



Moths Recorded on INCA Member Sites
in the Tees Valley during 2008



Background

There is an increasing interest in *Lepidoptera* as indicators of habitat quality as, like most invertebrates, they are highly sensitive to changes in their environment. The work detailed subsequently focuses on moths, as there are gaps in knowledge relating to this faunal group across the Tees Valley generally, particularly on land owned by industrial organisations. Surveys were conducted at the sites shown in Table 1 during 2008.

Table 1: Moth Survey Locations in the Tees Valley

Site	Spatial Reference	SSSI	Local Authority	Habitat
Huntsman Tioxide (Greenabella Marsh)	NZ517269	Tees & Hartlepool Foreshore & Wetlands	Hartlepool	Reedbed bordered by semi-improved grassland
Cleveland Potash (Mines Wood, Boulby)	NZ761178	-	Redcar & Cleveland	Mixed deciduous woodland
Coatham Marsh	NZ588246	South Gare & Coatham Sands	Redcar & Cleveland	Reedbed bordered by semi-improved grassland
Corus RD&T (Grangetown)	NZ542207	-	Redcar & Cleveland	Urban, with a small area of deciduous woodland
Corus Redcar (Bran Sands)	NZ557261	South Gare & Coatham Sands	Redcar & Cleveland	A mosaic consisting of semi-improved calcareous grassland / coastal dune grassland / reedbed
BP CATS (Seal Sands Estate)	NZ518247	Seal Sands	Stockton- on-Tees	Reedbed bordered by semi-improved grassland
Lucite (New Road, Billingham)	NZ463215	-	Stockton- on-Tees	Semi-improved grassland
Simon Storage (Billingham Reach Industrial Estate)	NZ477206	-	Stockton- on-Tees	Semi-improved grassland / scrub

Methodology

For the purpose of this study, moth recording was achieved using light traps:

1. **125 Watt Robinson-type Mercury Vapour Trap** (powered by generator). This type of lamp attracts a greater number of moths than the normal alternatives and often of a greater diversity. The basis of this trap is an ultraviolet light source, which is the most attractive type to moths. It cannot be left unattended, as generators use petrol as a fuel, which has obvious safety implications. Where recording used this method, the light was normally operated from just after dusk for 4 hours or so. This missed those species which have their flight time in the early hours of the morning. Two sites (BP CATS and Corus RD&T) were able to allow operation of this device from a mains power source, thus enabling overnight operation.
2. **Heath trap fitted with a 6 Watt Actinic bulb**. This is less powerful as a light source, but still emits ultraviolet light. It is operated from a 12 volt car battery and is safe to leave overnight. Generally the trap is sited around dusk and the contents analysed around 6 a.m on the following morning before releasing. It has the advantage of covering the whole period of darkness and is a more convenient option to use.

The vast majority of moths were identified in the field and released. However, it was necessary to remove a small amount of sample material for those species which could not be readily identified in the field. For sites that are part of a SSSI this activity was authorised under a Natural England consent application (ORNEC Number 10) which was issued on the 22nd of April 2008.

Data arising from these surveys has been entered into the electronic biological recording system called 'MapMate', which is the mechanism used by County (and Vice-County) *Lepidoptera* recorders to assemble data. This data is then collated by the recorders into the UK-wide National Biodiversity Network (NBN) database.

Results

There is a detailed dataset available which is contained on a separate Excel spreadsheet. It notes the date on which each species was recorded and the species' frequency and status, where relevant. This is not included with the report, but is available on request from INCA.

Discussion

A total of 200 species were recorded during the course of this study. Details of the number of species recorded at each site, the frequency of visits and method used to record the moths found are shown in Table 2.

The overall total is encouraging, especially in view of the general weather conditions through June, July and August of 2008. Indeed, in 2008 the percentage of days experiencing wet or wet / windy weather was even higher than in 2007. These comparative figures are shown in Table 3.

Table 2: Species Totals at Each Site versus Frequency of Visit

Site	Number of Species Recorded	Number of Visits	Date of Visits	Method Used
Cleveland Potash (Mines Wood, Boulby)	110	5	25.4; 16.5; 5.6; 4.7; 18.9	MV trap / generator
Corus Redcar (Bran Sands)	61	4	1.7; 10.7; 22.7; 28.8	Heath Trap
Corus RD&T (Grangetown)	45	1	23.7	MV trap / mains electricity
Coatham Marsh	43	3	17.7; 18.7; 25.8	MV trap / generator
Lucite (New Road, Billingham)	24	3	3.7; 24.7; 27.8	Heath Trap
BP CATS (Seal Sands Estate)	23	1	20.8	MV trap / mains electricity
Huntsman Pigments (Greenabella Marsh)	17	3	20.6; 8.7; 8.9	Heath Trap
Simon Storage (Billingham Reach Industrial Estate)	6	2	14.7; 16.9	Heath Trap

Table 3: Summer Weather in 2007 / 2008

Year	% of Days Experiencing Wet or Wet / Windy Weather During Daylight Hours		
	June	July	August
2007	80%	80%	65%
2008	80%	90%	77%

The highest species diversity was recorded in Mines Wood, Boulby. This may be partly due to the frequency of visits, in conjunction with the method available to survey, but also reflects the quality of the deciduous woodland habitat which is present there. Indeed, of the 110 species recorded at this site, 14 species (13% of the site total) are local or scarce.

Corus Redcar, with 61 species recorded, is likely to have significantly higher species diversity, as the immediate area of the moth trap site at Bran Sands is a mosaic of different habitats, including reedbed, coastal grassland and semi-improved calcareous grassland growing on blast furnace slag. Of the species at Corus Redcar, 9 are either local or scarce, representing 15% of the site total.

Corus RD&T at Grangetown gave good results considering its location among the fairly heavily urbanised area of the A66 corridor. Many of the species recorded there are generally associated with woodland, including 3 which are scarce in this region, suggesting that the small area of woodland which is present on the site is a valuable resource for wildlife locally.

Greenabella Marsh gave results which were poor considering the varied habitat mosaic which is present on this site but poor weather was a major factor in visits to the area.

The low diversity of species seen at Billingham Reach Industrial Estate probably reflects the low floral diversity of that site.

Short accounts are given of the principle species of interest which were recorded:

Nemophora cupriacella – Notable b. Its Red Data Book classification means that it is uncommon in Great Britain (being only found in between 31 and 100 kilometre squares of the National Grid). It occurs mainly in the south of England, being more scarce in northern England. It inhabits dry grassy areas and was found in such a location at Bran Sands. The larvae feed on various ‘scabious’ species (*Knautia*, *Succisa* or *Scabiosa*).

Eucosma conterminana – Notable b. It generally inhabits dry and stony or chalky habitats and occurs locally in the south and south-east of England. It was a surprise to see this at the Lucite site on New Road in Billingham as it is well out of its normal range. However, the larval foodplant, Great Lettuce (*Lactuca vireola*), is fairly frequent on this grassland site. This may be one of the first records of this species in the North east.

Evergestis extimalis – Notable b. This species, found at Bran Sands, is a scarce resident in parts of south-east England, but otherwise is only found as an occasional migrant to the south. It prefers dry chalky habitats and the moth flies in June and July. The larvae feed in the seed-heads of various Cruciferous plants.

Blomer’s Rivulet (*Discoloxia blomeri*) – Notable b. A scarce species which appears to be well established in Mines Wood. It occurs sporadically throughout England and Wales in deciduous woodland and depends upon Wych Elm (*Ulmus glabra*) as its larval food plant. In our area it is characteristic of the well-wooded valleys which drop steeply to the sea.

Lyme Grass (*Chortodes elymi*) – This scarce species is classified as ‘Notable b’. It is restricted to coastal sandhills along the East Coast, from Suffolk northwards. As its name suggests, it is dependent upon Lyme Grass (*Elymus arenarius*) as the larval foodplant. Most of the records originated from the Bran Sands site, but it was also seen at Coatham Marsh.

Southern Wainscot (*Mythimna straminea*) and **Silky Wainscot** (*Chilodes maritimus*) are both associated with *Phragmites* reed bed and are known to be moving northwards in their distribution. They are currently fairly scarce in our region, but are likely to be encountered in established reedbeds across the Tees Valley. In the course of this study, both species were recorded at the BP CATS terminal on the Seal Sands Estate, at Greenabella Marsh and Coatham Marsh. Additionally the Southern Wainscot was recorded from the Bran Sands site.

Shore Wainscot (*Mythimna litoralis*)- Notable b. A strictly coastal species which was found at Bran Sands. It occurs locally in sand dunes, mainly in England and Wales. The larvae feed on marram (*Ammophila arenaria*).

The Crescent (*Celaena leucostigma*) is also associated with marshes and reedbeds. It is again fairly local in its distribution and uses Yellow Flag (*Iris pseudacorus*) as a larval foodplant. It was found at the BP CATS terminal and at Coatham Marsh.

There were also a number of local species which are associated with herb-rich grassland. These include the **Least Yellow Underwing** (*Noctua interjecta*), **Dusky Sallow** (*Eremobia ochroleuca*) and **Grass Rivulet** (*Perizoma albulata*). Grasses and a variety of low-growing plants provide the food source for the larvae of the Least Yellow Underwing, which appeared only at Bran Sands and at New Road in Billingham. Normally a species of areas which are characterised by limestone or chalk, the Dusky Sallow appeared at Coatham Marsh and at the BP CATS terminal. Both sites have areas where the calcareous blast furnace slag substratum leads to a flora which is reminiscent of that to be found on limestone or chalk. The Grass Rivulet is associated with Yellow rattle (*Rhinanthus minor*) and was found only at Coatham Marsh.

Conclusion

Results based on 22 visits to INCA member's sites across the Tees Valley in 2008 are interesting. There are a number of good indicator species appearing, which is likely to increase significantly with further recording. Many of the sites visited provide an important contribution to the invertebrate diversity of our sub-region.

Acknowledgement

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