren	TQ686815	Y	10	S/B	Y
Northwick, Canvey	TQ 755837	N	2	F	N
Old Hall Marshes	TL975125	Y	19.0	B	Y
Ouzedam / Coryton	TQ740830	Y	0.5	F/B	Y
Pitsea Hall Fleet	TQ740867	Y	8.3	F/B	Y
Roman River	TM015204	Y	6.7	F	Y
Sawbridgeworth Marsh	TL492158	Y	0.5	F	Y
St Osyth	TM124150	Y	2.6	B	N
Stour Estuary	TM180330	Y	1.2	S	N
Thorrington	TM081197	Y	2.5	B	Y
West Brightlingsea	TM071172	Y	0.4	B	Y
West Thurrock	TQ585766	Y	0.5	F	N
Little Thurrock / Tilbury Marshes	TQ632777	N	0.6+	F	N
Vange Marshes	TQ733872	N	0.6+	F	part

Number Sites =	29
Total Area =	117+ ha

Appendix II - Invertebrates in Essex associated with *Phragmites*

Lepidoptera	Status in Essex	Location	National status
Cosmopterix lienigiella	very local, rare	Fingringhoe	Notable A
Schoenobius gigantella	local	4 Essex sites	Notable B
Mythimna obsoleta obscurewainscot	very local	4 Essex records this decade	
Senta flammea flame wainscot	very rare	St Osyth, Hamford Water	RDB3
Archanara geminipunctata twin-spot wainscot	widespread		Notable B
Simyra albovenosa reed dagger			Notable A
Coleoptera			
Plateumaris braccata			Notable A
Arachnida			
Clubiona juvenis	Rare	Stanford Warren Old Hall Marshes	RDB2
Hypomma fulvum	Rare	8 Essex sites	Notable A
Hymenoptera			
Passaloecus clypealis	Rare	4 Essex sites	RDB3

SALINE LAGOONS



National Lead Partner: EN
County Lead Partner: EN (01206 796666)
Associated Plans: Coastal grazing marsh, reedbeds, bittern.

1. CURRENT STATUS IN THE UK

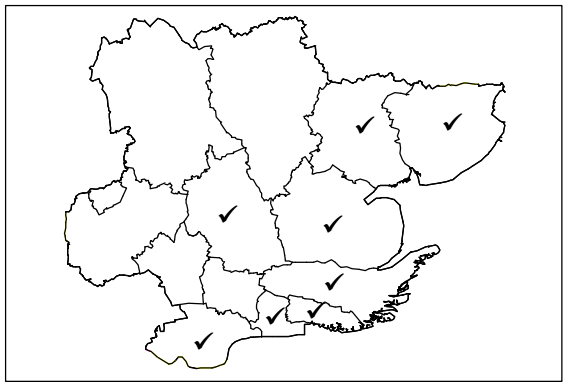
1.1 Lagoons are essentially bodies, natural or artificial, of saline water partially separated from the adjacent sea. They retain a proportion of their water at low tide, and may develop as brackish, fully saline or hypersaline habitats.

1.2 The UK resource is of the order of 1300 ha, with individual sites up to 450ha in extent. Most of the larger sites are protected by means of the SSSI series, and as a priority habitat on the EC Habitats Directive, the best sites will be further protected as SACs.

1.3 The flora and fauna of the lagoonal habitat is very specialised, reflecting the distinctive water chemistry, and 10 species of invertebrate and plant associated with lagoons are given special protection by the Wildlife & Countryside Act 1981.

1.4 As a product of a dynamic coastline, natural lagoons are threatened by unsustainable coastal management practices; artificial sites are also much affected by other human pressures such as recreation and pollution.

2. CURRENT STATUS IN ESSEX



2.1 There are no lagoons or lagoon-like sites in Essex which are considered to be sufficiently important on a national scale to be included in the 1996 English Nature review of this habitat (Downie, 1996). However, the definition given in the UK BAP can accommodate numerous, often small, Essex sites, including borrowdykes, fleets, and semi-enclosed tidal sites such as Walton Mere and The

Naze pools. They are clearly intimately associated with other coastal habitats (especially coastal grazing marsh and salt marsh) and reedbeds, and the Action Plans for those habitats should be seen as complementary to this.

2.2 Most larger lagoonal areas (e.g. Pennyhole Bottom, Old Hall Marshes; The Naze Pools) have some protection as SSSIs, as indeed is a substantial proportion of the borrowdyke habitat. The extent of borrowdyke is stable because of its value in land drainage. However, it is likely there has been considerable reduction in the quality of borrowdykes, especially where adjacent land is now under either intensive agriculture or urban and industrial development.

2.3 Recent (1998) survey work in north Essex has revealed hitherto unrecorded Essex populations of two of the specially protected species associated with saline lagoons: lagoon sea-slug *Tenellia adspersa* at Howlands Marsh, and starlet sea-anemone *Nematostella vectensis* at two sites by Hamford Water and one by the Blackwater Estuary.

2.4 The RDB1 beetle *Paracymus aeneus* is recorded from one lagoon area at Ramsey Marsh, Blackwater Estuary. Furthermore, a number of the species characteristic of Essex lagoonal habitats are nationally rare or scarce (e.g. avocet, saltmarsh goosefoot); if and when Action Plans are produced for these species, they should be read in the context of this habitat Action Plan.

3. CURRENT FACTORS CAUSING LOSS OR DECLINE

3.1 Pollution, especially in the form of nutrient enrichment, leading to eutrophication, together with other agricultural chemical runoff. Dr Chris Mason (University of Essex) has provided evidence for this. Other significant sources of pollution include the placing of grain and potatoes into watercourses as food for waterfowl.

3.2 Drought, and generally limited freshwater inputs, leading to changes in water chemistry.

3.3 Inappropriate water control structures, adversely affecting the quantity and quality of water, sometimes only seasonally.

3.4 Sea-level rise, threatening to inundate permanently such habitats, either naturally or through managed retreat.

4. CURRENT ACTION

4.1 Most of the larger areas of lagoonal habitat are protected as SSSI, SPA and Ramsar sites.

4.2 Appropriate management regimes are promoted through the implementation of SSSI site management statements, management plans and agreements; ESA agreements; and water level management plans.

4.3 The Essex Shoreline Management Plan, a strategic document, focuses attention upon important habitats such as this, and promotes actions to retain, maintain, enhance and create them within the context of a sustainably managed coastline.

5. ACTION PLAN OBJECTIVES AND PROPOSED TARGETS

5.1 A full assessment of the existing resource of saline lagoon habitats and key associated species should be available by 2000.

5.2 The current extent and distribution of lagoonal habitats should be maintained, within a framework of sustainable coastline management.

5.3 The quality of extant sites should be improved (all protected sites to be in an optimal condition by 2010).

5.4 Sufficient new sites should be created (and appropriately managed) by 2010 to offset losses over the past 50 years, and by 2020 to offset anticipated losses (through sea level rise and coastal realignment) up to 2050.

6. PROPOSED ACTION WITH LEAD AGENCIES

6.1 Policy and legislation

6.1.1 Continue to take full account of lagoonal habitats in the planning, funding and implementation of sea defence works (ACTION: MAFF, EA, Local Authorities).

6.1.2 Identify abstractions likely to have adverse impacts on lagoonal habitats, and take steps to revoke or reduce permissions where necessary. Licences impacting upon International sites will be reviewed by EA under the Habitats Directive after 2000 (ACTION: EA, EN).

6.1.3 Continue development of Shoreline Management Plan, and inclusion of lagoonal habitats as a key feature to be maintained and enhance (ACTION: EA, EN, Local Authorities, MAFF).

6.2 Site safeguard and management

6.2.1 Identify precise conservation objectives for all SSSI sites, and ensure positive management, including reduction of polluting inputs, maintenance of appropriate water regimes, and achieving suitable low intensity adjacent land use (ACTION: EN, FRCA, EA, EWT, RSPB).

6.2.2 Consider SSSI notification for all significant unprotected sites e.g. Walton Mere (ACTION: EN).

6.2.3 Use planning opportunities to support maintenance, enhancement and creation of suitable sites through S39 Agreements (ACTION: Local Authorities).

6.2.4 Ensure, where appropriate, resources from Landfill Tax are used to support lagoonal habitats (ACTION: Landfill Trusts).

6.2.5 Target ESA agreements to support appropriate management of land adjacent to and incorporating lagoonal habitats (ACTION: FRCA, EN).

6.2.6 Encourage creative use of managed retreat schemes to offset past and anticipated future losses of saline lagoons (ACTION: EN, EA, MAFF).

6.2.7 Develop standard guidelines for management of borrowdyke habitats to support key habitats and species (ACTION: EA, EN, EWT, FRCA).

6.2.8 Control damaging recreational activities, including excessive feeding of lagoons for wildfowl and inappropriate vegetation removal for angling (ACTION: EN).

6.3 Advisory

6.3.1 Ensure advice from national working party is made available and locally relevant to Essex (ACTION: EN, EA, RSPB).

6.3.2 Provide advice to land owners and managers on best practice in management of saline lagoons, especially in context of SSSI Site Management Statements and plans, and ESA agreements (ACTION: EN, FRCA).

6.3.3 Disseminate borrowdyke management guidelines to landowners, drainage engineers and EA staff (ACTION: EA, EN).

6.4 Future research and monitoring

6.4.1 Produce an inventory of Essex lagoonal habitats, including historical losses, as a guide to future conservation action (ACTION: EA, EN, RSPB).

6.4.2 Ensure borrowdykes are comprehensively covered by future sea wall corridor surveys (ACTION: EA, EN).

6.4.3 Review the environmental and management factors affecting lagoons (including water quantity, quality and chemistry) and the specific (sometimes contradictory) requirements of key species to inform management guidance and practice (ACTION: EN, EA, RSPB, EWT).

6.4.4 Contribute to national initiative to investigate use of old docks in *ex situ* conservation of lagoonal species (ACTION: EN, PLA).

6.5 Communications and publicity

6.5.1 Raise awareness of saline lagoons, their characteristic and important wildlife, threats to the habitat, and management, especially amongst coastal landowners, drainage engineers and others with an influence on the habitat (ACTION: EN, EA, EWT, RSPB).

7. REFERENCES

Downie, A J (1996) *Saline lagoons and lagoon-like saline ponds in England*. English Nature Science Series No 29

URBAN AREAS

National Lead Partner: None
County Lead Partner: EN (01206 796666)
Associated Plans: Stag beetle, water vole, skylark, song thrush, pipistrelle bat and great crested newt. Ancient woodland and ancient and species rich hedgerows and green lanes.

1. INTRODUCTION

1.1 Essex has a great variety of valuable urban wildlife. As well as ancient woodlands, grassland and wetlands, where urban sites can provide a refuge for once widespread plants and animals, industrial land, urban commons, gardens and buildings can offer unique habitats which often support uncommon species and unique assemblages of plants and animals.

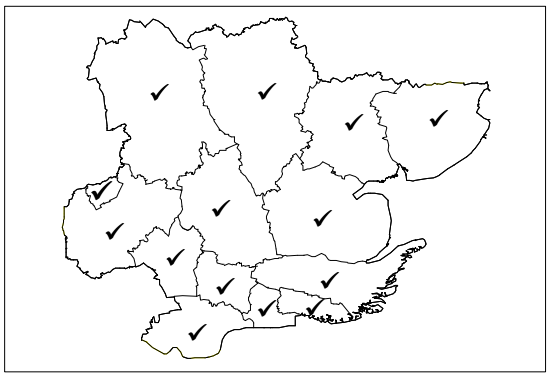
1.2 Nature conservation in towns and cities is not only about providing for wildlife. Wildlife can also play an important part in people's life and therefore should not be restricted to nature reserves and the countryside. As 85% of people in Essex live in towns and cities (with populations of over 10000) the need for a healthy environment in urban areas is particularly important. Parks, cemeteries, canals, allotments, 'derelict' land and gardens can support a huge range of animals and plants and play a crucial role in maintaining the wildlife resource of towns and cities. These places are accessible to all age groups and cultures and can provide ideal places to learn about biodiversity.

1.3 The character of urban areas is continually altering, through landscape improvements, development and the changing demands on land. If we are to retain the wildlife in urban areas, it must be recognised, valued, protected and managed as a vital component of the townscape.

2. CURRENT STATUS IN ESSEX

2.1 Definition: Urban areas are defined as having a population of over 10,000. Many actions in this plan refer to people and wildlife - and therefore can include any settlement where there is potential for wildlife, education and access to wild places.

2.2 Extent and distribution: The most dense urban areas in Essex are along the Thames estuary and main towns (Chelmsford, Colchester, Braintree, Clacton and Harlow). There is also pressure for additional housing allocations in relatively rural areas of the county, which will substantially increase the size of some towns and villages. Therefore urban habitats can be considered as being in all Essex districts.



2.3 Within cities, towns and villages the wildlife character is diverse and reflects the surrounding landscape as well as the unique environment arising from dense development, historic land use, industry and the influence of people. 'Urban habitats' can include:

i. **Relic natural systems:** for example - veteran trees, rivers, brooks and springs**.**
ii. **Encapsulated countryside:** enclosed 'semi-natural' habitats such as unimproved grassland, heath, hedgerows and ancient woodland.
iii. **Managed habitats:** Park grassland, road verges, gardens, allotments, churchyards, hospital grounds and street trees, that reflect intensive land-use.
iv. **Man-made habitats:** which **support 'urban' plant and animal assemblages,** such as urban commons, industrial land, railway sidings, buildings, walls and canals.

2.4 Information on the extent, distribution and value of these urban habitats and the species they support is far from comprehensive. SSSIs, Local Nature Reserves and county WS identify some of the sites of high ecological interest within urban areas, but in general urban areas are under studied in respect of their unique animal and plant communities. Some museums (namely Colchester and Southend) have detailed site information and other local authorities have collected data on all open spaces (Harlow). Natural History Societies and the Essex Field Club also hold information on many urban sites.

2.5 It is worth noting that several habitats are unique or characteristic of urban areas in Essex, with significant populations of important species. These include:

i. Excavations of chalk and gravel and exposed gravel terraces along the Thames which are important for invertebrate and plant communities e.g. in Thurrock: Grays Chalk Pit SSSI, Broom Hill, Mill Wood Pit area, Chafford Hundred. **Associated species: many species of solitary bees and wasps**, **man orchid**, **round leaved wintergreen**.
ii. Excavation 'cliffs' that support the majority of the Essex **sand martin** population.
iii. Dumped, often contaminated materials which have developed a characteristic and important invertebrate and plant community eg East Tilbury Silt lagoons. **Associated species: orchids**, **solitary bees and wasps**.

iv. Warm water industrial outfalls in rivers and estuaries, which act as important feeding areas for waterfowl, especially **migrating terns**.
v. Domestic and industrial buildings which are important for bats and nesting birds. **Associated species: pipistrelle and bat black redstart, swifts and house martins.**
vi. The Roman Wall of Colchester which supports **rare lichens and invertebrate species.**
vii. Garden ponds which are an increasingly important habitat for amphibians. **Associated species: great crested newts, dragonflies**.
viii. Future Habitat Action Plans of particular relevance will be: **post industrial land**, **grasslands** and **rivers**.

3. CURRENT FACTORS AFFECTING THE HABITATS

3.1 Lack of up to date information on the whole spectrum of urban wildlife resources.

3.2 Poor perception of site value - especially open and disturbed ground.

3.3 Conflicting pressures for land use and the consequent loss of habitat.

3.4 Inappropriate management of valuable habitats to create 'tidy' landscapes.

3.5 Lack of management of wildlife sites, often due to numerous small and dispersed sites increasing costs.
3.6 Disturbance, trampling and heavy use on sensitive sites.

4. CURRENT ACTION

4.1 Local authorities play a major role in urban nature conservation across Essex. Site protection, wildlife management and maintaining a diversity of linked natural networks to enhance biodiversity have been clearly defined in PPG9, and local authorities help meet these responsibilities in urban areas through:

i. Protection of sites and wildlife features. There are increased numbers of Nature Conservation Strategies and Local Plan policies acknowledging and protecting wildlife in urban areas at the District level
ii. Strategic land use allocation.
iii. Maintaining up-to-date scientific information on urban natural resources.
iv. Minimising the impacts of development on biodiversity.
v. Management of wildlife sites and green open space.
vi. Declaration of statutory Local Nature Reserves in urban areas - there are 23 urban Local Nature Reserves in Essex (1998).

4.2 Several districts and boroughs have Countryside Management Services (CMS) or environmental co-ordinators that deal with policy issues, management of specific sites and are involved in community participation and education in urban areas which can lead to increased awareness and 'ownership' of wildlife sites by local

communities. District and County councils also run Country Parks in some urban areas which provide a base for information and education about biodiversity.

4.3 Community groups, conservation volunteers and schools are involved in creating and managing sites for wildlife in many urban areas. This action is mostly co-ordinated through local authority CMS, EWT, BTCV, Learning through Landscapes and Thames Chase (the only community forest in Essex - which covers parts of Brentwood and Thurrock).

5. ACTION PLAN TARGETS AND OBJECTIVES

5.1 To ensure biodiversity issues contribute significantly to the development of sustainable green towns and cities.

5.2 To develop up-to-date and accessible information on urban ecological resources.

5.3 To maintain and enhance the value and integrity of key wildlife sites, wildlife features and strategic natural networks across urban areas.

5.4 To increase awareness and understanding of the value and management of the range of 'urban' habitats, especially those supporting key populations of important species.

5.5 To provide accessible natural open space for environmental education and the informal enjoyment of nature.

5.6 To stimulate local action to benefit wildlife, through LA21 and other community initiatives.

6. PROPOSED ACTION WITH LEAD AGENCIES

It is vital to know the existing and potential ecological resource to plan for the protection, management, and enhancement of urban wildlife.

6.1 Research and monitoring

6.1.1 Survey urban areas to identify WS / RIGGS, green space and green corridors. Target: By 2001 and then every 5-10 years. Costs: As part of systematic survey of Essex. (ACTION: LAs, EWT, BRC, LNHS, EFC, universities).

6.1.2 Identify, survey for and produce local BAPs on important but under-studied habitats and species in urban areas. Post-industrial sites along the Thames corridor are a priority. Target: Develop list of priority habitats/species and timetable by 1999. Complete BAPs by 2001. Costs: May involve specialist consultants. (ACTION: BRC, EN, NHS, EFC, universities.

6.1.3 Undertake public surveys of 'urban' species and habitats involving schools, community groups and the general public. Target: One public survey per year. (ACTION: BRC, LAs, EWT (including Wildlife Watch).

6.1.4 Assess levels of natural and accessible open space, identify deficiency areas (as defined using EN criteria) and monitor changes in levels. Target: By 2001. Monitor levels of accessible natural open space every 5 years. (ACTION: LAs, BRC).

6.2 Policy and legislation

6.1.1 Protection, mitigation and management policies are required in development plans to counter development pressures in urban areas and sustain a viable natural resource. **All reviewed Local Plans or Supplementary Planning Guidance (e.g. Nature Conservation Strategy) to include the following in forth coming local plan reviews:**

i. The identification and protection of statutory wildlife sites and WS, RIGGS, natural networks and wildlife features within urban areas.
ii. Retention, management and enhancement of habitats related to new developments, through planning agreements.
iii. Mitigation / replacement of lost habitats to maintain net ecological resource (identifying truly re-creatable habitats versus irreplaceable habitats).
iv. Positive management of land within LA ownership.
v. Provision of Local Nature Reserves and accessible natural open space to recommended levels (EN, 1996).
vi. Statement of intent to support EBAP targets and plans.

(ACTION: LA s, DETR local office).

6.2.2 Develop and implement a long term strategy for landuse and land management in all major urban areas - to maintain and improve natural networks of wildlife sites and green space. Target: As supplementary planning guidance for next Local Plan Review or by 2004. Review every 10 years. (ACTION: LAs, EWT, BRC).

6.2.3 Lobby Town and Country Planning Institute to include biodiversity issues / ecological design / wildlife law into planners' syllabus. Target: Ongoing. (ACTION: EN, LA Planning departments

6.3 Site safeguard and management

Management for wildlife in formal parks, along river corridors and brooks, road verges and buildings can help enhance the natural resource of urban areas for wildlife and people. As well as publicly owned land there is also a large privately owned wildlife resource, much of which is in gardens and the grounds of business and industry. Through information and advice, this resource can be maintained and improved for wildlife.

6.3.1 Record centres to regularly update planning departments on 'alert sites' which hold key habitats and species (priority BAP species and habitats, protected species etc.) in urban areas. Target: Annual information to planning departments. (ACTION: BRC, LAs).

6.3.2 Identify and declare urban Local Nature Reserves (biological and geological) to above recommended minimum levels of 1ha per 1000 population. Target: By 2005. (ACTION: LAs, EN).

6.3.3 Increase levels of accessible natural greenspace and educational sites in areas of identified deficiency, to recommended minimum standards (EN 1996). Target: By 2008. (ACTION: LAs).

6.3.4 Identify and implement habitat restoration projects to improve degraded habitats along natural networks of wildlife sites and green space. For example wetland / river restoration. Target: One a year across the county. (ACTION: LAs, EA, EN, EWT, landfill trusts).

6.3.5 Develop management plans for all local authority owned urban WS. Target: By 2003. Monitor management every year. (ACTION: LAs, EWT, NCGroups).

6.3.6 Target owners of all urban WS for advise on land management for biodiversity. Target: By 2003. (ACTION: FRCA, LAs, CMS, FWAG).

6.3.7 Promote the management of school grounds for wildlife and learning about biodiversity. Target: 5 school ground development schemes or school biodiversity projects per year. (ACTION: ECC, LA, LTL, EWT).

6.4 Advisory

6.4.1 Produce guidance on best practice ecological design for planners and developers, including species protection, habitat / species requirements, biodiversity, surface water treatment, lighting etc. Target: By 2000. (ACTION: LAs, EN, EWT, EA, ECC).

6.4.2 Produce and adopt guidelines on best practice management of key urban habitats, and sustainable use of products. Target: By 2001. (ACTION: NCGroups, LAs).

6.4.3 Hold a county / regional conference for urban land managers and conservation organisations about biodiversity and best practice on site management and public participation. Target: Every 2 years. (ACTION: EN, EWT, ECC, LAs).

6.5 Communication and publicity

Successful wildlife conservation in urban areas depends on the interest and commitment of local authorities, schools, colleges and nature conservation groups. Most crucially, the long term success of any wildlife programme will hang on the support of the local people who use and value their local environment. Developing opportunities for people to see, enjoy and learn about wildlife will help increase awareness and understanding of biodiversity and land management issues in urban areas.

6.5.1 Set up demonstration projects in accessible areas, showing and interpreting land management (coppice, hedge laying, heathland / grassland restoration and hay making etc.). For example in town centre formal parks and LNRs. Target: 1 in every town by 2000. (ACTION: LAs, CMS).

6.5.2 Seek opportunities for increased promotion and participation in urban wildlife, through interpretation of sites (especially LNRs and WS), events, publicity, guided walks etc. Target: 2 interpretation schemes within each urban area by 2003. (ACTION: LAs, CMPs, Country Parks, Thames Chase).

6.5.3 Develop local groups for all LNRs and LA owned CWS to promote better communication between users and managers, especially regarding land management. Target: All urban LNRs to have an active group by 2 years after declaration. (ACTION: LAs, CMS).

6.5.4 Develop a network of voluntary wildlife wardens, within urban areas, to increase communication between the public and site managers. Provide 'training' and liaison with appropriate local authority conservation staff. Target: One scheme per major urban area by 2005. (ACTION: LAs, BTCV (Natural Pioneers), Tree wardens).

6.5.5 Promote biodiversity issues within all existing LA21 groups, to offer opportunities for local people to develop urban wildlife projects and integrate biodiversity into other community initiated plans. Target: By 2001. (ACTION: LA21 officers).

6.5.6 Local authorities to establish wildlife forums (urban or district wide) to develop local wildlife priorities and feedback on action for biodiversity. Target: By 1999 at least 1 per local authority district. (ACTION: LA and e.g. NCOs, BTCV, local wardens, colleges).

7. REFERENCES

English Nature 1996: **A Space for Nature**. ISBN 1 85716 246 3, free of charge.

English Nature Research Report No 256 1997: **A framework for the future: green networks with multiple uses in and around towns and cities**, 39 pp, free of charge.