FELSTED NATURE AREA

MANAGEMENT PLAN

January 2024

Prepared by Essex Ecology

Abbotts Hall Farm, Great Wigborough, Colchester, Essex, CO5 7RZ
01621 862986, eecos@essexwt.org.uk
www.eecos.co.uk

Company Registered No. 2853947
VAT Registered No. 945 7459 77

Professional ecological services applying local knowledge and experience

ESSEX ECOLOGY Ltd.

Title of Report	Felsted Nature Area: Management Plan
Client	Felsted Parish Council URC Hall Stebbing Road Felsted Essex CM6 3JD
Client Representative	Heather Read, Clerk to Felsted Parish Council
Author	Lois Stevens ACIEEM, Ecologist
Approved By	Pat Hatch, MCIEEM, Principal Ecologist
Report Status	Consultation Draft
Date of Issue	24th January 2024

The information, data, advice and opinions which have been prepared and provided are true, and have been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional *bona fide* opinions.

Contents

1. INTRODUCTION

1.1 General Introduction

This Management Plan has been produced by Essex Ecology Ltd., the ecological consultancy of Essex Wildlife Trust, for Felsted Parish Council. The plan provides advice on how Felsted Nature Area can be managed in order to enhance its value for wildlife and to manage public access of the site. Recommendations for habitat creation and enhancement measures are provided. The plan was informed by site visits carried out on 17th June, 14th July and 16th December 2023.

1.2 Location and Description of Site

Felsted Nature Area lies to the west of Felsted village and the limit of the site forms the boundary between Felsted and Flitch Green Parishes.

The nature reserve is bounded on the north west by a section of Stebbing Brook, which joins the River Chelmer and forms the south west boundary of the site. To the north of the site is a water treatment plant. The south eastern part of the site comprises Felsted Fen, a Local Wildlife Site (LoWS) (code Ufd276), which is important riparian habitat.

The Ordnance Survey grid reference for the centre of the site is TL668203. The site can be accessed from an entrance off Station Road (TL669205) and from Flitch Green by crossing over the brook (TL666204). Access can also be gained via the Public Right of Way (PRoW) that goes through the site, from alongside the water treatment plant to the southernmost point of the site, beside the River Chelmer. The site boundary, PRoW and Felsted Fen LoWS can be seen on Map 1. The site covers an area of approximately 13.7 hectares (33.8 acres). It has a wide range of habitats, including grassland, wetland (fen), rivers, pond, woodland, scrub and hedgerows. It has good connectivity to the wider landscape through the river corridors. The PRoW has a wet ditch and is lined by trees, forming an established corridor through the landscape.

The grassland areas have been seeded with wildflower meadow mixes and planted with native stands of trees and scrub. Willow and Alder have been planted nearer to the river.

The western and northern boundaries of the nature area are formed by the River Chelmer and Stebbing Brook. Along the River Chelmer to the west there is woodland and within the fen there is an area of Cricket Bat Willow plantation.

The nature area is open for the public to enjoy.

1.3 Site History

Part of the nature area was created and remodelled in connection with a planning application for Flitch Green. It was designed with the objective of being a parkland area which is easily accessible to the residents of Flitch Green and Felsted. Existing corridors have been retained, including the ditch and tree line through the centre which also forms the Public Right of Way through the site. The river corridors and Felsted Fen LoWS are established natural habitats.

1.4 Management Rationale

Management is arranged by Felsted Parish Council and is undertaken by contractors as well as by their working group.

The Parish Council aims to manage the nature area for the enhancement and benefit of wildlife and for people to enjoy. This includes allowing low level pedestrian access to the site, and to accommodate visitors' enjoyment without harming the site's ecological value.

MAIN AIMS:

- To improve the wildlife value of the grasslands, wetlands and woodlands through management.
- To maintain and where possible enhance the populations of notable plant and animal species that are resident on the reserve.
- To control invasive non-native plants and other invasive plants.

- Monitor and record the flora and fauna found on the site.
- Monitor the effects of management on the wildlife of the site.
- To encourage the safe public use of the site

Habitat management is outlined in this plan, with suggestions on how to monitor for some species groups. It is hoped that it will be rewarding to see which species are benefiting from the management.

Map 2 shows the main habitat areas of the Nature Area.

2. RECOMMENDATIONS

2.1 Grassland, Scrub and Tree Areas

2.1.1 Habitat description and management objectives

The grassland areas were originally planted with a neutral meadow mix. The composition consisted of the grasses: Common Bent, Slender Red Fescue, Meadow Foxtail, Sweet Vernal-grass, Crested Dogstail and Smaller Cats Tail. The wildflowers consisted of Yarrow, Common Knapweed, Lady's Bedstraw, Oxeye Daisy, Bird's-foot Trefoil, Selfheal, Clover, Tufted Vetch and others. The grassland has established well, although there are patches of Creeping Thistle and, along the grassland banks, swathes of Hemlock. Goat's-rue is present in small patches.

Within the grassland there are blocks of native trees and shrubs, including Pedunculate Oak, Silver Birch, Field Maple, Crab Apple, Small-leaved Lime, Beech, Alder, Hawthorn, Blackthorn and Hazel. Shrubs include Guelder-rose, Dog-rose, Dogwood and Holly.

As the contour of the site changes and the land goes down to the river, the planting was changed to White, Goat and Grey Willows as well as Alder.

Areas of tall rank grassland will be maintained to continue to provide habitat for invertebrates, small mammals, birds and reptiles. The balance of grassland and scrub which forms a mosaic throughout much of the nature area will be retained by periodic coppicing and ad hoc scrub removal. This will maintain edge habitats across the site and provide numerous seed and berry sources for wildlife.

2.1.2 Management prescriptions

Grassland

The species rich neutral grassland will be managed as a hay meadow. Annual cutting of the meadow in late summer, with the removal of arisings will maintain the condition of the grassland and encourage species diversity.

The grassland should be cut mid-July or August (at a height of 7.5-10cm) and the arisings removed. This should be undertaken as a mosaic, never all the grassland all at once. The arisings could be composted on site or used to create separate habitat piles. This could be located around the site, in secluded locations. The areas left uncut can be shaped into 'islands'; these sections of left grass can be used by overwintering invertebrates. Approximately a third of the grassland should be left uncut each year.

If the grassland appears to be getting too nutrient rich (rank) a spring cut can also be undertaken in February-March to take more nutrients off and delay flowering. This might be needed in certain patches where some species may become dominant (for example, Tufted Vetch, Goat's-rue).

Creeping Thistle

Creeping Thistle is listed as an 'injurious plant' in the Weeds Act 1959. Under the Act, responsibility for control of this species rests with the occupier of the land on which the plant is growing. Creeping Thistle on site is to be expected and over time, as the grassland further establishes, it should not be problematic. If the patches of Creeping Thistle get too large, they should be 'topped' (cut) before the flower bud turns purple, so removing the chance of the seed ripening (May/June). This cutting at height should protect the other plants within the sward.

Hemlock

Hemlock dominates some parts of the nature area to the exclusion of all other flora. Hemlock can be invasive and locally dominant and is perceived by some as a problem species, although it provides a nectar source for various invertebrates in its own right.

Hemlock is best removed before flowering (June/July) to prevent the spread of the seeds. If left to flower, the flower heads should be pulled off before they have gone to seed to stop them from dispersing seed. This could be achieved by cutting earlier on to remove the flower heads (April/May), and repeat cutting

throughout the year to reduce the strength of the plant held in its tap root (3-6 times a year). Seeds can be viable for 3-5 years so reducing the area covered by Hemlock will require persistence. Care should be taken as the plant is poisonous; gloves and full-length sleeves should be worn when handling the plant material.

Problem perennial weeds (e.g. docks, with two species, Broad-leaved Dock and Curled Dock, also listed on the 1959 Weeds Act) in the grassland can be controlled by mechanical means (digging). If this becomes impractical carefully targeted applications of a suitable herbicide, which should take the form of either spot spraying or by weed wiping with a wick applicator could be used.

Pathways

At present the permissive pathways are being cut within the grassland to indicate and control access. Occasional changes to the route of these paths might be necessary to prevent damage (soil erosion) and nutrient enrichment.

Trees

A decision will need to be made whether to replace failed tree planting or not. Some trees are struggling (especially in the hot summer months) and, although watered regularly, could benefit from irrigation bags. These will release water continually and should help establishment. Consider also mulching trees at the base. Carry out regular watering throughout the growing season to promote healthy growth. If failed planting is to be replaced, first consider if the failure was down to soil compaction and, if so, change the location.

The guards on the trees and shrubs should be weeded seasonally to reduce the competition from grasses and other plants.

Once the trees and shrubs are established and resistant to wind rock (sturdy) the guards can be removed before they start to restrict growth.

Scrub Areas

The Blackthorn planting will make a thicket over time because it grows from suckers. This should be kept in check. Prevent the scrub areas from spreading into adjacent grassland areas by mowing and hand cutting if needed.

Use new areas of scrub to control and regulate visitor access especially to areas that are sensitive to disturbance (the river).

Once good establishment of the scrub planting areas has been achieved, coppicing can be started of small groups of plants on an 8 - 10 year cycle. This should include plants around the edge of the scrub areas, so there is a gradient in height from the grassland to the trees. Not more than 30% of scrub areas should be cut in any one year. Coppicing should be undertaken in the winter months when the trees are dormant.

2.2 New Hedges

2.2.1 Habitat description and management objectives

A new hedge has been planted at the entrance to site, this shapes the access point and indicates that the site is welcoming and well-cared for. Hedge planting has also been established along the edge of the water treatment plant boundary to screen it. These hedges, although planted for practical reasons, form wildlife corridors across the site.

2.2.1 Management prescriptions

Gap up failed planting with similar native species. Control weed growth through the establishment period; remove the guards, weed around the hedge plants and then replace plant protection. Protect from rabbit damage with guards until well established. Trim the young hedge overwinter to encourage a bushy habit. When the plants have become established, remove the guards.

Once established, trim the hedges on a 3-year rotation, between January and mid-February, which will always leave areas to fruit and flower thereby providing a foraging source. Avoid trimming all hedges in the same year, cutting no more

than a third of the hedgerow in any year. The hedgerow should be allowed to grow up to and maintained at 1.5-2.5m tall. It is probable that the hedge at the front will be maintained at a height that can be viewed over and the hedge by the water treatment plant can be taller.

2.3 PRoW, Pre-existing Wet Ditch and Hedgeline

2.3.1 Habitat description and management objectives

Through the middle of the site is the existing PRoW, with a wet ditch, large mature trees and old gappy hedge line. This forms an important long-standing wildlife corridor through the landscape. A number of mature oak trees here have cracks and holes that could have the potential to be used by bats (some of the trees also have bat boxes on them). Other tree species along the ditch include Elder, Hazel and Field Maple.

This important corridor should be maintained for commuting animals, especially bats. It should be kept accessible as the legal right of access.

2.3.1 Management prescriptions

Deadwood, especially standing deadwood, is a very important habitat for many species, particularly invertebrates. However, it can pose a health and safety risk when overhanging pathways.

Regular health and safety checks should be carried out, including clearing hanging deadwood that is over paths or standing deadwood that could reach people on the path if it was to fail. All other deadwood that poses no risk should be left as an important habitat feature. Note that features that could be used by bats should not be cut without being surveyed first. Removed wood should be retained elsewhere as important deadwood habitat.

The PRoW must be kept free from obstruction at all times and the pathway cut/cleared.

The bat boxes could be checked for bats by a licenced bat surveyor.

Some of the trees along the PRoW are coppice stools and can be periodically re-coppiced (on an 8-10 year rotation) over the winter months. Additional planting could be used along here to gap up and make the corridor continuous.

2.4 River Corridors and Pond

2.4.1 Habitat description and management objectives

Stebbing Brook is a smaller river channel forming part of the boundary on the north west of the site. The bottom of the channel is pebbly with limited vegetation. There is Himalayan Balsam (a Schedule 9 non-native invasive plant) in places growing along the bank amongst the tall ruderal species. The River Chelmer, which is much larger, forms the south west boundary of the site. There is lots of vegetation in the channel and the profile of the channel is steep. There is a pond (labelled on habitat map) within the riparian habitat of the river. The pond has lots of aquatic plants including emergents including Common Spike-rush. This pond gets much larger in winter, when the weather is wetter and the river floods, extending within the woodland. The woodland along the Chelmer has some pollarded Willows and there are Willow, Ash and Alder elsewhere along the river corridors. As previously stated, these habitats are natural and the river corridors are important wetland habitats.

These habitats are home to species that are sensitive to disturbance, and they should be protected from public access (also due to the risks associated with water). The river corridor should be protected from the spread of invasive species (Himalayan Balsam).

2.4.2 Management prescriptions

The rivers and their floodplains should be left to function as they have (as an area that can store water when the river is in high flow). Public access should be controlled through the use of screening by vegetation, and this should extend to ensuring dogs do not enter the water bodies. There is one access point by the bridge crossing over to Flitch Green, but this can be left, as removing it will mean people will seek other access.

Himalayan Balsam is listed in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) with respect to England and Wales, making it an offence to 'plant or otherwise cause to grow in the wild'. If possible, the Himalayan Balsam should be hand-pulled and removed before flowering (May-July, definitely before seed production). It is weakly rooted and easy to remove, although access to the riverbank may be problematic. It is likely that this will only be possible in Stebbing Brook, where the water levels are lower. The River Chelmer is much deeper and hard to access with the swathes of emergent vegetation in the channel, it was not seen along it but this should be monitored. Care should be taken to ensure the plant material is removed from site without further spread. Any rubbish in the river channel should also be removed.

The area of the pond within summer is oval and much smaller than in winter. An area within the footprint of the winter pond but outside of the existing summer area can be dug to create a deeper pond area. This can be to the north west of the existing oval pond, near to the Willow trees, without going into their root zones. This can be dug by hand and the arisings made into a bund nearby. This will make the summer pond area into a figure of eight shape. It is suggested that this is created beside the summer pond area due to the high aquatic interest in that area.

Pond management should be undertaken only when needed and by hand, only impacting a small area at a time (less than 1/5 of the area). An example would be invasive stands of plants (Bulrush) might be dug out and the material should be placed in a bund nearby.

2.5 Felsted Fen

2.5.1 Habitat description and management objectives

Felsted Fen is a designated Local Wildlife Site. It is an important riparian habitat which has been lost in other parts of the river corridor. The fen has important flora, species such as Pond-sedge, Purple-loosestrife, Soft-rush and Giant Horsetail.

The fen has large areas of grass and Wild Teasel, which indicate the vegetation is changing to those that prefer drier soils. Part of the fen has been planted with Cricket Bat Willows. There are some patches of trees and scrub. See Appendix 2 for the site citation.

The fen should be protected from drying out, by removing trees that are encroaching. Promoting structural diversity should mean that the diversity of the vegetation is maintained within wetter areas.

2.5.2 Management prescriptions

Cricket Bat Willow plantations are usually managed by a timber company which has rights of access for harvesting, when the time comes. Consideration needs to be given to the effect of the trees on the hydrology of the site and the effect on the vegetation when access is made to harvest the timber. Visiting the site only a few times, it was not possible to gauge the long-term trend in the hydrology, although the site was under water in December 2023 after a series of storms. Fens are at risk from drying out and water is crucial to the survival of the specialist vegetation found there. Maintaining water levels and preventing the site from drying out is crucial as trees (including Willows) take up water for transpiration. Scrub and trees should be prevented from encroaching onto the site as this will reduce water levels and in turn lead to succession. Remove tree and scrub saplings, and encroaching woody plants, leave just the important patches of established scrub.

Patches of the grassland, especially patches with Willowherb and Bulrush, can be cut and removed during the summer. This can be done by hand strimmer and by raking. This will weaken the unwanted plants and remove nutrients.

Maintain and encourage structural diversity by hand-digging small areas to create little patches of shallow water. This will encourage shallow marginal areas for low growing herbs to diversity the habitat. The hand dug material can be placed in small bunds. This should be viewed as turf cutting and be 15-20cm deep. This can most practically be undertaken in the late spring or autumn.

2.6 Protected and Rare Species

There is considerable information on the wildlife of the site from the surveys undertaken during its planning history.

Populations of Common Lizard and Grass Snake were identified during a reptile survey conducted by Engain in 2009. Common Toad, Frog and Smooth Newt were recorded in the pond by the river and in the wet ditch on the PRoW.

It should be assumed that Otters use the River Chelmer and Stebbing Brook. Two Otter spraints were identified along the banks of the River Chelmer during protected species surveys, although no Otter holts or laying-up sites were found.

As more species are recorded on site, consideration can be given to tailoring management to their benefit, where appropriate.

2.7 Site Infrastructure, Paths and Bridges

The nature area has a path surfaced with aggregate from the entrance on Station Road to the bridge into Flitch Green. This path is becoming overgrown with vegetation and needs to be weeded. In the future it will need to be checked for resurfacing needs. Any depressions should be made good with additional material to fill all hollows to stop puddling.

The aforementioned bridge and the footbridge along the PRoW need to be checked regularly for wood rot and algae, which make the surfaces slippery. Their maintenance may include treating the wood with preservatives and, in time, replacement.

At present there are large blocks of wood which can be used to sit on. Benches could be placed around the site for the public to use; these should be situated in clear view, so as not to attract anti-social behaviour, and above the flood line. They could be placed where there are interesting views, e.g. at the top of the slope overlooking the pond and river valley habitats. This would allow people to sit and take time to enjoy the site or have a break if they have mobility issues.

2.8 Managing the Public

People should be encouraged to use the site. Their enjoyment of the wildlife will enhance wellbeing and foster a sense of connection with, and care for the site. In areas where the site is being managed for nature conservation value and public access, there can be conflict between these two aims which can be reconciled through careful management.

Visitors can be managed through zoning, deciding which areas of the site people are allowed to use. Zoning can be used to distribute site users into robust areas and away from sensitive habitats. Their behaviour can be influenced by effective interpretation (see next section). The public should be encouraged to use the areas that are more resilient to recreational pressure.

It would be beneficial to maintain a quiet undisturbed area along the river corridor. River species (e.g. Otters) are sensitive to disturbance. There is one Public Right of Way through the site, which existed before the nature area was established. This is a legal right of way and cannot be restricted. The wet ditch and trees along the PRoW form one of the oldest and most established habitats onsite, this too should be considered as an area of greater wildlife value. This is mainly because it is an already established as a wildlife corridor and has very old Oak trees. The pond should be screened so people can see it but not enter it, especially dogs which can stir up the sediment which covers aquatic plants and stops them from photosynthesising. Felsted Fen has important wildlife value and is designated for this, this should not be accessed. Some of these areas also have health and safety concerns given the presence of water. See Map 3 for the zones suggested for public access and restricted access.

Through visitor management we can exert a degree of control over where people go, what they do, and we can ensure that the level and type of activity are appropriate for the habitats on the site.

The most effective way of influencing visitor behaviour is through education, and this can be achieved through interpretation that tells visitors why the site is important for wildlife.

Orientation boards are usually placed on the main entrance points to a site to introduce the area to the visitor. They usually inform the visitor what activities are and are not welcome, and generally include a map showing paths and other features. If a circular route is suggested, with a maintained path leading visitors around the site, most people will use it. There can be different trails to explore. The lengths of paths can be stated so people with access needs can gauge whether they are suitable for them. Orientation boards usually include contact details so that, if there is a problem with the site (such a health and safety issue), the visitor can inform the landowner.

Example orientation board – Hanningfield Reservoir

2.9 Interpretation

Interpretation boards could be placed around the site to increase the public's understanding of the wildlife.

Interpretation is a way of informally engaging with the visitor to give them a message about the site they are visiting. In a nature area this would usually be about why the site is valuable for wildlife, but it could include the history of the area too, in this case as a brick works. Usually, the title of the board has the main message within it, so if the visitor only reads one line, they get the message. Then there are 2-3 sub-themes, consisting of paragraphs supporting the main theme. Then there are images, with facts underneath (connected to the text/theme). The fourth level is usually what the visitor can do themselves to help or engage further. This can be to volunteer or take action in their own garden to support wildlife.

Example interpretation board – Bedgebury Pinetum

2.10 Byelaws

Byelaws may already be in place for the site, but it is common for public accessed space to have byelaws stating what is and is not permissible on site. This can include use of fire (barbeques), indecent/obscene language, cover visitor conflict by not allowing a person's enjoyment to be affected by another visitor, state whether ball games are permitted etc. They serve to regulate access and activities on the site.

2.11 Site Surveys

A ‘friends’ group could be formed to undertake species surveys on the site and send biological records to local records offices. The species present could then inform the management. Surveys are a great way to learn more about the site as well as for local people to feel invested in its management and longevity. Suggested survey methodologies are provided under section 2.12 Biological Recording.

2.12 Biological Monitoring and Recording

Ecological surveys can be used to obtain baseline data on the species using the site, to be used to determine if their populations are increasing and to inform the management of the site. Suggested methodologies for amphibians, bats, birds, butterflies, hedgehogs and reptiles are given below.

2.12.1 Amphibian Surveys

The aim of the survey is to record the species of amphibians present on the reserve and record breeding activity. A simple method would be based on the National Amphibian and Reptile Monitoring Programme’s survey method.

Toads and Frogs

Both ponds could be surveyed in one evening as they are relatively small. All of the parts of the waterbody edge that can be reached can be surveyed. For frog and toad surveys, four visits are needed between 1st January and 31st March. Try to time the first survey to coincide with improving weather conditions in late winter (i.e. temperature is consistently well above freezing for several days). The majority of visits should take place in February–March to maximise the chance of detecting animals, spawn and the peak number of animals. On each visit, record (a) the survey type, (b) who is doing the survey, (c) site name, waterbody name and location and (d) start date and time.

To survey, walk along the waterbody edge at a slow and steady pace, searching for amphibians using a torch. Record the number of frog spawn clumps, toad spawn strings, and adult frogs and toads seen. Also record details of any other

species observed (e.g. newts) as well as any non-native species. Leave at least five days between one visit and the next.

Record the time spent surveying and the approximate length (or proportion) of waterbody surveyed. Maintain a tally of all the animals/ spawn/ other life-stages you see. Identification sheets are available on the Amphibian and Reptile Conservation (ARC) website, where records can also be uploaded.

Newts

Newt surveys are the same method but the survey window is later, requiring four visits between 1st April and 30th May. See https://amphibian-survey.arc-trust.org/pages/protocol

2.12.2 Bat Surveys

Bat Conservation Trust (BCT) run a number of national annual surveys as part of their National Bat Monitoring Programme. See https://www.bats.org.uk/our-work/national-bat-monitoring-programme

The Sunset/Sunrise Survey is designed to engage new volunteers in bat monitoring through collecting basic information on the presence of bats and where they are roosting. Participants do not need previous experience or special equipment, as the survey method involves using simple visual clues to record bats in flight and swarming at their roosts. Experienced bat surveyors have also taken part in this survey in order to track down where bats are roosting in their local area. The majority of participants record seeing bats in flight, and several new roosts are located each year through spotting bats swarming around structures before sunrise.

If the group knows how to identify bats using a bat detector they could take part in such surveys. This requires two evening surveys and establishing a transect to survey. The first survey should be between the 1st and 15th of July, and the second between the 16th and 30th of July. The survey begins 20 minutes after sunset and usually takes about 90 minutes. The survey route should have 12

stopping points. While walking between stopping points, count any noctule and serotine passes. Stop for two minutes at each stopping point and count any common and soprano pipistrelle passes. Submit your records through the BCT website.

2.12.3 Bird Transect.

The aim of recording is to establish presence of species, as well as evidence of breeding, and areas of particular interest on the reserve. A simple method (loosely based on the British Trust for Ornithology's (BTO) Common Bird Census (CBC) method) would be to walk a transect through the reserve which includes all of the habitat types. Each visit should start within one hour of dawn in order to best capture singing males and to reduce the influence of human disturbance. The transect survey should not be conducted in the rain, but it can be any temperature. If rain falls during the survey, it should be paused and resumed once the rain has passed. The surveyor should walk at a slow pace and pause briefly in each habitat section. The surveyor should record all bird species, if possible, how many and activity. Species can be identified by both sight and sound. Binoculars can be used, but only record birds within the reserve boundary. If possible, this should be undertaken monthly. Other noteworthy bird sightings should also be recorded from work parties and other site visits. Records could be submitted to the BTO via their BirdTrack project App. https://www.bto.org/our-science/projects/birdtrack

2.12.4 Butterflies.

The aim of the survey is to record species present (number and variety) and identify areas of particular interest on the reserve. Over time, this data will be able to show if the number of butterflies is increasing or decreasing. The data may also evidence the effects of the management undertaken. A simple method (loosely based on the Butterfly Monitoring Scheme method) would be to walk a transect through the reserve which includes all of the habitat types. This should be undertaken throughout the main period in which butterflies fly: April to September. Transect counts should ideally be made between 10:45 and 15:45 hours. Transect walks should only be carried out in warm and clear weather, with

no more than moderate winds and not when it is raining. The minimum criteria are either 13-17ºC with at least 60% sunshine, or, if there is no sunshine, the temperature must be 17ºC or above. Windspeed (Beaufort scale) should be no more than 5 unless the transect route is sheltered from the wind.

The transect should be walked at a slow, steady pace counting all butterflies seen within a fixed distance - 2.5m either side of the transect line and 5m ahead. Record butterfly numbers and % sunshine in each section as you go along.
Try to avoid double counting where possible, e.g. when an individual butterfly repeatedly flies in and out of your recording zone. However, if you lose sight of an individual, and later regain sight of the same species do not assume this is the same individual. Do not count butterflies behind you. If the weather conditions are suitable, you should record even if there are not likely to be any butterflies present (e.g. early/late in the season) – a negative result is still a result.

Try to identify and separate all species you encounter, including, where possible, 'difficult' species such as Small and Essex Skipper. You may want to net a sample (a small clear plastic pot can be very useful to temporarily confine the butterfly so it can be examined more easily – hold pot in the shade).

There is a set methodology for the Butterfly Monitoring Scheme which can be found here: https://ukbms.org/get-involved The scheme requires weekly recording of a set transect, under particular weather conditions which may not be possible for the group to achieve due to time commitments. If there is a member with time flexibility, the full methodology is in Appendix C.

2.12.5 Hedgehog Survey

Hedgehogs are active from March to October. The easiest way to survey for them is to look for field signs. Alternatively, surveys can be carried out by direct observation of hedgehogs using a torch at night (known as spotlighting). A third method involves the use of footprint tunnels.

Spotlighting involves looking for hedgehogs with a torch. This can be done by following a transect around the reserve, walking quietly while scanning the ground. The surveyors can pause regularly to listen out for sounds of movement. The encounter rate for this method is low, although it is simple to carry out.

Footprint tunnels can be made or bought. They are plastic triangular tunnels with an ink pad and some hedgehog food inside. Hedgehogs leave distinct footprints. Ten tunnels are normally put out (although you can use less) and monitored for five consecutive days to allow for animals to find and use them. Guidance on how to make them can be found on the PTES (People's Trust for Endangered Species) website. The tunnels can then be checked at any time of the day for footprints and re-baited.

An alternative method is to use a camera trap, which would take pictures of any animals that trigger them as they pass by.

2.12.6 Reptile Survey

The aim of the survey is to record the species of reptiles present on the reserve. A simple method would be based on the National Amphibian and Reptile Monitoring Programme's survey method, placing 'refugia' in the most promising areas of reptile habitat and checking them for reptiles once a month combined with a visual search of the vegetation. First, decide where it will be safe to lay some artificial refugia for later checking on your survey visits. The number can be quite small (5-10), and placed out of sight. Corrugated iron is most effective at attracting reptiles overall, but roofing felt is also effective and easier to cut and carry. Refuges are typically 50cm x 50cm. Good areas to place them would be long grass, tussocky grass, scrub, bramble. Make sure refugia are well hidden from public view and pressed close to the ground in deep vegetation. Ideally leave in place for a few weeks before starting the survey.

March-June is the best survey time as reptiles are more detectable in spring, but you can survey on suitable days throughout the summer and autumn. As well as

checking the refugia, you can search visually for reptiles in appropriate places, e.g. basking spots, banks around the ponds.

The best times to survey reptiles are in the morning between 8.30-11am and in the late afternoon/early evening between 4-6.30pm when they will most likely be basking in favoured locations. In peak summer, when temperatures are high, the period during which reptiles will bask is likely to be shorter than in the cooler spring months because they will take less time to warm up (survey earlier, 7-9am and later, 6-8pm).

Keep a good record of dates, times, survey conditions and reptiles encountered. More information on the National Amphibian and Reptile Monitoring Programme can be found here: https://reptile-survey.arc-trust.org/

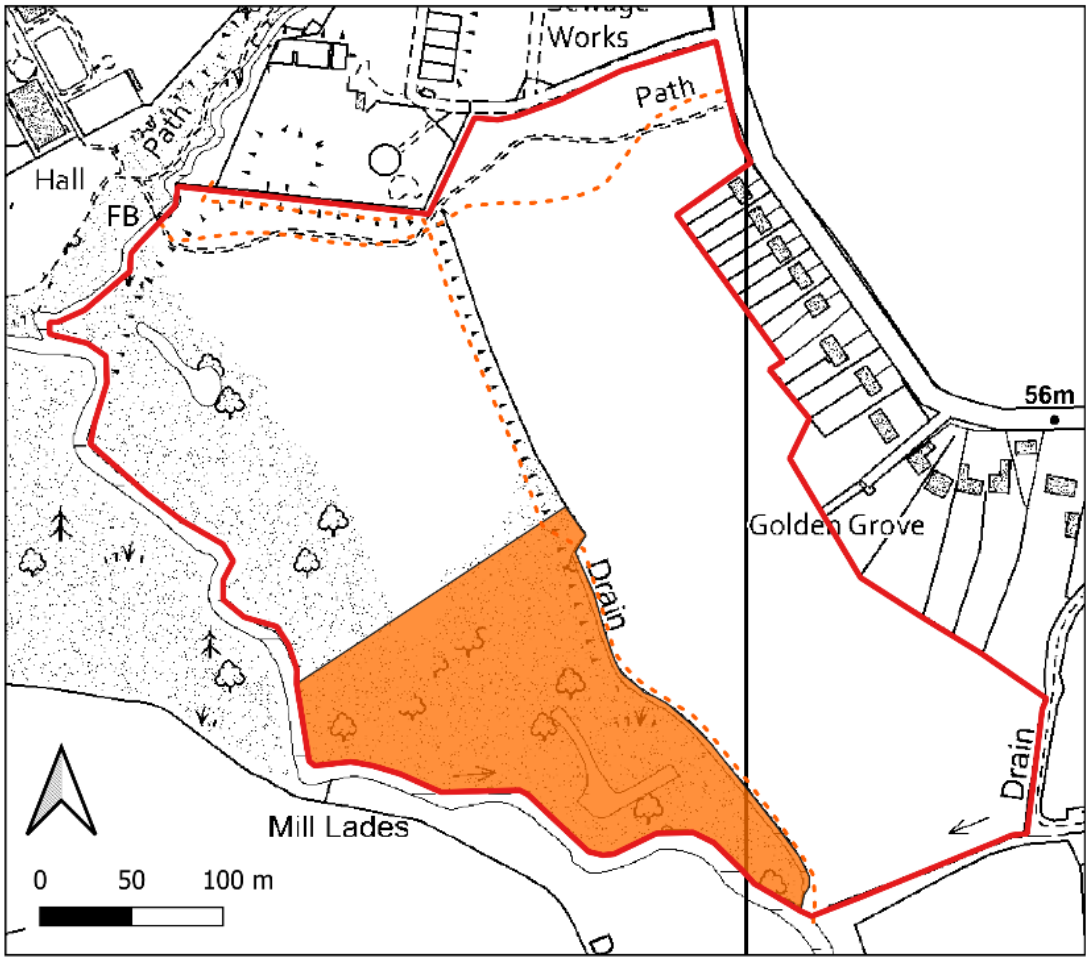
2.12.7 Biological Records Submission

Biological records should be shared with Essex Field Club https://www.essexfieldclub.org.uk/portal.php/p/Datasearch+Submit+Records

3. MANAGEMENT PRESCRIPTION TABLES BY MONTH AND YEAR

Management	January	February	March	April	May	June	July	August	September	October	November	December
Grassland Hay cut grassland and the arisings removed							✓	✓				
Spring cut rank areas if needed		✓	✓									
Creeping Thistle 'topped' (cut)					✓	✓						
Hemlock cut				✓	✓							
Trees water in growing season			✓	✓	✓	✓	✓	✓	✓	✓		
Trees - mulching and weeding		✓			✓			✓			✓	
Scrub Start coppicing when established 1/3 of trees	✓	✓										✓
Hedge Gap up												
Cut hedges on 3-year rotation	✓	✓										✓
Hedge weeding guards		✓			✓			✓			✓	
PRoW Keep informal PRoW clear		✓			✓			✓			✓	
Monitor trees and trim back overhanging vegetation/ deadwood over paths		✓			✓			✓			✓	

Management	January	February	March	April	May	June	July	August	September	October	November	December
River channel Remove Himalayan Balsam and litter					✓	✓						
New pond area, hand dig and create bund	✓	✓									✓	✓
Felsted Fen remove encroaching tree saplings and scrub	✓	✓									✓	✓
Cut patches of grass and tall herb within Felsted Fen and remove arisings							✓	✓				
Hand-dig small areas of the Fen for structural diversity			✓							✓		
Maintain site paths	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Maintain wood boardwalks/fencing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

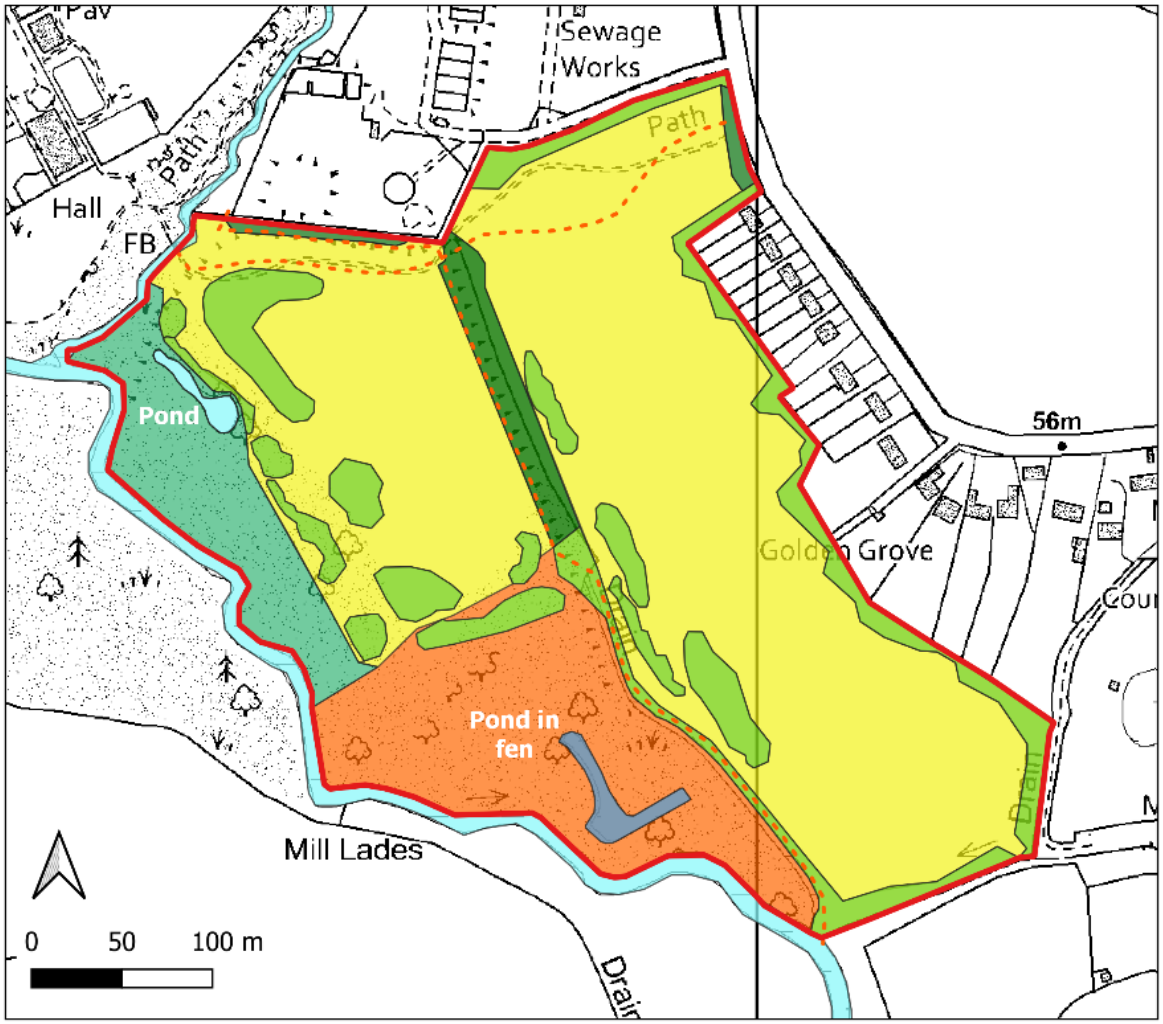


Map 1: Site Boundary, Public Rights of Way and Felsted Fen LoWS

- Site boundary
- Public rights of way
- Felsted Fen Local Wildlife Site

Essex Ecology

Essex Ecology Ltd. 01621 862966 eecos@essexwt.org.uk
Registered office: Abbotts Hall Farm, Great Wigborough, Colchester CO5 7RZ
Company registered No. 2853947 VAT Registered No. 945 7459 77



Map 2: Main Habitat Areas

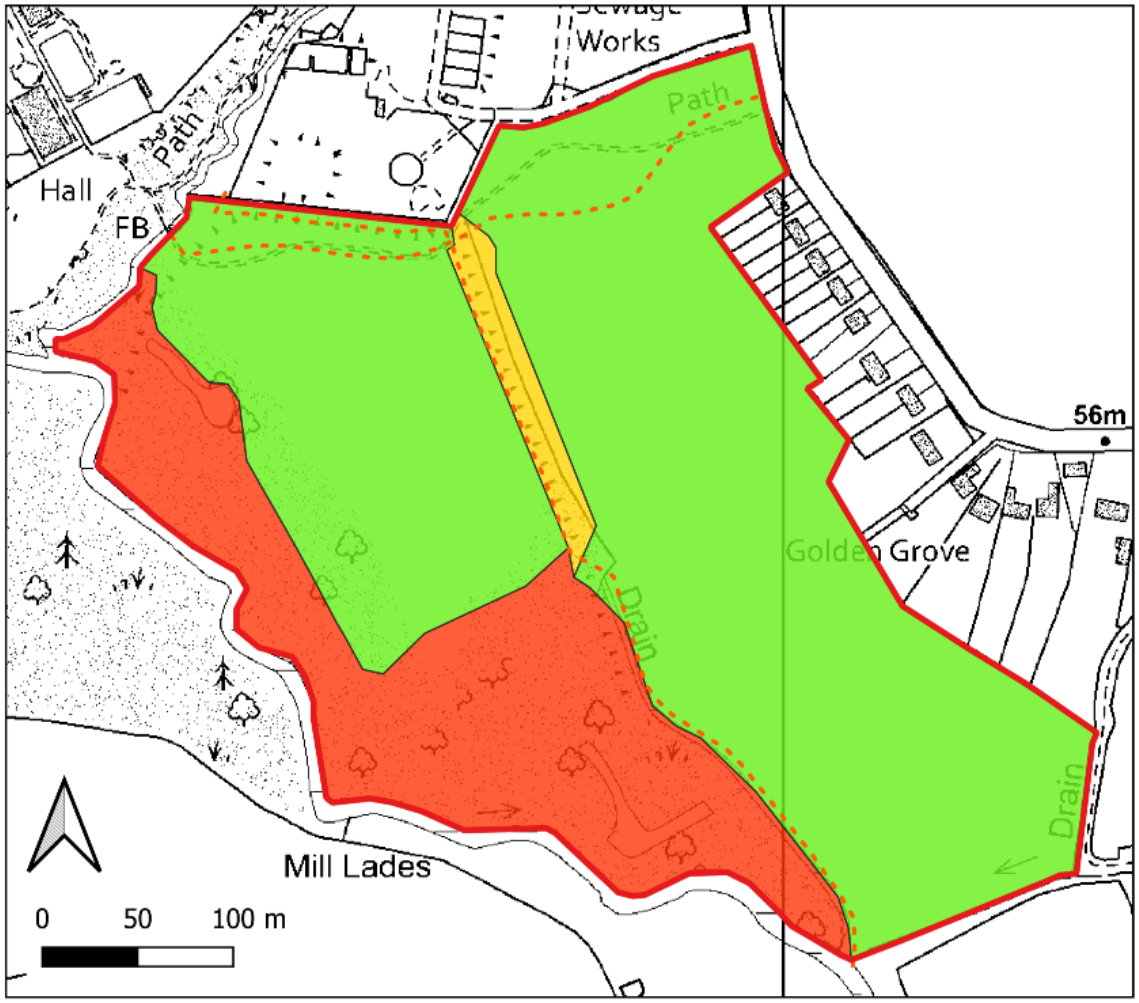
- Site boundary
- Public rights of way

Habitats

- Riparian
- Grassland
- Old hedgerow
- Waterbodies
- New hedgerows
- Trees and shrubs
- Pond in fen
- Felsted Fen Local Wildlife Site

Essex Ecology

Essex Ecology Ltd. 01621 862966 eecos@essexwt.org.uk
Registered office: Abbotts Hall Farm, Great Wigborough, Colchester CO5 7RZ
Company registered No. 2853947 VAT Registered No. 945 7459 77



Map 3: Suggested Public Access Zones

Site boundary

Public rights of way

Zoning

Restrict access

Promote access

Allow access

Essex Ecology

Essex Ecology Ltd. 01621 862966 eecos@essexwt.org.uk
Registered office: Abbotts Hall Farm, Great Wigborough, Colchester CO5 7RZ
Company registered No. 2853947 VAT Registered No. 945 7459 77

REFERENCES

Bradley Murphy Design Ltd. *Landscape Strategy Report.* December 2013

Engain Ltd. *Ecological Management Plan for Sports Pitches, Nature Reserve and Residential Development.* June 2014

Engain Ltd. *Protected Species Report.* April 2013

Novell Tullett. *CEMP Flitch Green Nature Reserve Management Plan.* January 2012

Novell Tullett. *Flitch Green Nature Reserve Management Plan.* January 2012

Appendix 1. Photographs

Grassland area

Creeping Thistle patch

Hemlock area

PRoW and site infrastructure

Mature Oak along PRoW showing bat roost features and bat boxes

Stebbing Brook

Himalayan Balsam

New tree planting

Permissive paths cut through the grassland

Pond near to River Chelmer in June

Pond near to River Chelmer in December

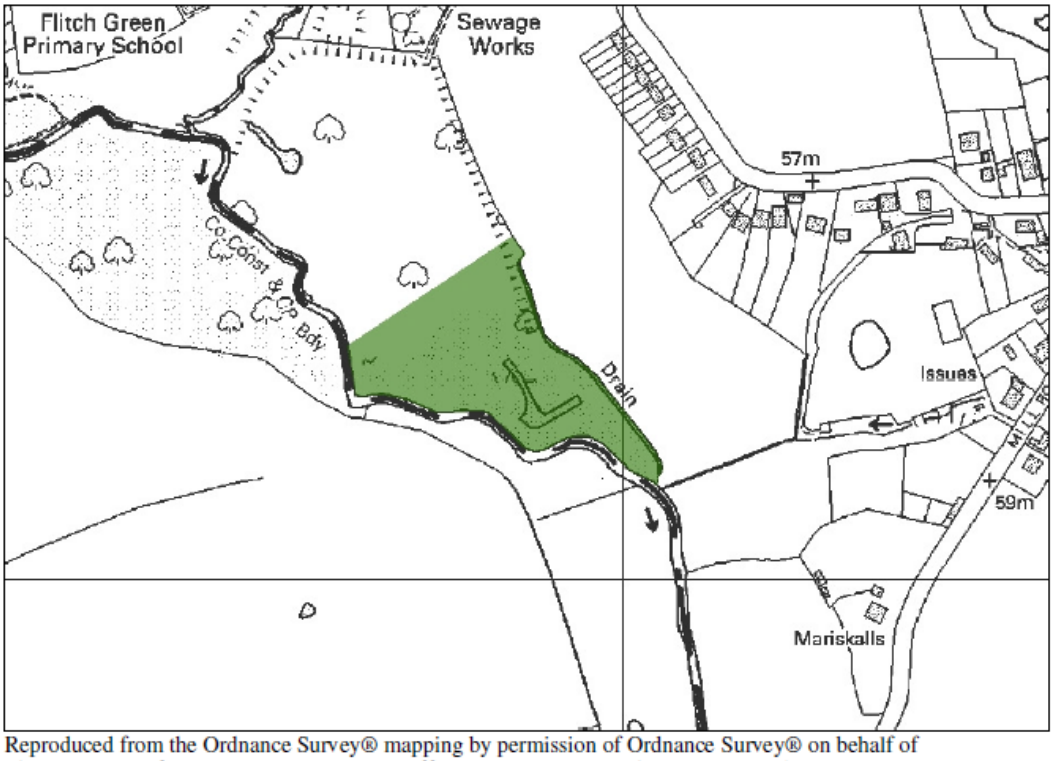
View down to Felsted Fen in June with Cricket Bat Willow plantation

Felsted Fen in December with Cricket Bat Willow plantation

Hoggin path

Appendix 2. Felsted Fen LoWS Citation

LOCAL WILDLIFE SITES.
UTTLESFORD DISTRICT
Ufd276. Felsted Fen



Ufd276. Felsted Fen (2.3 ha) TL 669202

Although planted with Willows (*Salix* sp.), this site retains a valuable fen-like vegetation of abundant Pond-sedge (*Carex* spp.), Purple Loosestrife (*Lythrum salicaria*), Angelica (*Angelica sylvestris*), Soft Rush (*Juncus effusus*), Comfrey (*Symphytum* sp.), Giant Horsetail (*Equisetum telmateia*) and Nettle (*Urtica dioica*). Situated in the flood plain of the River Chelmer, this vegetation type would formerly have been more widespread but has been largely lost due to drainage or other developments. It is likely that this site extended northwards before being used for tipping.

Date of selection/last revision: 1994

Appendix 3. Butterfly Transect

Butterfly transects are a way of monitoring the number and variety of butterflies present at a site from year to year.

Full transects require a commitment to carry out weekly recording, throughout the main period in which butterflies fly April to September.

The data also enables the evaluation of changes in butterfly populations on a single site, i.e. management. ESTABLISHING A TRANSECT

- Transects - 45-60 minutes to walk / 1-2km in length.
- The route should be a fair representation of the habitats.
- This transect is ‘fixed’, and should be easily re-locatable.
- Split the transect route into sections (5-15).
- Describe the habitat type of each section
- Draw the route on an OS map.

UKBMS WEEK NUMBERS:

Week	Days							Month
1	1	2	3	4	5	6	7	April
2	8	9	10	11	12	13	14	
3	15	16	17	18	19	20	21	
4	22	23	24	25	26	27	28	
5	29	30						
			1	2	3	4	5	May
6	6	7	8	9	10	11	12	
7	13	14	15	16	17	18	19	
8	20	21	22	23	24	25	26	
9	27	28	29	30	31			
						1	2	June
10	3	4	5	6	7	8	9	
11	10	11	12	13	14	15	16	
12	17	18	19	20	21	22	23	
13	24	25	26	27	28	29	30	

Week	Days							Month
14	1	2	3	4	5	6	7	July
15	8	9	10	11	12	13	14	
16	15	16	17	18	19	20	21	
17	22	23	24	25	26	27	28	
18	29	30	31					
				1	2	3	4	August
19	5	6	7	8	9	10	11	
20	12	13	14	15	16	17	18	
21	19	20	21	22	23	24	25	
22	26	27	28	29	30	31		
							1	Sept
23	2	3	4	5	6	7	8	
24	9	10	11	12	13	14	15	
25	16	17	18	19	20	21	22	
26	23	24	25	26	27	28	29	

There are 26 recording weeks.

- Transect counts should ideally be made between 10:45 and 15:45 hours. Between 10:00 and 17:00 hours is usually allowable, though butterfly activity may drop off rapidly during the late afternoon so later times should be avoided.

Weather conditions

THE BEAUFORT SCALE:

Code	MPH	Description	Specifications on land
0	0-1	Calm	Smoke rises vertically
1	1-3	Light air	Slight smoke drift
2	4-7	Light Breeze	Wind felt on face & leaves rustle
3	8-12	Gentle Breeze	Leaves & twigs in constant motion
4	13-18	Moderate Breeze	Raises dust and small branches move
5	19-24	Fresh Breeze	Small trees in leaf begin to sway
6	25-31	Strong Breeze	Large branches move & trees sway

- Transect walks should be carried out in warm and bright weather, with no more than moderate winds and not when it is raining.
- The minimum criteria are either 13-17ºC with at least 60% sunshine, or if there is no sunshine the temperature must be 17ºC or above.
- Windspeed (Beaufort scale) should be no more than 5.
- If the weather conditions are suitable, you should record even if no butterflies are present – a negative result is still a result.
- Time of week: Should aim to walk the transect on the first opportunity that the weather is suitable.

HOW TO RECORD

- Walk the transect at a slow, steady pace counting all butterflies seen within a fixed distance - 2.5m either side of the transect line and 5m ahead.
- Try to avoid double counting where possible e.g. when an individual butterfly repeatedly flies in and out of your recording zone. However, if you lose sight of an individual, and later regain sight of the same species do not assume this is the same individual. Do not count butterflies behind you.
- Try to identify and separate all species you encounter, including where possible ‘difficult’ species such as Small and Essex Skipper.
- You may want to net a sample (a small clear plastic pot can be very useful to temporarily confine the butterfly so it can be examined more easily – hold pot in the shade.
- You should take a good identification guide with you.

WHO SHOULD RECORD

- Ideally, a transect is recorded by a single recorder as this eliminates recorder bias. However, single recorder transects should have at least one substitute recorder who can provide cover when the main recorder is unavailable.

- Training may be available from your local Butterfly Conservation branch or from BC Regional Staff.

The transect and record can be inputted in the Butterfly Conservation website:

https://ukbms.org/mydata