
**WRITTEN STATEMENT
Dave Boyce**

ON BEHALF OF

GWENT WILDLIFE TRUST

In the matter of:

**Public Local Inquiry into the M4 relief road around Newport: The effects of the proposed M4
extension across the Gwent Levels**

February 2017

Overview

1. My evidence considers the likely effects on invertebrates of the proposed M4 Corridor around Newport (pCaN) scheme, a proposal to build a new section of motorway across the Gwent Levels. This has involved assessment of the Environmental Statement (ES), the mitigation proposals within it and the examination of relevant research. It also includes a brief discussion of other long-term impacts of roads on invertebrates that are not acknowledged by the ES. Unless otherwise stated, comments relate to the corridor of land demarcated by the black line of the proposed route and the red line inner buffer.

Commentary

2. Extensive grazing marsh systems such as the Gwent Levels are of very localised occurrence in Britain. The Gwent Levels supports a nationally important invertebrate assemblage that includes a number of Nationally Rare or Nationally Scarce species.
3. The four Sites of Special Scientific Interest (SSSIs) through which the proposed route would pass all have aquatic and terrestrial invertebrate fauna listed on the SSSI citation as a feature that was a primary reason for the site's designation.
4. The four remaining SSSIs on the Gwent Levels are of similarly high importance for invertebrates. They would not be directly affected by the pCaN, but are likely to still suffer damage to their importance for invertebrates resulting from indirect impacts of the scheme.
5. Though some important aquatic invertebrates were found in the M4 pCaN 2014 invertebrate surveys, the samples are all less diverse than those collected during other recent surveys.
6. Most of the important aquatic invertebrates (eg. dragonflies and soldierflies) for which the Gwent Levels has been notified were not recorded by the 2014 survey. The aquatic invertebrate survey provides inadequate information against which to assess the impact on it of the pCaN.

7. Except for that relating to bumblebees, survey information collected in support of this scheme severely underestimates the interest of the terrestrial invertebrate fauna on the Gwent Levels SSSIs. Very little information has been collected on the invertebrate fauna of ditch margins, grassland, hedgerows, wet woodland and old trees.
8. The exception to this are the detailed 2015 studies of ABP land at Newport Docks, Tata Steel land at Llanwern and of bumblebees across the Gwent Levels, which are all of high quality and give a realistic picture of the considerable importance of these areas for invertebrates. Newport Docks and part of the Tata Steel site lie outside the boundaries of the SSSI.
9. Overall, the 2014 samples do not allow a proper assessment of the importance of the aquatic and terrestrial invertebrate fauna to be made along the pCaN route through the four SSSIs that will be directly affected by the scheme.
10. Most of the recommendations for further work laid out in the 2014 invertebrate survey have not been followed up. Implementation of these would have allowed a more informed assessment of the impact of the scheme on the invertebrate fauna.
11. The proposed road would also have indirect impacts on the invertebrate fauna that do not appear to have been considered in the ES. The first of these is that roads can significantly weaken and fragment invertebrate populations by both direct mortality and behavioural avoidance. With such a wide and busy road as the M4 pCaN, these effects would be particularly severe.
12. Artificial lighting has been shown in numerous studies to have a significant impact on flying insects. New lighting associated with this scheme would be likely to have an adverse effect on invertebrate populations for which the Gwent Levels SSSIs have been notified.
13. Research has shown that polarised light pollution from the road surface, and associated hard structures, which can mimic waterbodies to insect eyes, is attractive to a range of aquatic invertebrates. The importance of the aquatic invertebrate fauna here should warrant a precautionary approach.

14. Pollutants in water treatment area outfalls from the pCaN scheme would be detrimental to the aquatic invertebrate fauna. No adequate baseline dataset, assessment of likely impacts of water pollution from the pCaN, or monitoring scheme are provided in the ES despite the known high importance of the freshwater invertebrate assemblage and its sensitivity to water pollution.
15. Given the importance of the Gwent Levels for invertebrates, these indirect negative impacts should have been addressed properly in the ES and mitigation package.
16. The mitigation measures proposed in the SSSI Mitigation Strategy for the pCaN (Welsh Govt., 2016) have the potential to enhance the aquatic invertebrate fauna within the mitigation areas. However, the proximity of these to the proposed new route and other issues such as potential water pollution considerably reduce their potential as alternative areas of important invertebrate habitat.
17. Further mitigation measures that are specifically tailored to benefit important invertebrate assemblages or species should have been included within the mitigation package. .
18. No monitoring of the impact of mitigation measures on the invertebrate fauna is proposed in the SSSI Mitigation Strategy (Welsh Govt., *ibid.*). Given that this is one of the main features of importance for which the Gwent Levels were notified, a commitment to the monitoring of at least the response of aquatic invertebrates and the shrill carder bee should have been essential. For watercourses in particular, the response of the aquatic invertebrate fauna would be of paramount importance in judging the success of mitigation measures.
19. In conclusion, the M4 pCaN would cause significant damage to the nationally important aquatic invertebrate assemblage for which the Gwent Levels have been notified as a SSSI. Such damage would both be as a direct result of habitat loss and high mortality of dispersing individuals and through indirect effects such as habitat fragmentation and light, water and polarised light pollution.