



COLIN PLANT ASSOCIATES (UK) CONSULTANT ENTOMOLOGISTS

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our reference: BS/2982/15

2nd December 2015

Dear Alexia,

Grassy triangle at Tilbury: Appraisal of invertebrate habitats

As you are aware, we have now visited the above mentioned site. This letter is our formal report of that visit.

Introduction and purpose of visit

The site was surveyed on 1st December 2015 and the surveyor on this occasion was myself; you accompanied me during the site examination and we were able therefore to consider directly a number of specific issues of interest.

The site is to be developed; we are advised that it is destined to provide an area of car parking. The development will necessitate complete loss of the upper layer of the existing substrate and there will be an inevitable consequential loss of whatever invertebrate interest may be present.

The purpose of the visit was, therefore, to appraise the invertebrate habitats present on the site, as far as practical within constraints imposed by the date of the survey, and to advise whether or not it is likely that the proposed development here would have a significant impact on invertebrate ecology.

If it was determined by us that a significant loss to invertebrate ecology would, or might, arise as a consequence of the proposed development, recommendations for an appropriate mitigation strategy were required.

It is noted that no invertebrate species survey has been undertaken on the site, which is a very small area of grassland within the boundary fence of an existing commercial premise. Our report will also consider, therefore, and on the basis of total loss of the site, whether or not such a survey is necessary or if an appropriate mitigation strategy could be generated in the absence of species data.

It should be noted that, in spite of any non-ecological constraints imposed upon the developer by other parties, this site examination and the preparation of this present report have been undertaken from an entirely impartial standpoint, without fear of or favour towards any party. The formal guidelines issued during October 2014 by the Essex Office of Natural England, the statutory conservation body, have been adhered to as far as possible within the seasonal constraints imposed so that any recommendations presented in this report are based on ecological considerations only and are made without any consideration of client convenience, financial implications, planning cycles or other non-ecological parameters.

All areas of this very small site were accessed on foot and there are no unexamined parts. We also examined an adjacent area of grassland that has been identified by you as a possible receptor site for translocated materials or invertebrates in order to determine if that option might be viable.

Overview of invertebrate habitats

The site is located approximately 100 metres inland from the coastal defence wall on the northern bank of the River Thames at Tilbury, in South Essex at approximate O. S. grid reference TQ 647 753. Adjacent areas to the north and east are dominated by coastal grazing marsh grassland, which is a Priority Habitat within the UK's Biodiversity Action Plan. The associated buildings and road were constructed, in the main, during 2003 and 2004 although Tilbury itself, to the west, is significantly older. The wider area of coastal grazing marsh currently supports an extremely high invertebrate interest that is well-defined and fully documented. This landscape-level habitat is known in particular to support a high number of species included in Section 41 (*Species of Principal Importance for the Conservation of Biodiversity in England*) of the *Natural Environment and Rural Communities (NERC) Act 2006*. The Section 41 list replaces the list published under Section 74 of the *Countryside and Rights of Way (CROW) Act 2000*, under which Defra published a list in 2002 which was identical with the UK BAP list at the time. Section 40 of the *NERC Act* places a duty on public bodies to have regard to biodiversity in the exercise of their functions; in practical terms, this means that Planning Officers are legally obliged to ensure that Section 41 species are catered for in mitigation packages.

The development site itself is a triangular area of grassland at the edge of this wider area, bounded by a secure fence which prevents unauthorised human access but which is no particular obstacle to invertebrates. It is very small; the side that forms the hypotenuse of the right-angled triangular site is approximately 100 metres in length. Combining personal knowledge with an examination of the available and dated satellite imagery at "Google Earth" the area affected by the site was part of the unimproved coastal grazing marsh grassland until as recently as 1960. Sometime in the ensuing 40 years it was partially drained and this allowed scrub-invasion to affect the wider area including the site. The site itself was separated by a fence from the wider area during 2003, in which year the satellite images show clearly that the entire ground area of the triangle had been physically disturbed during the construction of the buildings now associated with it. The flora in winter 2015 appears to demonstrate a partial recovery, but admixed with the grazing marsh grassland plants is a high proportion of "ruderal" species, such as Creeping Cinquefoil, Sow Thistle, Yarrow, Wild Carrot, St John'-wort and others. Some areas of Common Couch Grass are also evident and in these the broad-leaved herb flora is more restricted. Brambles are beginning to form patches and one boundary is dominated in part by a linear planting of Buddleia bushes. All of these factors will, inevitably, have changed the character of the associated invertebrate assemblages.

Potential invertebrate interest

Just about all sites, with the exception of those composed entirely of concrete, will support *some* level of invertebrate interest. Interestingly, even one of the aforementioned "pure concrete" sites (in the Canary Wharf area of London), was recently shown to support populations of uncommon "cliff-dwelling" spiders within the crevices formed between building blocks. It follows, therefore, that there will always be a loss of invertebrate interest if any site is developed. The necessity is, consequently, to define the interest of a site as closely as practical, so that the significance of the inevitable losses can be weighed and, where necessary, mitigated. This does not automatically necessitate the generation of an invertebrate species list and whilst this might be the recommendation for most sites a number of factors combine to lead us to the conclusion that such process would not be of especial value here. These factors include:

- An acceptance by the developer that the site is a small part of the wider grassland habitat and that its loss should be mitigated;
- Invertebrate species affecting the site will be some, though not all, of those affecting the wider area;

- The invertebrate fauna is also likely to include species associated with the various ruderal; elements of the flora and these are equally predictable;
- The general nature of the local invertebrate assemblage is already known;
- Species survey would, therefore, be unlikely to produce any surprises and a species list, which will inevitably include Section 41 species, can in fact be predicted with moderate reliability;
- It is unlikely, therefore, that a mitigation package drawn up after a species inventory survey would differ in any important aspect from a similar parcel composed on the basis of predicted interest.

Therefore, and contrary to our expectations, we are not minded to recommend additional species survey at this site and we now progress directly to mitigation advice.

Suggested mitigation measures

Mitigation of losses is not a precise procedure. It is likely that several options will be available and that selection of one or more will be governed, at least in part, by factors of a non-ecological bent. This present report presents what we regard as the most appropriate opportunities from an ecological standpoint and from which a selection can be made.

The site is undoubtedly a part of the wider open grassland habitat and that is a physical attribute that mitigation should strive to maintain. However, given that the grassland has been disturbed physically in recent years and has developed a ruderal component, it is unlikely that it plays a *major* role in supporting important invertebrate populations of species of conservation interest over and above the contribution that it makes to the overall area of open green.

In this situation, the most appropriate mitigation procedure would be a simple "like for like/area for area" replacement of lost habitat. Such measure is in most cases impractical to achieve, since developers rarely have control over land that might be appropriate for development as replacements for lost units. However, at the present site two striking opportunities do exist and both are likely to be easily achieved. These are as follows:

Option 1: Creation of habitat areas on "living roof" spaces

This is achieved by installing "flat" roofs on buildings rather than pitched structures and then either translocating existing habitats onto these or else creating new and "better" habitats from scratch. Whilst likely to be more expensive than Option 2, below, this is not necessarily a costly exercise and a guide to best practice in this area of mitigation work is currently available in a downloadable format from the Buglife website at the following URL:

www.buglife.org.uk/sites/default/files/Creating%20Green%20Roofs%20for%20Invertebrates_Best%20practice%20guide.pdf

Option 2: Creation of habitat areas on adjacent or nearby ground-level spaces

This option is, unusually, available at the present site. Within the control of the developer is an area of mown "lawn" that supports a comparatively poor flora to the south of the existing buildings and extends along their western aspect within the boundary fence that separates the premises from the adjacent highway verge.

This is the recommended option at this site. A detailed program of works can be created and, if required, supervised, but in essence it should follow this simple procedure.

1. Prepare the receptor area by machine removal of the substrate to a depth of approximately 30 centimetres;

2. Use the scrapings to create the basis of a boundary bund. This will serve to reduce the effects of physical (splashing) and airborne pollution from the highway on the receptor site and may also contribute to a warmer and calmer microclimate;
3. The substrate *from selected areas of the site to be developed* should now be excavated. The equivalent of "turves" should be cut to a depth of no less than 30 centimetres (to ensure that resting phases such as chrysalids are included) and immediately repositioned on the receptor area;
4. During this translocation process the physical integrity of excavated "turves" should be maintained. They should be lifted flat, held level and transported to the receptor site immediately without rolling, stacking of other similar activities;
5. The "turves" should be placed in their final positions straight away - not adjusted later and there should be no compaction to "make it look neat and tidy" as this will crush chrysalids and other resting stages of invertebrates;
6. Upon completion of the translocation, the new bund should ideally be capped with sand to a depth of 30 - 50 centimetres (or more if practical) and the completed bund (but not the adjacent translocated ground) compacted to provide a stable yet friable substrate for use as a nesting area by the many species of solitary bee known to occur locally;
7. Neither the bund nor the receptor site that it encloses should be planted with trees or shrubs or tall vegetation, but should be allowed to become colonised by low-growing nectar-bearing plants;
8. Crevices that may appear between translocated "turves", perhaps after heavy rainfall, may best be filled with sand. This should be done manually from a wheelbarrow to avoid compaction by machines;

It is important to note that areas affected by *Buddleia* (including currently "clear" areas beneath bushes, because these may contain seeds) and areas affected by brambles, including their roots, should **not** be translocated as neither plant is desirable in the receptor zone. Similarly, areas affected by competitive grasses should also be left behind.

Since it is crucial that the receptor area is not compacted by machines, it is suggested that work begins at the end of the site nearest the receptor area and that excavated turves from here are deposited at the furthest point away, so that at the site of origin the machinery is working forwards and at the receptor site they are working backward so that *at no stage* is a translocated unit driven over by any machine.

Work is best carried out in the winter months when most invertebrates are inactive.

We suggest that the work force is supervised by an ecologist throughout.

Management of the receptor area

Manual inspection accompanied by hand-pulling of any seedlings of *Buddleia* or bramble, perhaps in years 1, 2, 5 and 10 following the translocation is the only management likely to be required.

No mowing should ever be undertaken.

No chemical applications, herbicidal, insecticidal or fertiliser, should be permitted at any stage.

Ideally, large areas will be held free of public access. Human recreational access to the area should be acceptable, if absolutely essential, after about the first year when natural compaction has completed.

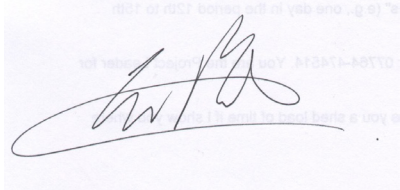
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I hope that you will find this report adequate for your client's current needs, but if there are any queries please do not hesitate to telephone me to discuss.

Our invoice will follow under separate cover.

With all best wishes,

Yours sincerely,

A handwritten signature in black ink, appearing to read 'C. W. Plant', is written over a light blue rectangular background. The signature is fluid and cursive, with a long horizontal stroke at the bottom.

Colin W. Plant
Managing Partner