

Dear Sir/Madam

I was disappointed that after petitioning us to attend consultation meetings and engaging with us over a three year period, no-one at Network Rail told us about this latest call for responses.

The documents were discovered by chance last week and reading them simply produced a fear that our involvement had been calculated to placate us and that the environmental responsibility that Network Rail seemed to be embracing was deceptive. It is very disheartening that some genuinely engaged people at Network Rail have been working hard on this project with a view to not only mitigating the damage but even creating a net positive outcome, only to be let down by political decisions from above, which has the project retreat to a position in which the final reality is of a tremendous amount of damage to a very important ecosystem.

We hope that it is not too late to consider the points we raise in our response (attached) and for you to try to reconcile the inconsistencies in various parts of the documentation which at times says things that seem irreconcilable. Certainly the various references to the mitigation and off-setting delivering on the objective of no net loss are hard to comprehend when in other parts of the document there is the recognition that the land required to achieve this has not been acquired.

We remain willing to work with who-so-ever is appointed to carry out the mitigation work and manage the ECAs which are created, into the future; in the hope that we can still wrest some good from a very damaging exercise.

I certainly hope to be contacted about our response and if we can clarify any points and advise on the most successful methods of managing for the rarest Lepidoptera effected, we will be happy to do that.

Yours sincerely Nick Bowles

Chair, Upper Thames branch / BC

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Dear sir, please find my response, on behalf of the Upper Thames Branch of Butterfly Conservation (hereafter UTB), to the

Further Environmental Information in support of the Network Rail (East West Rail Bicester to Bedford Improvements) Order  
Environmental Statement Volume 2ii Phase 2 \_ Route Section 2b and appendices

Below I will set out our position and then refer to (and comment on) points from your documentation that show that there is substance to my argument.

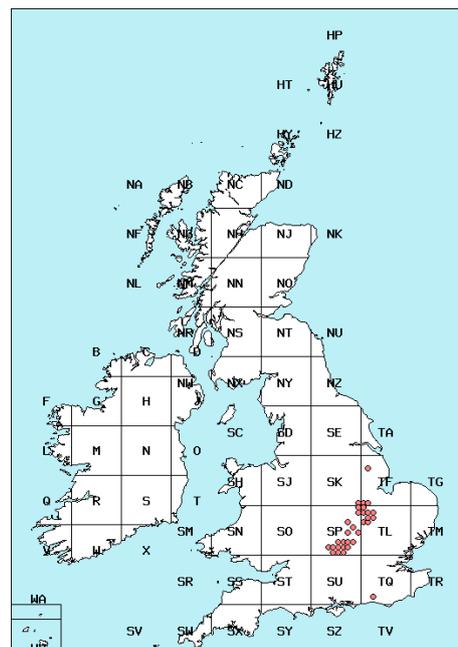
In summary we are disappointed that the lengthy consultation process in which we engaged seems to have carried forwards only part of the important points that we raised. I remain convinced that our stressing the immense regional importance of hedgerows to Lepidoptera did not conflict with the views of other interest groups; yet the matter has been largely side-lined. As an example see my comments to your point 9.1.2 . We also raised the issue of the grassland associated with the line being particularly important to scarce Lepidoptera as they are very different in nature from those in surrounding land; and despite the near total loss of these low nutrient grasslands as the line is doubled, there are no obvious plans to try and recreate similar habitat.

A narrow arc of the English region between Oxford and Cambridge is the only part of the UK that holds populations of the **Black Hairstreak** butterfly *Satyrium pruni*. For many years it was believed that there were approx. 30 extant colonies of this butterfly. Intense and exhaustive research by volunteers for UTB has disclosed a concentration of the species around Bicester (Oxon) and through north Buckinghamshire and Milton Keynes. We can point to various locations for the butterfly but we do not regard these as separate colonies, but one large, interlinked population. Studies of other species have shown that fragmentation of populations that formerly occupied a large geographic area, into smaller parts, threatens the longer term existence of the entire population. We fear that without due regard to the characteristic thick Blackthorn hedgerows of this region, you place this unique stronghold for the species at risk.

**The UK distribution of the Black Hairstreak  
*Satyrium pruni* (Butterfly Conservation)**

*Note that a single outlier in Lincolnshire is an introduced colony*

The map shows how the species' distribution is fragmented with very few locations occupied in Northamptonshire and Bedfordshire, between the section 2b population and those in Cambridgeshire (which exist in discrete woodland blocks). Other notable (i.e. Section 41 and BAP listed)



species in danger in section 2b are:

**Grizzled Skipper** *Pyrgus malvae*

**Dingy Skipper** *Erynnis tages*

**Brown Hairstreak** *Thecla betulae*

**White letter Hairstreak** *Satyrrium w-album*

**White Admiral** *Limenitis camilla*

**Small Heath** *Coenonympha pamphilus*

**Wood White** *Leptidea sinapis*

The **Brown Hairstreak** uses the same larval foodplant as the Black Hairstreak, i.e. Blackthorn *Prunus spinose*, but the Brown Hairstreak prefers the younger growth along the exterior of a hedge and especially the suckers growing out of sheltered hedgerow bases (exposed to at least some sunshine). It will not use flailed or grazed sections of hedges; and rarely lays in exposed or moribund sections.

The Black Hairstreak on the other hand uses the thicker regions of the Blackthorn stands (often as they approach the moribund stage with relatively cavernous centres some 20 years after the plants developed) and often lays its eggs higher in the Blackthorn and deeper within the hedge. It does not lay on the young sucker growth but it too prefers sunlit, sheltered reaches of Blackthorn.

The removal of any stretches of Blackthorn will impact badly on both species but the Black Hairstreak will be most badly affected. **This because it will be at least 15 years before any planted, or regenerating, Blackthorn is in a suitable condition to host this species.** We strongly commend the practice of laying older Blackthorn so that the taller growth retains its life and can continue to feed any larvae upon it and we have seen that the root-stocks of these established plants regrow faster than newly planted whips.

Any Blackthorn planted, or laid, to act as mitigation needs to be in sheltered positions but not over-shadowed. Planting trees to the south of the Blackthorn will be counterproductive.

**White letter Hairstreak** *Satyrrium w-album* is also a species of hedgerow (and woodland edge), with larvae feeding on various Elm species (*Ulmus spp.*) growing to flowering size and in sunlight. Since the arrival of Dutch Elm Disease, the occurrence of such larger Elms is rare and consequently the butterfly is also far scarcer. Wych Elm *Ulmus glabra* appears to have a better resistance to the disease and persists for more years than the once more prolific English Elm *Ulmus minor*. If mitigation planting is undertaken we recommend Wych Elm rather than English Elm; and in wet ground the White Elm *Ulmus laevis* has proven to be very resistant to disease and equally suitable to the White letter Hairstreak.

The **Grizzled Skipper**, **Dingy Skipper** and the **Small Heath** (and for its spring brood, the **Wood White**) require open short sward grasslands and these are provided by the various earthworks associated with the railway margins (and by the track bed in the mothballed section. The importance of this habitat cannot be over emphasised. Surrounding land might contain grassland but it is almost exclusively in receipt of fertilisers and unsuitable as long-term breeding sites for these species of very low nutrient grasslands (with that habitat's associated bare patches). All require the additional warmth that is generated by sunlit, bare patches of ground next to low-growing or creeping larval food plants. Their larvae will not digest food if they are too cold and any shade will lower the temperature below a critical point.

Providing additional food plants will NOT assist these species – unless they are growing in the correct conditions. For example, Small Heath larvae eat a variety of grass species (Bents (*Agrostis spp.*), Fescues (*Festuca spp.*) and Meadow-grasses (*Poa spp.*) and most are very common, whilst the butterfly is not; because so few of those grasses grow in warm enough positions.

**White Admiral** *Limenitis camilla* has larvae that feed upon Honeysuckle *Lonicera periclymenum* in shady positions within woodland that also has wide rides. Mitigation planting should contain an element of Honeysuckle but it needs to be recognised that it will be 15-20 years before the planting will have attained the depth of shade suitable to these species' needs. Equally very large dense stands of woodland will be unsuitable. The woodland blocks must be separated by rides at least 5m wide to allow adult male territories to be established in sunny locations within the woodland.

Given the relatively small amounts of ancient and other deciduous woods affected by the work to reopen the line, it is unlikely that the White Admiral will suffer significantly; but opportunities exist in the mitigation to improve its prospects.

Overall our vast disappointment that the project will, as acknowledged in *Table 16.1: Summary of potential effects, mitigation and residual effects (Project-wide)*, result in a net loss of Biodiversity is overwhelming. Should all the mitigation planned go ahead you still anticipate a net loss and we know various land purchases required to allow the mitigation and offsetting have proved impracticable. By all measures this project will damage the rich biodiversity of the area and most especially in section 2B.

Your sincerely



Nick Bowles

Chair, Upper Thames branch / Butterfly Conservation

Below you will see that I noted points from your documents (placed into Italics) and commented on each (after each italicised quote).

Table 3.2:  
*Terrestrial habitats present in Designated Sites within the Designated Sites,  
Terrestrial Habitats and Flora Field Survey Area, Route Section 2B*

Your survey looked for certain types of Terrestrial habitats present from field survey; e.g. you surveyed for features of ancient woodland and scarce grassland plants; but largely overlooked scrubby margins, short sward and scrubby grassland mosaics; and thick hedgerows. All of which are essential to the scarce Black Hairstreak and Brown Hairstreak butterflies. During the earlier consultation meetings we received an acknowledgement that whilst DEFRA put no 'score' against this type of landscape feature, making it hard for Network Rail to figure it into its calculations of net loss and offsetting, there would be an acknowledgement of its value in this region of England and action to conserve/create this feature. Indeed part of the opening statement to *Chapter 9 Ecology* is: *In addition, the Woburn-Bletchley Milton Keynes Existing railway corridor will be affected and there will also be loss of .....other Habitats of Principal Importance (HPI) including woodland, hedgerows, open mosaic habitat*

And a little further into this opening statement

*The overall reduction in habitat availability and loss of connectivity may affect great crested newts, hazel dormouse, common lizard, grass snake, adder, breeding birds and terrestrial invertebrates (including black hairstreak, brown hairstreak, dingy skipper and grizzled skipper butterflies).*

In *Residual effects* (the next section of the statement) there is no mention of the terrestrial invertebrates at all.

Ancient woodland (as it is presently constituted with a largely closed canopy structure) and open grassland will not support Black Hairstreak, Brown Hairstreak or (White-letter Hairstreak) butterflies; as they are almost exclusively breeding in hedgerows, thickets and areas of scrubby, abandoned grassland, in full sun. Yet having acknowledged the damage to these butterfly species the subject of mitigating habitat for them is barely mentioned.

Indeed, despite assurances about protecting this very type of scrubby / hedgerow landscape feature you note, in appendices, that there will be a loss of precisely this type of habitat.

*Potential impacts Terrestrial HPI and ancient woodlands*

*Hedge with trees: species-rich: 4.5 km*

*Species- rich intact hedgerow: 1.1 m*

*Open mosaic habitat: 10.1 ha*

We note that you say in

9.1.2 *This Chapter describes the ecological baseline and evaluates the nature conservation importance of ecological features relevant to Route Section 2B and evaluates the nature conservation value of ecological features present within the Route Section 2B Study Area (See Chapter 9 (Ecology) Volume 2i Project-wide), characterises the impacts and the effects (both positive and negative) of Route Section 2B on Important Ecological Features (IEFs), sets out agreed avoidance, mitigation, compensation and enhancement measures, and assesses the significance of the residual effects (both positive and negative) of Route Section 2B on the IEF.*

We strongly assert that the discussions and agreements between UTB and Network Rail included an acknowledgement of the extremely important role of hedgerows and scrubby grassland in this region of England. It appears that a generic 'national' model has been applied, as it might apply appropriately in regions without these iconic invertebrates. Black Hairstreak and Brown Hairstreak butterflies are found exclusively in this region of England, and in no other region of the UK.

## Screening

9.2.17 *For details on screening methodology for terrestrial HPI and ancient woodlands see Appendix 9.1, Volume 3.*

This appendix tells us

## 2.2 Field surveys

2.2.2 *When determining designated sites, terrestrial habitats and flora requiring further assessment, the integrated environmental design measures as detailed in Chapter 2 (Project description) in Volume 2i Project-wide have been assumed during construction.*

This implies that the decisions about what habitat to focus field work in was based on some generic model and was NOT appropriate in this region of England with its truly unique set of terrestrial invertebrates found nowhere else and living almost exclusively in Blackthorn rich hedgerows.

Further confirming this view are the statements that

2.2.11 *Impacts to habitats are only anticipated within the Designated Sites, Terrestrial Habitats and Flora Field Study Area hence only those habitats within or connected to the Scheme Boundary were considered for NVC survey.*

2.2.12

*Those within or connected to the Scheme Boundary were then screened in for NVC survey if they met any of the following criteria:*

- *Those within statutory and non-statutory nature conservation sites designated for botanical features*
- *Those that contain or were likely to contain HPI*
- *Those that contain AWI woodland or appeared based on available information to have potential to contain ancient woodland*
- *Those that contained desk study records of protected and/or notable flora (including veteran trees)*
- *Other areas of semi-natural habitat that, based on the experience of the ecologist, were considered to potentially be of value*

At no point is any mention made of the value to the endemic wildlife of hedgerows.

Detail within the appendix about Hedgerow Survey technique is particularly worrying. The Black Hairstreak is known to be extremely elusive and difficult to see, even within its best habitat. Detailed data compiled by UTB shows that on average, even in these 'better' habitats sightings of the butterfly can be limited to less than 2 sightings per hour and ALWAYS in June - yet the surveys were conducted in July and September!

Despite the fact that the presence of Blackthorn is essential to the survival of Black and Brown Hairstreak butterflies and that other species are not, the classification of hedgerows as *Important* (sic) was based on these stated criteria:

*The hedgerow includes:–*

*At least 7 woody species on average, in a 30 m length or*

–

*6 woody species on average in a 30 m length plus three additional features (see a to h below) or*

–

*6 woody species on average in a 30 m length including native black poplar, small-leaved lime (*Tilia cordata*), large leaved lime (*Tilia platyphyllos*) or wild service tree (*Sorbus torminalis*) or*

–

*At least 5 woody species on average in a 30 m length and four additional features (see below)*

Hedgerows of Blackthorn to the exclusion of most other plant species would be viewed as unimportant using these criteria. Further, the criteria rule out hedges of less than 30 years, though Brown Hairstreak refer to breed on suckering stems of up to ten years old and Black hairstreak are believed to be able to breed in Blackthorn from 15 years after its initial growth.

### 2.2.31

*Hedgerows were excluded from further survey where the feature was:*

*Appearing to be less than 30 years in age following an initial visual assessment by an experienced ecologist*

One further issue that has been noted by the Ecologists and which certainly applies in the case of data on Butterflies and Moths is a lack of recent data held at the BRC. The UTB hold thousands of bits of recent data that for a variety of reasons are not currently within the BRC database. We are of the opinion that this data highlights the plight of the Black Hairstreak in particular and underlines the damage that the work to re-open the line will cause.

### *Data availability lag*

*Staffing and resources at BRCs can be limited, which can lead to a lag between the time that records are submitted by recorders and the time that they are verified and entered into the database for that county. Additionally, special interest recording groups (which often hold their own datasets) may only submit their records annually (if at all) which causes further lag in dataset accuracy.*

This is borne out by comment in

### 9.2.297 Consultation responses from the Berkshire, Buckinghamshire and Oxfordshire

*Wildlife Trust indicate that the Mothballed Line along the entirety of Route Section 2B is likely to support a range of invertebrate species including black and brown hairstreak, dingy skipper and, wood white butterflies, although the desk study did not return any recent records for brown hairstreak or dingy skipper.*

Unfortunately, the survey and the criteria determined to identify important (HPI) habitats also failed to acknowledge the importance of areas retaining bare ground and turf with sparse grass species. These increasingly uncommon habitats are home to populations of the Grizzled Skipper and Dingy Skipper. Both are Priority Species in the UK BAP.

The 'mothballed' rail-bed is very important to the two BAP skipper species as the ballast warms quickly in the sun and the low growing plants that their caterpillars feed upon are then at the right temperature that the caterpillars can digest their leaves. In longer grass and damp situations, lower temperatures prevent these two skipper butterflies from developing.

*Habitats in Route Section 2B (the mothballed section) are typical of an overgrown and disused railway line. Grassland, bare ground and scattered scrub (open mosaic habitat) cover the rail infrastructure down the centre of the line, with dense blocks of scrub and woodland along the boundaries.*

It is a disappointment that no account has been made of the mitigation for the loss of this habitat from the entire length of the line; and especially from section 2b where we know that the two species were present in reasonable populations. The closest habitat to that required by these species, which has been surveyed, is

*B6 Species poor semi-improved grassland*

*Recorded within the Scheme Boundary throughout Route Section 2B. Dominant habitat in land parcel 111.2, 119.2, 119.3, 135.1, 151.1, 265.1 Frequently occurring species include; meadow buttercup (*Ranunculus acris*), cock's foot (*Dactylis glomerata*), perennial rye grass (*Lolium perenne*), creeping bent grass), bird's foot trefoil (*Lotus corniculatus*), Yorkshire fog (*Holcus lanatus*) and white clover (*Trifolium repens*). Often grazed by livestock.*

It is noted that surveys were conducted too late in the season for either butterfly to be recorded.

Further comment on the failure to look at the importance of nutrient poor grasslands for invertebrates and to allow some offsetting is evident in various parts of the papers; e.g.

*Screening for field survey*

*9.2.298 A total of 43 Survey Areas within the Terrestrial Invertebrates Field Survey Study Area were originally identified through a desk top screening exercise as requiring further assessment for terrestrial invertebrates and taken forward for scoping.*

Such study areas included the habitat type

*J4 Bare ground Areas of bare ground common throughout the Route Section 2B, particularly along the trackbed, .....*

UTB surveys have shown this to be an extremely important resource for a number of rare invertebrates.

Sadly it appears that no surveying was done for invertebrates in those sections

*Scoping*

9.2.299 *Of the 43 sites screened in for further investigation, a total of nine sites were scoped-in for full entomological surveys<sup>77</sup> only; eight sites were scoped in for black hairstreak surveys only; and seven sites were scoped in for both full entomological surveys and black hairstreak surveys.*  
9.2.301 *Full entomological surveys were scoped-in for 16 sites, but no access was available for six of those. The remaining ten sites (listed below) were surveyed either **one** or two times.*

So, in the whole of the section only ten sites were surveyed and the most thorough coverage was that some of these ten sites were surveyed twice. Eight sites were scoped-in for Black Hairstreak but

9.2.302 *Black hairstreak surveys were undertaken at eight of the 15 Survey Areas sites which had been scoped-in, with access restrictions preventing survey at seven sites.*

Despite the recognition of the importance of the Black Hairstreak only **eight** surveys were completed for it. Given the known difficulty of locating the species even within its flight period the chance of locating it at another time was miniscule. Not surprisingly:

9.2.304 *No black hairstreak butterflies were recorded during any of the black hairstreak surveys.*

There is no mention that either of the BAP protected and Section 41 species, Grizzled and Dingy Skipper butterflies received any targeted survey attention. But the notes attest to the importance of short sward grasslands.

9.2.303 *Entomological surveys recorded 17 notable<sup>78</sup> species (15 of which are nationally notable) throughout the Route Section 2B Scheme Area. A further three notable species were recorded during black hairstreak surveys (which recorded any other species noted on site on an ad-hoc basis). Several of the notable species recorded have specialist habitat requirements (e.g. *Coenonympha pamphilus* (Lepidoptera: Nymphalidae) and *Cryptocephalus aureoles* (Coleoptera: Chrysomelidae) are strongly associated with F112 open short sward. Three notable species were recorded as incidental observations of terrestrial invertebrates during black hairstreak surveys, but the dates of these records are not known.*

9.2.305 Three survey sites were considered to have entomological interest:

- *Disused Railway near Salden Wood LWS (83F01)–four nationally notable species based on desk study records and field survey results, with an additional two species (brown hairstreak and dingy skipper) considered by the Wildlife Trust to be ubiquitous across the Route Section 2B Scheme Area. Precautionarily assessed as being of county importance*
- *Disused Railway near Verney Junction Station LWS (72I01)–four nationally notable species based on a single field survey visit indicating the potential for County importance*
- *Land West of Waddon Road – three nationally notable species based on a single field survey visit indicating the potential for County importance*

UTB contest the remark made about the ubiquitous nature of Brown Hairstreak and Dingy Skipper even along the 2B scheme area and we strongly contest the implication that it is ubiquitous outside that corridor. The records of these species are closely associated with the rail line's earthworks and track bed. They are not even occasionally found outside the rail corridor. Indeed your own 'transect style' recording of the entire track-bed (deemed to be

sufficiently important to warrant a different form of surveying to that employed elsewhere failed to find any at all. See 15.3.5 below

## *Terrestrial invertebrates*

### *15.1 Project-wide Baseline*

*15.1.1 Further survey work in 2018 has provided additional information regarding invertebrate species across the Scheme Area. A small number of additional notable invertebrates have been recorded<sup>25</sup>. No new areas of entomological interest of County (or higher) nature conservation importance have been identified in 2018. The further surveys conducted in 2018 have not changed the nature conservation evaluations made in the Project-wide Chapter of the ES. No changes have been made to paragraphs 9.4.102 to 9.4.103.*

*15.3.2 Following a review of the existing habitats within the “mothballed” line of Route Section 2B, it was considered appropriate to survey the entirety of the area for invertebrates. Based on the open, exposed nature of the existing vegetation, the appropriate target survey groups were considered to be butterflies (Lepidoptera) and bees/wasps (aculeate Hymenoptera), both of which utilise sunny, exposed habitats with nearby pollen, nectar and larval food plants. These target survey groups were subsequently sampled along the “mothballed” line of Route Section 2B in 2018 using a modified butterfly transect (a transect recording distribution rather than abundance). The transect also incorporated spot-searches for other invertebrates.*

#### *15.3.5*

*The entomological surveys of the survey areas recorded five notable species. The modified butterfly transect undertaken along three sections of the “mothballed” line of Route Section 2B (Queen Catherine Road to Winslow, Winslow to Station Road and Station Road to Bletchley) recorded five notable species including black hairstreak and brown hairstreak. Glow worm were also recorded.*

You repeat this lack of evidence for the remark about the ubiquitous nature of the Dingy Skipper with your listing of species seen during the surveys in table 15.2 which includes the following Lepidoptera

*Table 15.2 :  
Route Section 2B summary of scoping and entomological field surveys (2018)*

*....black hairstreak, brown hairstreak cinnabar moth, small heath, and white admiral...*

## The permanent impact of the construction phase

9.4.29 *The construction of the Project is anticipated to have impacts on the following terrestrial HPI:*

- *Lowland mixed deciduous woodland: 5.3ha*
- *Hedge with trees: species-rich: 4.5 km*
- *Species-rich intact hedgerow: 1.1m*
- *Open mosaic habitat: 10.1 ha*
- *Arable field margins: 1.9ha*

9.4.30 *These terrestrial HPI are of County importance and are common and widespread in the local area.*

Once again despite the recognition that various key species are *associated with F112 open short sward* this Habitat type is not figured in the calculations of damage done – for which some mitigation is required. Though there is a recognition that the plants at some of these short sward sites need offsetting (quote): *It is not possible to avoid construction works within Railway Bank by Salden Local Wildlife Sites or Waddesdon Station Complex Local Wildlife Site as both these designated sites fall within the existing railway corridor. This will result in a permanent negative residual effect. Species-rich grassland turves and associated species from both Railway Bank by Salden Wood Local Wildlife Sites and Waddesdon Station Complex Local Wildlife Sites will be translocated.*

The underlying soil (and aspect) of the sites chosen as hosts to these plants must match precisely or within a few years the plants translocated will be lost. Their resident invertebrates are more likely to survive if, in addition, careful mimicry of the wind chill effect and humidity produced by surrounding topography and vegetation are also closely replicated.

We note that the ecologists are of the opinion that this measure does not satisfy the no net loss strategy, let alone the positive gain in biodiversity, that was advocated during early consultations: *Permanent negative residual effect at the County scale.*

## **Mitigation**

*9.4.207 Habitat totalling 134.8 ha will be created to compensate for the loss of habitats listed above and the effects the loss will have on notable terrestrial invertebrates. Sites ECS B2, B7, B9, B10, B13, B14, B17, B23 and B26 will incorporate blackthorn in scrub to support black and brown hairstreak butterflies; Wildflower meadow areas will be created in sites ECS B7 and ECS B14 and will include seed mix to support general invertebrates, with species-specific inclusions for notable species of pollinators; All ECS areas in Route Section 2B will incorporate south-facing embankments with open exposures for basking butterflies and ground nesting solitary bees and wasps.*

We are very glad to see the recognition of the need for south facing embankments with open exposures; however this runs contrary to measures proposed for reptiles which describes these same slopes as being sprayed with seed mixes. Our experience with seed mixes is that they rarely deliver as well as simply leaving a nutrient poor soil to develop its own vegetation.

Given the enormous importance of habitats and the notable species that will be lost or reduced along the section of mothballed line in section 2B, between the Swanbourne Station/Horwood House area and the Newton Longville road bridge, it is a disaster that it has not been possible to acquire more land in the area for ecological compensation. It follows that detailed plans and management protocols for those limited areas that have been secured (ECSs B14, B17, B20 and B23) need to be very carefully formulated and prioritised to achieve the best long-term outcomes for the most important wildlife assemblages. Crude tree-planting and pond digging schemes should not be adopted. As much of the land as possible must be given over to replicating the most precious affected habitat - open mosaic of species-rich grassland with patches of bare ground and scrub blocks, with topographical and shelter features that will emulate conditions that existed some years ago along the railway line. Trying to create scrub and woodland habitat that matches the current conditions along the line will fail to secure a future for a lot of the special plant and invertebrate species that were successful colonisers of the disused railway, as they will vanish before the habitat is developed appropriately. Devising and carrying out effective habitat creation on these ECSs must have detailed involvement from specialist conservation organisations and local wildlife managers/recorders. This work needs to begin as soon as possible if it is to be effective in relation to the start of construction work.

Some of the detail given in the ECS tables in Technical Appendix 9.13 v2 is concerning and suggests a failure to prioritise in the way suggested above. It is difficult to see why turves from the calcareous grassland in Salden Cutting would be translocated to ECS B14 near Horwood House when this area does not have the compatible geology and potential for topographical features that apply to ECS B20 adjacent to the cutting. There is no mention in Table 2.15 covering ECS B20 of creating conditions suitable for the specific group of scarce terrestrial invertebrates that are found along the adjacent cutting. Instead, the intentions look to be focussed on creating wetland and scrub/woodland conditions. Where perhaps some thought has been given to invertebrates, the efforts appear to be aimed at species like Black and Brown Hairstreaks that are not a feature of this section of the line. This is just one example of misguided planning that fails to take account of specific local losses and habitat

potential. Urgent detailed discussions with local conservation specialists are crucial to correcting such plans and beginning to forge the collaborations that will be essential for the long-term monitoring and management of the ECSs.

Whilst it is pleasing that :

*A 30-year ecological management plan for the benefit of terrestrial invertebrates will be agreed with relevant stakeholders including BBOWT, and landowner and local groups with an interest in biodiversity.*

We have had no invitation to join such a consultation group.

*9.4.208 To mitigate for general invertebrate assemblages (non-notable species), the following general mitigation measures will be incorporated:*

- Retention, wherever practicable, of standing dead wood habitat within the Scheme Area to support saproxylic invertebrates such as aerial-nesting solitary bees and wasps. Where standing dead wood cannot be retained, it will be removed intact and relocated to one of the ECS*
- Retention, where practicable, of any wood from felled trees, to be stacked in suitable places within the Scheme Area as invertebrate refugia / log piles. This will support saproxylic invertebrates such as ground beetles and woodlice. Where this is not practicable on-site, log piles will be created in one of the ECS*
- Retention within the Scheme Area (where practicable), or creation in ECS, of areas of bare earth, sand, chalk exposures or scrapes which may be utilised as basking areas for butterfly species and/or nesting areas for burrowing invertebrate species such as solitary bees and wasps. These areas will have a south-facing or east-facing aspect and incorporate a variety of gradients from flat to vertical*

*9.4.209 To mitigate for impacts on notable invertebrate species recorded or presumed to be on site, the following species-specific mitigation measures will be incorporated:*

- Retention within the Scheme Area (where practicable) of known larval food plants for notable species of invertebrate (flowers, grasses, shrubs or trees). Where this is not practicable, larval food plants will be translocated (if appropriate, as in woody species) to ECS or, if translocation is not appropriate, replacement planting (using plants/trees of an age appropriate to support the life cycle of the target species) and inclusion of plant species in seed mixes in both the ECS and the newly regraded embankments will be provided*
- Planting of areas of blackthorn will take place in ECS B2, B7, B9, B10, B13, B14, B17, B23 and B26 in order to support black and brown hairstreak butterflies. These areas of plantation will be managed for the benefit of invertebrates*
- Incorporation of large amounts of bird's foot trefoil (*Lotus corniculatus*) into the seed mixes of ECS B7 and ECS B14 , which will also incorporate scrapes and bare ground basking spots. This will support butterflies including dingy skipper and grizzled skipper, which have been recorded throughout the Scheme Boundary and its adjacent land parcels*

**Please note that this assumption that Grizzled Skipper can benefit from the planting of *Lotus corniculatus* is erroneous.**

- Incorporation of large amounts of meadow vetchling (*Lathyrus pratensis*), common vetch (*Vicia sativa*) and bitter vetch (*Vicia ervilia*) into the seed mixes of ECS B7 and ECS B14. This will support the endangered wood white butterfly, which has been recorded within the Scheme Area

Yet no mention was made of Wood White in the list of endangered invertebrate species that the surveys had revealed living within the scheme boundary area.

- Retention within the Scheme Area (where practicable), of nectar and pollen sources appropriate to the target invertebrate species. Where this is not practicable, nectar and pollen plant species will be included in seed mixes in both the ECS and the newly regraded embankments will be provided

With respect to the Black Hairstreak we note that you plan to mitigate by searching for and collecting eggs for translocation 15.3.10. We would be interested to hear of any similar project that has ever succeeded in finding the eggs of Black hairstreak. Our extensive efforts have shown this to be an extremely time-consuming activity that often proves quite fruitless.

15.3.10 Where practicable, a search for black hairstreak eggs will be carried out by ecological clerk of works during the removal of blackthorn, and eggs moved to suitable retained vegetation.

We would be interested to learn what constitutes suitable retained vegetation and how the eggs are to be placed high into the centre of retained thick blackthorn. We are unimpressed with the intention to help the Black hairstreak in this way “Where practicable “ and consider that this and other similar remarks make the comment below (*Residual effects 9.4.211*) meaningless. How can the mitigation prevent a significant negative effect when so much of the mitigation is only to be attempted “Where practicable” and it has been acknowledged that less land has been purchased for ECAs than original assessments showed were required?

*Residual effects*

9.4.211 Considering the agreed mitigation measures detailed above, the construction phase of the Project is not expected to result in a significant negative effect on the conservation status of terrestrial invertebrates in Buckinghamshire

The proposed mitigation measures are welcomed but bland statements like, “will be managed” (9.4.209) does little to inspire confidence in us. The detail of this report into so many aspects of the scoping and survey work, the proposed mitigation etc., leaves us wondering who will undertake this management work and for how long? If such detail is known, why is it not included? We insist that a full management plan for this mitigation is drawn up, stating who will fund the work, who will be accountable for the work and over how many years these responsibilities apply.

We applaud the honesty of 9.6 Summary of Principal Findings which clearly points to the lack of reparation for damage in this extremely rich section of rail line around Salden Wood ; but are amazed that the report goes on to suggest that :

<i>The Network Rail (East West Rail Bicester to Bedford Improvements) Order Environmental Statement –Chapter 9–Ecology Volume 2ii –Route Section 2B 9-115</i>		
<i>Potential Effects</i>	<i>Avoidance and Mitigation</i>	<i>Residual Effects (after</i>

	<i>Measures</i>	<i>mitigation)</i>
<i>Black hairstreak, brown hairstreak, dingy skipper and grizzled skipper butterflies have all been recorded across Route Section 2B. As such, habitat removal could permanently sever colonies located around and within the Scheme Area</i>	<i>To mitigate for impacts on notable invertebrate species recorded, the retention of known larval food plants for notable species will be implemented</i>	<i>No significant residual effect</i>

In section 9.4.209 you wrote

- Retention within the Scheme Area (**where practicable**) of known larval food plants for notable species of invertebrate (flowers, grasses, shrubs or trees). Where this is not practicable, larval food plants will be translocated (**if appropriate**,...). So mitigation is not certain to occur and is only planned if practicable and appropriate, yet in the predicted impact of *Potential Effects & Residual Effects*, you gloss over the conditional nature of the mitigation and presume that it has occurred.

Overall though we are dismayed that the original aspiration to be **Net positive for Biodiversity** has been watered down to an acceptance that overall in section 2b – the most biologically important section of the route – will be net negative.

Table 16.1: Summary of potential effects, mitigation and residual effects (Project-wide)

Designated sites	.....	.....	.....	Loss of habitat will result in a significant <b>negative</b> residual effect at the County scale.
				Sheephouse Wood SSSI - significant residual effect at the Local scale.
				The loss of woodlands of ancient character may result in a significant negative residual impact at County scale.

Given all our comment above and that you have failed to buy land to act as ECAs, you will be unsurprised that we strongly contest the final statement in the report on the impact of the work on Lepidoptera (below):

Table 16.1: Summary of potential effects, mitigation and residual effects (Project-wide) part

<i>Terrestrial invertebrates</i>	<i>Construction</i>	<i>Area of habitat supporting notable invertebrates will be lost and habitat removal could permanently sever links between colonies of less mobile species located around and within the Scheme Area</i>	<i>To mitigate for impacts on notable invertebrate species recorded, measures including the retention and planting of known larval food plants for notable species will be implemented.</i>	<i>No significant residual effect</i>
	<i>Operational</i>	<i>No effects</i>	<i>N/A</i>	<i>N/A</i>

We believe that the report should be rewritten and re-presented with these points included.