

Adran yr Economi a'r Seilwaith
Department for Economy and Infrastructure



WG/REB/OBJ0270.7 – GWT/Boyce

Objection Ref OBJ0270

Llywodraeth Cymru
Welsh Government

Response to Objector's Evidence: David Boyce (Gwent Wildlife Trust)

1. GROUNDS FOR OBJECTION

1.1. Details

1.1.1. David Boyce has submitted a Statement of Evidence dated February 2017 in relation to the draft statutory Orders associated with the Welsh Government's proposals for the M4 Corridor around Newport.

1.1.2. The Welsh Government understands the evidence submitted within David Boyce's Statement to be based on the following:

1. Considers that the 2014 invertebrate survey fails to provide a sound basis for making decisions on the significance of the invertebrate fauna along the route of the Scheme.
2. Considers that the 2014 aquatic invertebrate survey work commissioned in support of this scheme is inadequate as a baseline against which to assess the impacts of the Scheme on the basis that it failed to record many of the most important species for which the area has been notified as a SSSI.
3. Considers that the 2014 terrestrial invertebrate survey commissioned in support of the proposal gives a wholly inadequate baseline against which to assess impacts of the scheme, largely due to inadequate sampling.
4. Considers that, of the recommendations for additional survey work made in the 2014 terrestrial survey, only the Newport Docks and Tata Steel sites were subject to further survey work (Welsh Government, 2016a).
5. Considers that the Scheme would cause significant mortality and habitat fragmentation for invertebrates. Numerous studies have shown that roads represent a significant barrier to the free movement of invertebrates through increased mortality and/or behavioural avoidance.
6. Considers that artificial lighting at the junctions would result in increased mortality and reduced breeding success of many nocturnal invertebrates. Artificial lighting is a well-known 'ecological trap' for many nocturnal insects, which are attracted strongly to such light sources.

7. Considers that the road surface and associated motorway structures would prove attractive to flying aquatic insects (through polarised light pollution), thus leading to increased mortality and reduced breeding success.
8. Considers that pollutants in water treatment area (WTA) outfalls from the Scheme would be detrimental to the aquatic invertebrate fauna, that this has not been sufficiently assessed in the ES, and that there is no provision for long-term monitoring of affected watercourses.
9. Considers that mitigation measures need to address the specific needs of the nationally important invertebrate assemblage.
10. Considers that, despite its high importance, no monitoring of the impact which the reed and SSSI mitigation measures might have on the invertebrate fauna is proposed.

2. REBUTTAL

2.1. Introduction

- 2.1.1. As Ecological Advisor to the Welsh Government on this Scheme, I reviewed not only the main proof prepared by Dr Keith Jones but also the Environmental Statement and the Appendices therein, including those relating to terrestrial and aquatic invertebrates. I am therefore happy to adopt Dr Keith Jones' evidence and to present it to the Inquiry since he is unavailable to do so, owing to a long-standing prior engagement
- 2.1.2. My background is in invertebrate ecology, and in October 2012 I presented a talk to the CIEEM conference on Invertebrates and EIA entitled 'Pragmatic Approaches to Invertebrate Assessment: A Consultant's Perspective'. I also wrote a draft Advice Note in Relation to Invertebrates for the DMRB, although this was not published by the Highways Agency (as they were at the time) for procedural rather than technical reasons.
- 2.1.3. I confirm that the statement of truth and professional obligations to the inquiry from my main proof still applies.

2.2. Points Raised

- 2.2.1. I deal with the points set out in Section 1 in the following sections, to which readers should also make reference in their entirety for a full understanding of the Welsh Government's case. For ease of reference the places where the above points are addressed in this Rebuttal are listed in the table below:

Objector's point reference	Rebuttal paragraph reference	Objector's point reference	Rebuttal paragraph reference
1	2.2.3	6	2.2.5
2	2.2.3	7	2.2.6
3	2.2.3	8	2.2.7
4	2.2.3	9	2.2.8
5	2.2.4	10	2.2.9

- 2.2.2. The points raised are responded to in turn in the paragraphs following.
- 2.2.3. Response to **Points 1, 2, 3 and 4** (Considers that the 2014 invertebrate survey fails to provide a sound basis for making decisions on the significance of the invertebrate fauna along the route of the Scheme), (Considers that the aquatic invertebrate survey work commissioned in support of this scheme is

inadequate as a baseline against which to assess the impacts of the Scheme on the basis that it failed to record many of the most important species for which the area has been notified as a SSSI) and (Considers that the 2014 terrestrial invertebrate survey commissioned in support of the proposal gives a wholly inadequate baseline against which to assess impacts of the scheme) (Considers that, of the recommendations for additional survey work made in the 2014 terrestrial survey, only the Newport Docks and Tata Steel sites were subject to further survey work) are addressed together, as all relate to the suitability, or otherwise, of the baseline survey work:

1. A total of 45 different locations were surveyed for invertebrates, on three separate occasions (May, July and September) in 2014. The majority of these sites were specifically selected for invertebrate survey in the Ecological Survey Site Selection Report (Appendix 10.3 of the March 2016 Environmental Statement (ES) (Document 2.3.2, Folder 9) owing to the presence of habitats likely to be of some value to invertebrates. The others comprised additional reens targeted for aquatic invertebrate surveys.
2. Of these 45 sites, 19 were surveyed for terrestrial invertebrates and 41 for aquatic invertebrates. The majority comprised reens and ditches (including their bankside habitat), thus reflecting the importance of reen species (both terrestrial and aquatic) in the Gwent Levels SSSI citations. A total of 289 species of terrestrial invertebrates and 130 species of aquatic invertebrates were recorded during these surveys, including two Red Data Book species and four Nationally Notable/Scarce species.
3. Many of the locations that Mr Boyce considers support fewer species than he would expect were likely to be either field ditches and/or were covered with Common Duckweed or choked with other vegetation; in both cases, a lower diversity of invertebrates (compared with reens, which tend to be more diverse) would be unsurprising. Such features, however, represent a significant proportion of the watercourses on the Levels, hence their inclusion in the survey.
4. In addition to the aquatic invertebrate surveys in 2014 (reported in Appendix 10.15 to the March 2016 ES - Terrestrial and Aquatic Invertebrate Survey 2014; Doc 2.3.2, Folder 11), previous NRW aquatic

invertebrate surveys of the Gwent Levels SSSIs (most, if not all, carried out by Mr Boyce) were also used to inform the assessment, as referred to in the March 2016 ES Chapter 10 Ecology and Nature Conservation. It should be noted that all of these monitoring reports (including surveys at Whitson, Redwick & Landevenny, St Brides, Magor & Undy, Nash & Goldcliff, Newport Wetlands, and Rumney & Peterstone SSSIs) conclude that the species richness of the features assessed was 'low compared to grazing marsh ditches sampled in other parts of southern Britain, such as the Somerset Levels', and that the 'two main causes were considered to be choking of the ditches with duckweed and the regular clearing of ditches'. In this context, it is perhaps unsurprising that a number of the smaller and/or shaded ditches surveyed by Arup supported low invertebrate diversity.

5. Further terrestrial invertebrate surveys were carried out in 2015. These comprised: 'An invertebrate survey of ABP land, Newport Docks', 'An invertebrate survey of Tata Steel land, Llanwern' and 'A survey of bumblebees on the Gwent Levels SSSIs' (see the March 2016 ES (Appendix 10.31; see also the Proof of Evidence of Keith Jones WG1.18.1 section 7.2.21). A total of 329 species were recorded in the Newport Docks surveys and 378 in the Tata Steel surveys, whilst shrill carder bee and brown-banded carder bee were recorded across the survey area. Mr Boyce considers these surveys to provide a satisfactory baseline.
6. It is my opinion that the above constitutes an extensive set of data on which to base an assessment of the likely impacts of the Scheme on invertebrates, especially when considered in parallel with the detailed SSSI citations (which further establish the importance of the reens for invertebrates). In most Environmental Statements, invertebrates are dealt with cursorily, and it is rare to have such a detailed consideration of this often-overlooked group. I would therefore disagree with Mr Boyce's assertion that the invertebrate baseline is inadequate.
7. With regards specifically to **Point 4**, the recommendations for additional survey work made in the 2014 terrestrial survey were for: surveys of ex-industrial land at Newport Docks; surveys of ditches and ruderal habitats surrounding the M4 toll booth at Rogiet Moor; repeat surveys of species-

rich sites surveyed in 2014 (particularly at Tata Steel, the disused laboratory site and diverse reens along the route); and surveys using static survey methods (such as pitfall traps and flight interception traps). My Boyce notes that only two of these were carried out (those at Newport Docks and Tata Steel). The consideration of the scope of the 2015 terrestrial invertebrate surveys is set out at paras 16.4.3 to 16.4.7 of the Ecology Surveys Scoping Report (Annex 9.1 of the EIA Scoping Report which is Appendix 5.1 of Document 2.3.2), as follows:

16.4.3 With regard to terrestrial invertebrates, it was agreed at the meeting [Hyder/NRW 30/1/2015] that any surveys in 2015 could focus on areas not previously surveyed (owing to access restrictions) that are also considered (upon review of the Phase 1 and aerial photographs) to be potentially valuable, and which would be directly affected by the preferred alignment. It could be, of course, that none are required following this review.

16.4.4 NRW suggested that there were a number of brownfield sites that may not yet have been surveyed that would be potentially valuable for invertebrates. They also suggested that the shrill carder bee could also be the focus of targeted survey work. It was also suggested that in addition to this important species, the Contractor should review the desk study information and the Section 42 list (of species of principal importance for biodiversity) to determine whether any other species may require targeted surveys. It is possible, however, that these would already have been covered by the 2014 surveys.

16.4.5 NRW suggested that moth trapping should be considered in certain areas, as moths could be an important group and traps are less likely to be stolen (as they are continuously monitored whilst in operation).

16.4.6 Having considered the need for further survey of terrestrial invertebrates in the context of the above recommendations, RPS proposes to undertake an additional invertebrate survey within and adjacent to the proposed scheme within the area of ABP land at Newport Docks (the same as shown on Figure 7 for reptile survey) which was not previously accessible.

16.4.7 Moth traps will be deployed in the southern part of the former Llanwern Steel Works and a targeted survey for shrill carder bee will be carried out focussing on those areas of land within the Gwent Levels SSSIs which would be within or adjacent to the scheme.

8. Therefore, as noted by Mr Boyce, additional surveys were carried out at Newport Docks and at Tata Steel by David Gibbs, a recognised expert in the invertebrates of this part of Wales who wrote one of the definitive invertebrate survey reports of the Gwent Levels for CCW (the precursor to NRW) (Ref: Gibbs D J (1991) *A quantitative base-line survey of the invertebrates of the Gwent Levels*. Countryside Council for Wales). In addition, Mr Gibbs also undertook an extensive bumblebee survey of the Gwent Levels in the vicinity of the proposed Scheme.
9. Both the Newport Docks and Tata Steel surveys are considered by Mr Boyce to be 'satisfactory'; no comment is made with regard to the suitability of the bumblebee survey, although reference is made to the importance of shrill carder bee and brown-banded carder bee in Point 15 of Mr Boyce's Written Statement.
10. The ditches and ruderal habitats surrounding the M4 toll booth at Rogiet Moor were not surveyed as the Scheme would not extend to this area.
11. With regard to the proposed moth trapping, Chapter 10 paragraph 10.3.115 of Document 2.3.2 explains that moth trapping at Tata Steel proved impractical for health and safety reasons. This was due to the presence of hazards on site which made night-working potentially dangerous (see WG1.18.1 section 7.2.42).
12. Finally, with regard to the proposed surveys of additional species-rich sites in 2015, following a review of the Phase 1 and aerial photographs, it was decided that the three targeted studies to be carried out by Mr Gibbs (in addition to the comprehensive 2014 surveys) would be sufficient to inform the ecological baseline for the Scheme. With regard to the requirement for further survey of reens, as agreed with NRW, further aquatic invertebrate survey was considered unnecessary and all reens and ditches within the various SSSI boundaries were considered capable of supporting the individually qualifying invertebrate assemblage of each SSSI (see WG1.18.1 section 7.2.22); the invertebrate community of the

reens and ditches was thus considered in the ES to be of National (High) value.

2.2.4. Response to **Point 5** (Considers that the Scheme would cause significant mortality and habitat fragmentation for invertebrates. Numerous studies have shown that roads represent a significant barrier to the free movement of invertebrates through increased mortality and/or behavioural avoidance):

1. The ES (Document 2.3.2) recognises that the new section of motorway would represent a barrier to the movement of shrill carder bee and other terrestrial invertebrates. However, in the context of habitat creation which would be of value to invertebrates, including extensive species-rich grassland on the south facing road embankment and new habitat within the SSSI Mitigation Areas, this is assessed as not significant.

2.2.5. Response to **Point 6** (Considers that artificial lighting at the junctions would result in increased mortality and reduced breeding success of many nocturnal invertebrates. Artificial lighting is a well-known 'ecological trap' for many nocturnal insects, which are attracted strongly to such light sources):

1. Lighting of the road has been kept to the minimum necessary for road safety. Otherwise the motorway across the Gwent Levels would be unlit. As part of the additional mitigation, the lighting would be designed to minimise light spill outside the motorway carriageway. In particular, care would be taken to avoid lighting of the approaches to and the entrances of culverts and mammal crossings beneath the road and nearby habitats, including watercourses/ waterbodies (including river corridors), water treatment areas, and woodland and scrub (new and existing) (Document 2.3.2 para 10.9.100).
2. The ES (Document 2.3.2) recognises that some night-flying invertebrates would still be attracted by the lighting and their behaviour disrupted (para 10.9.252).

2.2.6. Response to **Point 7** (Considers that the road surface and associated motorway structures would prove attractive to flying aquatic insects, thus leading to increased mortality and reduced breeding success):

1. This could well be the case, but is considered unlikely to be significant overall.

2.2.7. Response to **Point 8** (Considers that pollutants in water treatment area (WTA) outfalls from the Scheme would be detrimental to the aquatic invertebrate fauna):

1. Richard Graham's Proof of Evidence (WG 1.15.1) explains that the Water Treatment Areas (WTAs) are capable of preserving ambient ree water quality in the long term and that short-term impacts are within criteria which are acceptable for the protection of sensitive aquatic organisms for both 6- and 24-hour likely peaks in pollutant concentrations.

2.2.8. Response to **Point 9** (Considers that mitigation measures need to address the specific needs of the nationally important invertebrate assemblage):

1. Mitigation for the nationally important assemblage of aquatic invertebrates is provided through the Reen Mitigation Strategy, as published in the ES.

2.2.9. Response to **Point 10** (Considers that, despite its high importance, no monitoring of the impact the ree and SSSI mitigation measures might have on the invertebrate fauna is proposed):

1. The following commitments refer to monitoring. Any of them could, in consultation with NRW, include monitoring of invertebrates (and Commitment 130 does include monitoring of shrill carder bee):

102. A general environmental monitoring strategy will be developed in conjunction with NRW and other appropriate bodies.

130. Monitoring would be undertaken both during the construction and the first 5 years after opening operation of the new section of motorway to confirm the effectiveness of mitigation measures, and if necessary, to inform the need for any changes in management of impacts.

[This commitment goes on to state: 'Requirements for monitoring of protected species would be set out in the European Protected Species Licence Method Statements and other species Method Statements. This would include monitoring of populations of dormouse, bats, water vole, badger and shrill carder bee'.]

142. An environmental monitoring strategy for the construction and operational phases will be developed, discussed and agreed with NRW. The strategy will be implemented accordingly.