

G.6 Terrestrial Invertebrates



Notes on Terrestrial Invertebrates Survey Data

Damhead Creek Power Station, Kingsnorth, Kent.

Author: Dr. Mark R. Webb, *Director.*

**Peak Ecology Limited, 18 Grange Road, Buxton,
Derbyshire SK17 6NH.**

<http://www.peakecology.co.uk>

Terrestrial Invertebrates Survey of Damhead Creek Power Station, Kingsnorth, Kent.

1.0 Introduction

- 1.1 Peak Ecology Limited were commissioned by Penny Anderson Associates Limited, acting for Scottish Power plc, to carry out a three-visit survey of the terrestrial invertebrate interest of the above site.

2.0 Methods

- 2.1 On each visit, a walk-over of the site was carried out in order to identify and evaluate the various habitats present, in terms of their likely level of invertebrate interest.
- 2.2 Secondly, the site was walked over again in a repetitive 'zig-zag' fashion. During this second walk-over, a preliminary list of species was compiled. This method is particularly useful for recording larger, more readily identifiable day-active insects like dragonflies and damselflies, butterflies and day-flying moths, grasshoppers and the like.
- 2.3 Then, sweep-netting was carried out across the site, taking care to include both typical and atypical patches of habitat, and especially those areas identified during the initial walk-over as having the most potential with regard to invertebrates. For this, a 48cm diameter net on a 60cm pole was swept repeatedly through tall grass and herbaceous vegetation to catch low-flying insects and any invertebrates feeding or resting on grass stems or flower heads. This technique has the potential to add many smaller, less obvious species to the list for the site.
- 2.4 During the sweep-netting, field observations of butterflies etc. were ongoing.
- 2.5 A number of the specimens collected in the sweep net were retained for identification or confirmation using a microscope using the standard reference works/keys. Specimens examined included under the microscope included some bumblebees, where the sting sheaths of workers were examined to confirm identifications.
- 2.6 The survey was not intended to be exhaustive or comprehensive with regard to species-listing, and clearly the preparation of a lengthy species list is not possible, even with three survey visits. Rather, this survey was intended to provide data by which to assess the general quality of the invertebrate habitats present within the application site, and to determine whether any further surveys might be required.
- 2.7 These surveys were carried out by Dr. Mark Webb on the 1/2nd June (Mitigation Land only), 13th July (Mitigation Land and Extension Area) and 11th September (Mitigation Land, Extension Area and Car Park Area) 2006. Weather conditions were fair to good on all survey days.

3.0 Findings

- Appendix A provides a full species list from the three survey visits.
- The invertebrate fauna of the site, particularly the Mitigation Land, is both interesting and valuable.
- A good range of common and widespread species was found, with many species occurring in high abundance. A fair number of local and scarce species were also present. Overall, more species were recorded on the Mitigation Land than either the Extension Area or Car Park Area.
- The invertebrate fauna present reflects the site's coastal location in north Kent, on the edge of the broader East Thames corridor. There are coastal species, species typical of wetland habitats and ponds, and species typical of species-rich grassland and brownfield sites, as might be expected given the habitats present and recent site origin.
- In all, ninety species were recorded, including (not exclusively):
- **Bumblebees**; seven species including the scarce UK BAP species *Bombus humilis* and *Bombus ruderarius*. The identification of these species was confirmed by microscopic examination.
- **Hoverflies**; a fair range of hoverflies including the local *Anasimyia contracta*, the scarce *Orthonevra geniculata* and *Paragus haemorrhous* and particularly the scarce coastal species *Eristalinus aeneus*. Interestingly, the latter species was only recorded in the Car Park Area.
- **Bugs**; including the scarce *Bathysolen nubilus* and *Syromastes rhombeus*, both of which are coastal species.
- **Beetles**; eighteen species were recorded, including seven or eight Local species and perhaps most notably the Water Ladybird *Anisosticta 19-punctata*.
- **Orthoptera**; a high overall abundance and eight species represented. Including a large population of the local Lesser Marsh Grasshopper *Chorthippus albomarginatus*, both the Long-winged and Short-winged Cone-heads *Conocephalus discolor* and *C. dorsalis* and the scarce coastal Cepero's Ground-hopper *Tetrix cepero*.
- **Lepidoptera**; twenty-six species of butterflies and day-flying moths were present, including the relatively scarce pyralid moths *Agriphila geniculea*, *A. latistria* and *Oncocera semirubella*.
- **Odonata**; a good range of eleven species of dragonflies and damselflies were recorded, including the scarce Hairy Dragonfly *Brachytron pratense*.

Further work

- Given the high level of invertebrate interest on the site surveyed, it would be prudent to carry out further surveys in 2007, particularly on the Car Park Area which was only visited once in 2006.
- In terms of particular species, it would be valuable to learn more about the distributions of the scarce bugs *Bathysolen nubilus* and *Syromastes rhombeus*, the scarce bumblebees *Bombus humilis* and *Bombus ruderarius* and particularly the very scarce hoverfly *Eristalinus aeneus*, which was only recorded from the Car Park Area.
- More generally, it would be very interesting to monitor the development of the invertebrate fauna of the Mitigation Land.

Appendix A: Invertebrate Species List



Species name	Common name (where applicable)	Notes on status and habitat associations	Notes on status and distribution on site
COLEOPTERA			
Beetles			
Brentidae			
Weevils			
<i>Oxystoma pomonae</i>		Widely distributed and locally common.	Mitigation Land 2/06/06, 13/07/06.
<i>Protapion filirostre</i>		Local in dry grasslands in southern England.	Mitigation Land 2/06/06, 13/07/06.
Cantharidae			
Soldier Beetles			
<i>Cantharis rustica</i>		Common and widespread.	Mitigation Land 2/06/06 (5)
<i>Rhagonycha fulva</i>		Common and widespread.	Extension Area 13/07/06 (3); Mitigation Land 13/07/06.
Carabidae			
Ground Beetles			
<i>Amara apricaria</i>		Common on waste ground and dry grassland.	Extension Area 11/09/06 (2)
<i>Amara plebeja</i>		Common in damp habitats.	Mitigation Land 2/06/06
Chrysomelidae			
Leaf Beetles			
<i>Bruchus affinis</i>		Local.	Mitigation Land 2/06/06
<i>Chrysolina banksi</i>		Local.	Extension Area 11/09/06 (3)
Coccinellidae			
Water ladybird			
<i>Anisosticta 19-punctata</i>		Local.	Mitigation Land 11/09/06
<i>Coccinella 7-punctata</i>	7-spot Ladybird	Common and widespread	Extension Area 13/07/06; Mitigation Land 2/06/06, 13/07/06.
<i>Micraspis 16-punctata</i>	16-spot ladybird	Local.	Mitigation Land 13/07/06, 11/09/06.
<i>Propylea 14-punctata</i>	14-spot ladybird	Common.	Mitigation Land 13/07/06
<i>Subcoccinella 24-punctata</i>	24-spot Ladybird	Local.	Extension Area 11/09/06
Curculionidae			
Weevils			
<i>Phyllobius roboretanus</i>		Common.	Mitigation Land 2/06/06
Hydrophilidae			
Water-scavenger beetles			
<i>Helochares lividus</i>		Common.	Mitigation Land 11/09/06
Melyridae			
Tumbling Flower-Beetles			
<i>Malachius bipustulatus</i>		Common and widespread.	Extension Area 13/07/06; Mitigation Land 2/06/06, 13/07/06 (3).
Oedemeridae			
Oedemera			
<i>Oedemera lurida</i>		Local.	Mitigation Land 13/07/06
<i>Oedemera nobilis</i>		Common.	Extension Area 13/07/06; Mitigation Land 2/06/06, 13/07/06 (3).
DERMAPTERA			
Earwigs			
Forficulidae			
Common Earwig			
<i>Forficula auricularia</i>		Common and widespread.	Mitigation Land 13/07/06, 11/09/06
DIPTERA			
Two-winged or True Flies			
Asilidae			
Robber Flies			
<i>Dioctria rufipes</i>		Common.	Mitigation Land 2/06/06 (3)
<i>Leptogaster cylindricum</i>		Local.	Mitigation Land 13/07/06
Syrphidae			
Hoverflies			
<i>Anasimyia contracta</i>		Local, associated with <i>Typha</i> in ponds.	Mitigation Land 2/06/06
<i>Chrysotoxum bicinctum</i>		Widely distributed, fairly common.	Mitigation Land 13/07/06
<i>Episyrphus balteatus</i>		Common and widespread.	Mitigation Land 13/07/06 (2)
<i>Eristalinus aeneus</i>		Scarce coastal species.	Car Park Area 11/09/06 (2).
<i>Eristalis arbustorum</i>		Common and widespread.	Car Park Area 11/09/06 (4).
<i>Eristalis tenax</i>		Common and widespread.	Car Park Area 11/09/06 (3).
<i>Eupeodes corollae</i>		Widespread and common.	Mitigation Land 13/07/06
<i>Episyrphus balteatus</i>		Widespread and common.	Extension Area 13/07/06.
<i>Helophilus pendulus</i>		Widespread and common.	Mitigation Land 2/06/06, 11/09/06
<i>Orthonевра geniculata</i>		Widely distributed but scarce.	Mitigation Land 13/07/06

Species name	Common name (where applicable)	Notes on status and habitat associations	Notes on status and distribution on site
<i>Paragus haemorrhous</i>		Scarce outside chalk grassland and coastal districts.	Car Park Area 11/09/06.
<i>Sphaerophoria scripta</i>		Widespread and common.	Extension Area 13/07/06; Car Park Area 11/09/06; Mitigation Land 2/06/06, 13/07/06 (5).
<i>Syrphus vitripennis</i>		Common and widespread.	Car Park Area 11/09/06.
Tabanidae			
<i>Chrysops relictus</i>	A horsefly	Common and widespread.	Extension Area 11/09/06
HEMIPTERA			
True Bugs			
Coreidae			
<i>Bathysolen nubilus</i>	A squash bug	Scarce, on waste ground and coastal shingle in south-east England especially Kent.	Extension Area 13/07/06; Mitigation Land 11/09/06.
<i>Syromastes rhombeus</i>	A squash bug	Scarce to Local coastal species.	Mitigation Land 11/09/06
Pentatomidae			
<i>Aelia acuminata</i>	Bishop's Mitre	Widespread and common in central and southern England.	Extension Area 11/09/06
HYMENOPTERA			
Ants, bees and wasps			
Apidae			
Bumblebees			
<i>Bombus humilis</i>		Scarce; UK BAP species.	Extension Area 11/09/06; Car Park Area 11/09/06; Mitigation Land 2/06/06 (2).
<i>Bombus lapidarius</i>		Common and widespread.	Extension Area 11/09/06; Mitigation Land 13/07/06.
<i>Bombus lucorum</i>		Common and widespread.	Mitigation Land 13/07/06.
<i>Bombus pascuorum</i>		Common and widespread.	Mitigation Land 2/06/06, 11/09/06
<i>Bombus pratorum</i>		Common and widespread.	Mitigation Land 1/06/06.
<i>Bombus ruderarius</i>		Scarce; UK BAP and Species Recovery Program species.	Mitigation Land 2/06/06
<i>Bombus terrestris</i>		Widespread and common.	Mitigation Land 2/06/06
LEPIDOPTERA			
Butterflies and Wasps			
Arctiidae			
<i>Tyria jacobaeae</i>	Cinnabar Moth	Common and widespread.	Extension Area 13/07/06 (abundant).
Geometridae			
<i>Aplocera efformata</i>	Lesser Treble Bar Moth	Widespread and common in southern England.	Car Park Area 11/09/06.
<i>Aspitates ochrearia</i>	Yellow Belle	Locally common in coastal areas.	Mitigation Land 1/06/06.
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	Common and widespread.	Extension Area 13/07/06; Mitigation Land 13/07/06.
Hesperiidae			
<i>Thymelicus lineola</i>	Essex Skipper	Common and widespread in central and southern England.	Extension Area 13/07/06 (abundant); Mitigation Land 13/07/06 (abundant).
<i>Thymelicus sylvestris</i>	Small Skipper	Common and widespread.	Extension Area 13/07/06 (abundant); Mitigation Land 13/07/06 (abundant).
Lycaenidae			
<i>Lycaena phlaeas</i>	Small Copper Butterfly	Common and widespread.	Mitigation Land 1/06/06.
<i>Polyommatus icarus</i>	Common Blue Butterfly	Common and widespread.	Car Park Area 11/09/06; Mitigation Land 1/06/06, 11/09/06.
Noctuidae			
<i>Autographa gamma</i>	Silver Y Moth	Common and widespread.	Mitigation Land 13/07/06.
<i>Callistege mi</i>	Mother Shipton	Local.	Mitigation Land 13/07/06.
<i>Euclidia glyphica</i>	Burnet Companion	Locally common.	Mitigation Land 2/06/06.
Nymphalidae			
<i>Cynthia cardui</i>	Painted Lady	Common and widespread migrant.	Car Park Area 11/09/06; Mitigation Land 1/06/06.
<i>Vanessa atalanta</i>	Red Admiral	Common and widespread migrant.	Extension Area 13/07/06.

Species name	Common name (where applicable)	Notes on status and habitat associations	Notes on status and distribution on site
Pieridae			
<i>Pieris brassicae</i>	Large White Butterfly	Common and widespread.	Extension Area 13/07/06; Mitigation Land 11/09/06.
<i>Pieris napi</i>	Green-veined White Butterfly	Common and widespread.	Mitigation Land 1/06/06.
<i>Pieris rapae</i>	Small White Butterfly	Common and widespread.	Extension Area 11/09/06; Car Park Area 11/09/06; Mitigation Land 13/07/06, 11/09/06.
Pyralidae			
<i>Agriphila geniculea</i>	A pyralid micro-moth	Widespread and locally common on dry pasture and coastal sandhills.	Mitigation Land 11/09/06.
<i>Agriphila latistria</i>	A pyralid micro-moth	Locally common on dry heaths, coastal sandhills and woodland rides in sandy districts.	Car Park Area 11/09/06; Mitigation Land 11/09/06.
<i>Agriphila tristella</i>	A pyralid micro-moth	Common and widespread.	Extension Area 11/09/06; Mitigation Land 11/09/06.
<i>Chrysoteuchia culmella</i>	A pyralid micro-moth	Common and widespread.	Extension Area 13/07/06.
<i>Crambus lathoniellus</i>	A pyralid micro-moth	Common and widespread.	Extension Area 13/07/06.
<i>Oncocera semirubella</i>	A pyralid micro-moth	Locally common on limestone downland and cliffs in Kent and along south coast.	Mitigation Land 11/09/06.
Satyridae			
<i>Coenonympha pamphilus</i>	Small Heath Butterfly	Common and widespread.	Extension Area 11/09/06; Car Park Area 11/09/06; Mitigation Land 13/07/06, 11/09/06.
<i>Maniola jurtina</i>	Meadow Brown Butterfly	Common and widespread.	Extension Area 13/07/06; Mitigation Land 13/07/06.
<i>Pyronia tithonus</i>	Gatekeeper Butterfly	Common and widespread.	Extension Area 13/07/06 (abundant); Mitigation Land 13/07/06.
Zygaenidae			
<i>Zygaena lonicerae</i>	Six-spot Burnet Moth	Widespread and common.	Extension Area 13/07/06; Mitigation Land 13/07/06.
ODONATA			
Dragonflies and Damselflies			
Aeshnidae			
<i>Aeshna cyanea</i>	Southern Hawker	Common and widespread.	Mitigation Land 11/09/06.
<i>Aeshna grandis</i>	Brown Hawker	Common and widespread.	Extension Area 11/09/06.
<i>Aeshna mixta</i>	Migrant Hawker Dragonfly	Common and widespread.	Extension Area 11/09/06; Mitigation Land 11/09/06.
<i>Anax imperator</i>	Emperor Dragonfly	Common and widespread.	Extension Area 11/09/06.
<i>Brachytron pratense</i>	Hairy Dragonfly	Scarce but expanding; probably Local.	Mitigation Land 1/06/06.
Coenagrionidae			
<i>Enallagma cyathigerum</i>	Common Blue Damselfly	Widespread and common.	Extension Area 13/07/06, 11/09/06; Mitigation Land 1/06/06, 13/07/06, 11/09/06.
<i>Ishnura elegans</i>	Blue-tailed Damselfly	Widespread and common.	Extension Area 13/07/06; Mitigation Land 1/06/06, 13/07/06.
Lestidae			
<i>Lestes sponsa</i>	Small Emerald Damselfly	Widespread and fairly common.	Mitigation Land 13/07/06.
Libellulidae			
<i>Orthetrum cancellatum</i>	Black-tailed Skimmer	Locally common in southern England.	Extension Area 13/07/06; Mitigation Land 1/06/06.
<i>Sympetrum sanguineum</i>	Ruddy Darter Dragonfly	Formerly scarce but expanding and now fairly common and widespread.	Extension Area 13/07/06, 11/09/06; Mitigation Land 11/09/06.
<i>Sympetrum striolatum</i>	Common Darter Dragonfly	Common and widespread.	Extension Area 13/07/06, 11/09/06; Car Park Area 11/09/06; Mitigation Land 13/07/06, 11/09/06.

Species name	Common name (where applicable)	Notes on status and habitat associations	Notes on status and distribution on site
ORTHOPTERA			
Acrididae			
<i>Chorthippus albomarginatus</i>	Lesser Marsh Grasshopper	Locally common south and east of the Severn-Humber line.	Extension Area 13/07/06 (abundant), 11/09/06 (abundant); Mitigation Land 13/07/06 (frequent), 11/09/06 (abundant).
<i>Chorthippus brunneus</i>	Field Grasshopper	Common and widespread.	Car Park Area 11/09/06 (frequent); Mitigation Land 11/09/06.
<i>Chorthippus parallelus</i>	Meadow Grasshopper	Common and widespread.	Extension Area 13/07/06 (abundant), 11/09/06 (abundant); Mitigation Land 13/07/06 (abundant), 11/09/06 (abundant).
Tettigoniidae			
<i>Conocephalus discolor</i>	Long-winged Cone-head	Was very scarce; now increasing. Probably locally common in southern England.	Mitigation Land 13/07/06, 11/09/06
<i>Conocephalus dorsalis</i>	Short-winged Cone-head	Locally common in central and southern England.	Mitigation Land 11/09/06
<i>Leptophyes punctassima</i>	Speckled Bush-cricket	Local.	Extension Area 13/07/06.
<i>Metrioptera roeselii</i>	Roesel's Bush-cricket	Was very scarce; now increasing. Locally common in southern England.	Mitigation Land 13/07/06.
Tetrigidae			
<i>Tetrix ceperoi</i>	Cepero's Ground Hopper	Scarce, southern-coastal species.	Mitigation Land 11/09/06