North Thames Estuary and Marshes Terrestrial Invertebrate Survey

F111 and F112 Assemblage Sampling at the Enovert Landfill Site in Mucking (compartment ‘C’)

August 2025

Natural England Commissioned Report NECR592

www.gov.uk/natural-england

NATURAL ENGLAND

About Natural England

Natural England is here to secure a healthy natural environment for people to enjoy, where wildlife is protected and England's traditional landscapes are safeguarded for future generations.

Further Information

This report can be downloaded from the Natural England Access to Evidence Catalogue. For information on Natural England publications or if you require an alternative format, please contact the Natural England Enquiry Service on 0300 060 3900 or email enquiries@naturalengland.org.uk.

Copyright

Catalogue code: NECR592

Report details

Author

Andy Jukes BSc (Hons) MCIEEM FRES

Natural England Project Manager

Jonathan Bustard, Senior Project Manager, Thames Estuary

Contractor

Conops Entomology Ltd.

Keywords

North Thames Estuary, Terrestrial invertebrates, SSSI (Site of Special Scientific Interest), SATs (Specific Assemblage Types)

Acknowledgements

Natural England would like to thank the staff at Enovert for land access permission and for related practical support, in particular Matt Norton (Area Operations Manager South East) and Sarah Holland (Planning Manager).

Citation

Andy Jukes. 2024. North Thames Estuary and Marshes Terrestrial Invertebrate Survey. F111 and F112 Assemblage Sampling at the Enovert Landfill Site in Mucking (compartment ‘C’). Natural England Commissioned Report NECR592. Natural England.

Foreword

The Enovert landfill site was surveyed in 2024 to determine its quality by targeting terrestrial invertebrate assemblages and collecting evidence to assess the case for notification as a Site of Special Scientific Interest (SSSI). The report does not itself make a case for notification, rather it provides an objective record of survey findings to support Natural England's independent assessment of special interest. Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the author and do not necessarily represent those of Natural England.

Executive Summary

The targeted SATs (Specific Assemblage Types) for the Enovert landfill Site (known as Compartment 'C') are those within the 'open biotope' and are the F111 'bare sand and chalk' and F112 'open short sward' assemblages. These are the two key assemblages associated with post-industrial habitats across the Thames Estuary area.

The assessment appraised the targeted key features of the compartment through intensive recording of invertebrates across suitable areas.

A total of 286 species were recorded from the sample locations including 44 with a national conservation status. This list includes a number of important species, and more valuably it holds strong resources of beetles (Coleoptera), true bugs (Hemiptera) and bees and wasps (Hymenoptera).

Of particular note is the presence of the fiery clearwing moth *Pyropteron chrysidiformis*, a legally protected species listed under schedule 5 of the Wildlife & Countryside Act 1981 (as amended) previously restricted to east Kent but now undergoing a range expansion. This expansion however is very recent so it is currently unknown if this trend is permanent, will halt at south Essex, or continue further northwards.

Neither of the targeted SATs (both F111 and F112) reached 'favourable condition' however both are very close to their respective thresholds with the bare sand and chalk SAT (F111) being closest to favourable condition. The fact that both F111 and F112 assemblages are not in favourable condition is thought in part to be owing to poor weather but also the lack of current ecological management of the site. Additional survey effort beyond that prescribed in the survey commission is also likely to increase the number of species found and thus have a bearing on assemblage favourability. Analysis of the survey data with that from the 2022 Natural England survey may however show both assemblages in favourable condition, as sufficient suitable habitat is present, notwithstanding the restoration work underway. Earlier survey work by the author (Jukes, 2021) is also a useful reference for the site.

Going forward it is advised that the site is managed appropriately to conserve and enhance the invertebrate value through maintenance of sufficient areas of the important early successional habitat mosaic features.

Contents

Introduction and background

Conops Entomology Ltd. was commissioned in April 2024 by Natural England to undertake a survey of land at Mucking, known as the Enovert Landfill site.

The scope of this survey is to undertake an invertebrate assessment for a proposed extension to the existing Mucking Flats and Marshes Site of Special Scientific Interest (SSSI) through the targeted recording of invertebrates of areas of potential invertebrate value adjacent and near to the existing SSSI. For the Compartment 'C' (going forward, referred to as the 'survey area') the target assemblages are the two similar assemblages, the F111 'bare sand and chalk' and F112 'open short sward'. It should be borne in mind that other assemblages were therefore sampled incidentally, and scoring interpreted accordingly.

Site Location and Context

The survey area is centred at TQ 68949 80280, although the wider site is extensive and covers an overall area of some ~175ha.

The site is located to the south-west of the DP World London Gateway Port & Logistics Park, which holds significant post-industrial and wetland habitats. The Natural England sampling unit Compartment D (East Tilbury Quarry) to the south, again holds post-industrial habitats of evident quality.

The survey area comprises four separate sampling zones. Table 1 provides details of each sub-compartment.

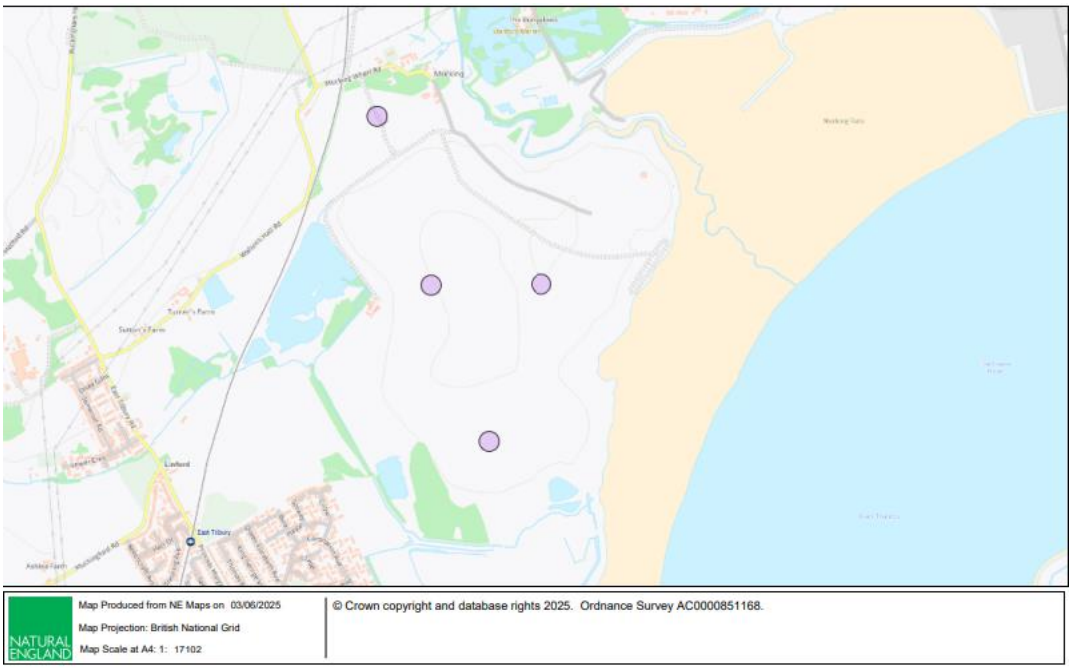
Photographs of the sample sub-compartments can be found in Appendix 3.

Table 1: Sampling Sub-compartment Details

Sampling Compartment	OS Grid Reference (centre point)	Habitat Notes
Sub-compartment 1 (C1) - south	TQ6897879424	Southerly aspect. Mosaic of aggregate, bare ground, short patchy swards and tall swards with dense patches of umbellifers.
Sub-compartment 3 (C3) - north-west	TQ6871680132	An area of current restoration. Southerly part of the sampling compartment. Comprises

Sampling Compartment	OS Grid Reference (centre point)	Habitat Notes
		tall flowery swards and tall dense grass. The northern section is short, mown grass and newly created bunded features and small patches of recent ruderal colonisation. Much of the northern part was 'out of bounds' owing to vehicle movements and ongoing land restoration.
Sub-compartment 4 (C4) - north-east	TQ6921680140	Largely short open patchy swards over coarse aggregate substrates. Small patches of taller grass, strong patches of tall yellow composites (Asteraceae) and some umbellifers.
Sub-compartment 7 (C7) - zone A	TQ6847380897	Predominantly restored to grass with bare ground bunds on the west. Tall dense grass and ruderals on the east apart from an area of bare ground trackways and a small patchwork of early succession on the very eastern edge of the sampling compartment.

Map 1: Sampling locations (OS grid reference centre point of each sub-compartment plotted)



Sampling Methods and Timings

Sweep Netting

Sweep netting and spot sampling was undertaken on a ‘free-form’ basis, targeting areas of potential high activity such as structural interfaces, flowering swards and patchy bare ground.

Forty-five minutes of free-form sweep and spot sampling was undertaken in each sampling sub-compartment.

Suction Sampling

Suction sampling using a petrol vacuum sampler was used to supplement the aerial netting and pitfall trapping. A minimum of ten minutes of active (not including sorting material in a tray) suction sampling was undertaken in each sub-compartment.

Pitfall Trapping

A set of three-by-three grids of pitfall traps (nine in total per grid) were installed in each sampling sub-compartment (therefore four sets, totalling 36 traps). The pitfall traps were left in situ for seven days.

Pitfall trap grid set locations:

Sub-compartment C1: TQ6924379394
Sub-compartment C3: TQ6871780001
Sub-compartment C4: TQ6916280263
Sub-compartment C7: TQ6841480851

Pitfall traps were made from half pint plastic cups that were covered with a 10mm metal grid, placed over the top to reduce bi-catch of small mammals, reptiles and amphibians.

The traps were half-filled with a 50:50 solution of polypropylene glycol:water and a drop of detergent.

Survey Timing

The survey area was visited on three occasions.

Table 2: Survey Dates and Weather Conditions

Visit Date	Weather Conditions	Temperature
17 May 2024	Sunny	18+ºC
24 May 2024	Sunny	20-24ºC
21 June 2024	Sunny	19-23ºC

Results Summary

A survey area total of 286 species from the sampled assemblages were recorded during the survey visits.

A total of 44 species recorded have a national conservation status, though it is recognised by many of the national recording schemes that a number of these no longer warrant their current status and that they may need revising, in particular the bees, wasps and ants for which the statuses are no longer reliable. This total does not include research-only moths. Similarly, some species may also warrant upgrading.

The full list of species recorded for the survey area and sub-compartments is provided in Appendix 2.

Table 3: Species Breakdown

Sampling location	Total number of species recorded	Total number of species of importance [Note 1]	Species of importance (%)
Sub-Compartment	286	44	15.4
C1	130	21	16.1
C3	125	20	16.0
C4	109	16	14.7
C7	136	22	16.2

[Note 1: some species do not warrant nationally significant status.]

Table 4: Species of Conservation Importance

A list of Red Data Book (RDB) definitions can be found in Appendix 1 and should be read in conjunction with Table 4, particularly the 'National/local status' column.

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
Ampedus elongatulus	A click beetle	Notable A [Note 2]; Near Threatened	A saproxylic species.	C4
Andrena fulvago	A mining bee	Notable A [Note 2]	Open, patchy and parched swards with yellow composites (Asteraceae).	C7
Andrena labitata	A mining bee	Notable A [Note 2]	Open, patchy and parched swards with small flowers such as	C7

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
			speedwells (*Veronica* spp.).	
Andrena pilipes	A mining bee	Notable B	Open sites with exposures. Forages form a range of flowers including brambles (*Rubus* spp.) and crucifers.	C3
Auplopus carbonarius	A spider-hunting wasp	Notable B	Associated with trees and structural sites.	C7
Bathysolen nubilus	A squashbug	Nationally Scarce	Open, patchy and parched swards, often on calcareous sites with black medick (*Medicago lupulina*).	C3
Bombus humilis	Brown-banded carder bee	NERC (Natural Environment and Rural Communities) Act Section 41	Open sites with varied swards, including tall, loose swards and strong flowering patches with Fabaceae and Lamiaceae.	C3; C7
Brachinus crepitans	Bombardier beetle	Nationally Scarce	Open, patchy and parched swards.	C1; C3; C4; C7
Calthus ambiguus	A ground beetle	Nationally Scarce	Open, patchy short swards.	C1; C3

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
Ceratina cyanea	Blue carpenter bee	Red Data Book 3 [Note 2]	Strongly thermophilic. Open, patchy and parched swards with a strong structural interface between ruderal edges and patchy, short swards.	C1; C7
Coelositona puberulus	A weevil	Red Data Book K [Note 2]	Grasslands, though little appears to be known of its specific requirements.	C3
Coenonympha pamphilus	Small heath butterfly	Vulnerable; NERC Act Section 41	Open, patchy swards with fine-leaved grasses including fescues (*Festuca* spp.) and bents (*Agrostis* spp.).	C1; C3; C7
Dorycera graminum	Phoenix fly	provisionally Nationally Scarce; provisionally Near Threatened; NERC Act Section 41 [Note 2]	On a wide range of open sites from arable field margins to brownfields. An apparent association with umbellifers (Apiaceae). Now common in the southeast and east of England.	C1; C3; C7

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
Eurtgaster maura	A shieldbug	Nationally Scarce	Open, patchy and parched swards, often on calcareous sites with meadow-grasses (*Poa* spp.).	C1; C3; C4; C7
Gonodera luperus	A beetle	Nationally Scarce	Larvae in decaying wood, adults feed on nectar.	C4
Gronops inaequalis	A weevil	Red Data Book K [Note 2]	Open, patchy short swards on goosefoots and others (Amaranthaceae).	C1
Gymnosoma nitens	A parasitic fly	Red Data Book 1 [Note 2]	Small parasitic fly on open sites. Parasitises the shieldbug *Sciocoris cursitans*.	C7
Harpalus attenuatus	A ground beetle	Nationally Scarce	Open, patchy and parched swards, often on calcareous sites.	C1; C3
Hylaeus signatus	A yellow-faced bee	Notable B [Note 2]	Associated with mignonettes on open sites.	C7
Hypera melancholica	A weevil	Notable B	Open, patchy and parched swards,	C1

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
			often on calcareous sites.	
Larinus carlinae	A weevil	Notable B [Note 2]	Open, patchy and parched swards, often on calcareous sites, on thistles (*Cirsium* spp).	C3
Lasioglossum malachurum	A solitary bee	Notable B [Note 2]	Open, patchy and parched swards.	C1; C4; C7
Lasioglossum pauperatum	A solitary bee	Red Data Book 3 [Note 2]	Open, patchy and parched swards, often on calcareous sites.	C1; C4
Lasioglossum pauxillum	A solitary bee	Notable A [Note 2]	Open, patchy and parched swards, often with yellow composites (Asteraceae).	C4; C7
Lasioglossum puncticolle	A solitary bee	Notable B [Note 2]	Open, patchy and parched swards, often with yellow composites (Asteraceae).	C1
Lasioglossum xanthopus	A solitary bee	Notable B	Open, patchy and parched swards, often on calcareous sites and at soft rock exposures.	C1; C4

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
Lasiommata megera	Wall butterfly	Endangered; NERC Act Section 41	Open, patchy swards over parched ground with a range of grasses.	C1
Liparus coronatus	A weevil	Notable B	On tall swards with hogweed (*Heracleum* spp.).	C7
Megalonotus antennatus	A ground bug	Notable B	Tall grasslands with Asteraceae.	C3
Megalonotus praetextatus	A ground bug	Notable B	Open, patchy and parched swards, often on calcareous sites with common stork's-bill (*Erodium cicutarium*).	C1; C3; C4; C7
Meligethes fulvipes	A beetle	Notable	On flowering swards.	C4
Meligethes rotundicollis	A beetle	Notable	On flowering swards.	C1; C3; C4; C7
Microdynerus exilis	A solitary wasp	Notable B [Note 2]	Nests in deadwood but associated with open, hot sites.	C7
Nomada fucata	A nomad bee	Notable A [Note 2]	Parasite on *Andrena flavipes*. Now very common.	C1

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
Notiophilus quadripunctuatus	A ground beetle	Nationally Scarce	Open, sandy swards.	C4; C7
Odynerus melanocephalus	Black-headed mason wasp	Notable A [Note 2]; NERC Act Section 41	Open sites with chalky exposures and clay.	C1
Olibrus flavicornis	A beetle	Red Data Book K	Possibly associated with autumnal hawkbit (*Leontodon autumnalis*).	C3; C4; C7
Ophonus azureus	A ground beetle	Nationally Scarce	Open, patchy and parched swards, often on calcareous sites.	C3; C4
Pedius longicollis	A ground beetle	Nationally Scarce	Associated with marshes and pond margin drawdown zones.	C4
Polydrusus formosus	A weevil	Notable A [Note 2]	On scrub and woodland edges.	C1; C4
Pyropteron chrysidiformis	Fiery clearwing moth	Legal protection; Red Data Book 1; NERC Act Section 41	On open, parched sites with docks, primarily curled dock (*Rumex crispus*). Recently expanded its range from east Kent and now known from three to four discrete	C7

Scientific name	Vernacular name	National/local status	Habitat preferences and species notes	Sampling sub-compartment
			locations in south Essex.	
Saprinus virescens	A beetle	Nationally Rare; Near Threatened	A wetland species, found in deep litter.	C7
Sciocoris cursitans	Sand runner shield bug	Nationally Scarce	Open, patchy and parched swards, often on calcareous sites with cinquefoils (*Potentilla* spp.).	C3
Sphecodes spinulosus	A cleptoparasitic bee	Red Data Book 2 [Note 2]	Brood parasite on *Lasioglossum xanthopus*.	C1
Tachinus flavolimbatus	A rove beetle	Red Data Book K	Associated with open ground.	C3

[Note 2: Accepted as being more common than this status suggests; likely to be downgraded.]

Table 5: SAT Table. Taken from Webb and others (2017).

Appendix 1 explains the codes for 'conservation status'. Cells are left blank where no species with conservation status were identified.

Broad biotope	SAT	SAT code	No. of species	No. of species with conservation status (excluding research-only moths)	Conservation status	Reported condition [Note 3]
Open habitats	Rich flower resource	F002	38	12	*Andrena fulvago* (Na [Note 3]); *Andrena labiata*	Favourable (38 species, 15 required)

Broad biotope	SAT	SAT code	No. of species	No. of species with conservation status (excluding research-only moths)	Conservation status	Reported condition [Note 3]
					(Na [Note 3]); *Andrena pilipes* (Nb); *Bombus humilis* 9S41); *Ceratina cyanea* (RDB3 [Note 3]); *Nomada fucata* (Na [Note 3]); *Hylaeus signatus* (Nb [Note 3]); *Lasioglossum malachurum* (Nb [Note 3]); *Lasioglossum pauperatum* (RDB3 [Note 3]); *Lasioglossum pauxillum* (Na [Note 3]); *Lasioglossum xanthopus* (Nb)	
Open habitats	Bare sand & chalk	F111	18	7	*Brachinus crepitans* (NS); *Calathus ambiguous* (NS); *Harpalus attenuatus* (NS); *Notiophilus quardripunctatus* (NS); *Ophonus azureus* (NS); *Megalonotus praetextatus* (Nb); *Pyropteron chrysidiformis*	Unfavourable (18 species, 19 required)

Broad biotope	SAT	SAT code	No. of species	No. of species with conservation status (excluding research-only moths)	Conservation status	Reported condition [Note 3]
					(Legal protection; RDB1; S41)	
Open habitats	Open short sward	F112	10	6	*Larinus carlinae* (Nb [Note 3]); *Bathysolen nubilus* NS); *Sciocoris cursitans* (NS); *Eurygaster maura* (NS); *Coenonympha pamphilus* (VU; S41); *Lasiommata megera* (EN; S41)	Unfavourable (10 species, 13 required)
Tree-associated	Bark & sapwood decay	A212	6	1	*Microdynerus exilis* (Nb)	Unfavourable (6 species, 19 required)
Open habitats	Scrub edge	F001	4	1	*Microdynerus exilis* (Nb)	Unfavourable (4 species, 11 required)
Coastal	Saltmarsh & transitional brackish marsh	M311	1			Unfavourable (1 species, 9 required)
Open habitats	Scrub-heath & moorland	F003	1			Unfavourable (1 species, 9 required)

Broad biotope	SAT	SAT code	No. of species	No. of species with conservation status (excluding research-only moths)	Conservation status	Reported condition [Note 3]
Tree-associated	Heartwood decay	A211	1	1	*Ampedus elongatulus* (Na [Note 3]; NT)	Unfavourable (1 species, 6 required)

[Note 3: Accepted as being more common than this status suggests; likely to be downgraded.]

Discussion

Limitations

2024 experienced a series of low-pressure systems resulting in poor weather including increased rainfall, cloud cover and below-average temperatures. The result has been a widely noted depression of invertebrate abundance, particularly flying insects such as flies, bees and wasps. This has led to problems in surveying for invertebrate species (and consequent likely under-recording) particularly as this year's poor weather also follows extreme adverse events in 2023, with it being in the top five warmest years on record and the top ten wettest for England with many areas seeing persistent rain for protracted periods of time (Met Office, 2024). This challenging weather was off the back of the record-breaking intense heat of 2022. The interpretation of results, including SAT favourability, should bear this in mind.

The northern half of sub-compartment C3 was mown as it was undergoing advance habitat creation work for reptile mitigation as part of the Lower Thames Crossing (LTC) NSIP project, which included vehicle movements to introduce material to create new bunds. As a consequence, only limited recording could be undertaken in this area owing to limited surveyable habitat and health and safety issues. Pitfall traps and much of the recording therefore were conducted outside of this area, to the south.

Habitats and Specific Assemblage Types (SATs)

The survey area is represented by a range of habitats broadly covering the 'open' biotopes with a few species with fidelity with scrub and deadwood flagging up the 'tree-associated' biotope. However, it is the open terrestrial biotope that overwhelmingly dominates the survey area in terms of species associations and physical extent of each habitat.

As the tree-associated biotope and its assemblages are only represented by a few species and not thought to be intrinsic to the site, they are only minimally referenced in the following discussion.

The SAT that is the most prominent across all areas of the site is the F002 'rich flower resource' with a total of 38 species of fidelity recorded (where the threshold for favourable condition is 15). The SAT is therefore of very strong status at the site. It includes a long list of bees a number of which are likely to be downgraded or lose any conservation status in the upcoming review of bees, wasps and ants (Species Status Review of the Aculeate Hymenoptera, in prep, Natural England Species Status reviews series).

The flowering component of the site is wide ranging and includes strong patches of tall yellow composites comprising hawkweeds (*Hieracium* spp.) and notably bristly ox-tongue (*Helminthotheca echioides*), which is widespread across the site. Other tall sward flowering plants including umbellifers such as hogweed (*Heracleum sphondylium*) and

fennel (*Foeniculum vulgare*). The flowering resources also include short sward species of which common bird's-foot trefoil (*Lotus corniculatus*) and narrow-leaved bird's-foot trefoil (*Lotus tenuis*) are the most notable for their frequency and usage by pollinating insects such as the brown-banded carder bee (*Bombus humilis*) bumblebees and other long-tongued aculeates. Areas of disturbance introduce other flowering plants such as thistles and crucifers, the latter being favoured by short-tongued bees, flies and beetles.

The targeted 'bare sand and chalk' SAT (F111) holds an assemblage of 18 species of fidelity (where the threshold is 19) and therefore is considered likely to be in favourable condition. It is most prominent on sub-compartments 1 and 4 with large areas of sub-compartment 3 being lost to advanced reptile mitigation work created in anticipation of the Lower Thames Crossing NSIP. Sub-compartment C7 also has areas being re-purposed for reptile mitigation work, and as a consequence bare sand and chalk is not frequently present. Where it does exist however, the F111 is a strong assemblage with many of the key attributes present such as patchy short swards and bare ground. However, there is not a diverse range of substrates, this being largely mixed aggregate material. Sub-compartment C3 previously had a large sand-dominated bund on it where significant resources of sandy ground-nesting bees and wasps were previously recorded (Jukes, 2021). The bund has now ecologically succeeded to dense vegetation see Photographs C3.02 and C3.03 in Appendix 3 for a comparison of the bund in 2021 and 2024. Management to return this bund to near-bare sand conditions would be beneficial, in this and other similar areas.

The companion, and closely related, open short sward SAT (F112) was also targeted by the survey and as a consequence is highlighted strongly in the analysis. A total of ten species of fidelity were recorded (where the threshold is 13) so is a strong total and could achieve favourable condition during more optimal years. However, given that this SAT is targeted for the survey but still didn't reach or come within one species of the threshold does suggest something is lacking on the site. Comparison with the 2022 survey previous referenced would help understand this further.

The 'lacking' is thought to be rotational management. The site is largely tall, flowery swards with some areas becoming rank (dominated by tall coarse grass species), indicating toward a lack of ongoing management of the site. Other areas are very open, bare ground with patchy swards, these have been demonstrated to be of high value (see paragraph 4.8). The intermediate short swards are missing from many areas of the site.

Species

The survey of the compartment has recorded 286 species and 44 species identified by Pantheon as being of conservation value. This equates to 15.4% of the species recorded having a significant status. This is a strong total of species and moderately high percentage of scarce species; however, this number of scarce species will be lower once the bees, wasps, and ants review previously referenced above is published. A full list of species is presented in the survey results in Appendix 2.

The survey recorded a strong cross-section of species including bees and wasps (Hymenoptera), beetles (Coleoptera) and also butterflies and moths (Lepidoptera), and true bugs (Hemiptera).

The bee and wasp resource includes a number of significant species including the S41 brown-banded carder bee (*B.humilis*) and the solitary bee *Lasioglossum pauperatum* (Red Data Book 3). The beetle resource includes a range of ground beetles, pollen beetles and also grassland species. Potentially the most significant for the area is *Coelositona puberulus* (Red Data Book K), a species with only one other record for Essex, and no records on the Essex Field Club database of south Essex.

The Lepidoptera resource includes the Wall butterfly (*Lassiomata megera*), an endangered and S41 species of parched open and patchy swards. It was restricted to sub-compartment C4, where there is currently ample and good quality habitat for the species. However, as previously noted, as the site is currently not managed this area will slowly transition to closed swards that will become more rank to the detriment of this species. This is already noted on the lower slopes of the sub-compartment.

Of greatest significance for this compartment is the presence of the fiery clearwing moth (*Pyropteron chrysidiformis).* The day-flying moth is legally protected owing to its formerly very localised and particular distribution, being confined to a small area of the east Kent coastline. A recent and dramatic range expansion has seen the species colonise areas of north Kent and, as of 2024, south Essex. On finding the species on 21 June 2024 and sharing the information with other entomologists working in the area, at least three other sightings were made in quick succession within a matter of days. An egg search of this compartment, commissioned by Enovert, was subsequently undertaken by ecological consultants Bioscan which found (via multiple and widespread presence of eggs) that the fiery clearwing was present over much of the site, suggesting it is established and has potentially been here for a few years. It is not however thought to have been in south Essex for long owing to the detailed and rigorous recording of invertebrates in this area (including extensive surveys for Natural England in 2022) not having previously recorded the species. Given the legally protected status of the species (listed under schedule 5 of the Wildlife & Countryside Act 1982 as amended), and in spite of its probable strong population within the survey compartment and local area, measures will need to be taken to ensure it's curled and Greek dock (*Rumex crispus* and *R.cristatus*) preferred egg-laying and caterpillar food plants are retained. Ongoing liaison with Natural England is therefore required and advised, to ensure that an appropriate handling of the species' legal protection and licensing provision can be reached.

As part of the conservation plan objectives to safeguard the fiery clearwing on the Enovert site, it is recommended that discussions are held between the site operators, their ecologists and Natural England (and potentially other stakeholders) to explore an appropriate form of site management (including any remaining restoration works) which recognises the need for ongoing management to maintain open habitat conditions which are driving the current ecological importance, whilst working within a legal framework

which pre-dates the recently observed range expansion out of north Kent. Such discussions would potentially benefit from the wider input of a range of stakeholders including both conservation bodies with expertise in the species, as well as those who can be expected to encounter the species (and the specific challenges it brings) on similar habitats with development potential.

Conclusions and Recommendations

The survey area is very large and offers huge potential to invertebrates associated with F111 (‘bare sand and chalk’) and F112 (‘open short sward’), along with other supporting assemblages such as ‘scrub edge’ (F001) and ‘rich flower resource’ (F002).

The F111 is a strong assemblage on the survey area being found on all sub-compartments, albeit in varied amounts. The most intact and optimal are considered to be in C1 and C4, with C3 and C7 of lower value, in terms of the footprint they occupy. C7, even though the area is very small, produced a strong list of F111 species. This is in part owing to the more variable substrates present that can host a wider range of invertebrates. The range of substrates present, and the variations in overall surface structure, offer up many more opportunities for invertebrates and will account for the greater number of species found there. Hence the ecological juxtapositions of this small area are more complex, providing greater niche availability to invertebrates. C3, although previously noted as a strong compartment for invertebrates of bare sands (Jukes, 2021), no longer appears to host this wide range of species. This is owing to a lack of successive feature being created or maintained. A formally rich sand bund has undergone ecological succession to ruderal vegetation, but no replacement feature has been created. C1 is on a southerly aspect slope and has strong areas of patchy, bare ground but the lower slopes are undergoing ecological succession to tall vegetation. As of 2024, this southerly aspect slope is a strong feature and provides plentiful foraging and shelter to the open ground invertebrate. However, without long-term management, this tall grassland habitat type will continue to succeed over the short, patchy swards and the overall diversity of invertebrate species will reduce, being more dominated by common, tall grassland species.

The ‘open short sward’ (F112), or lack of it, emphasises the lack of current ecological management in the survey area. Without interventions, this partly closed sward habitat can quickly undergo ecological succession to tall grassland where substrates contain nutrient-rich elements. The tall grassland component does hold value as it is important in the armoury of climate-change resilience by providing micro-shade and humidity, but across the survey area it is becoming too dominant and rank in places with tufted hair-grass (*Deschampsia cespitosa*) proliferating.

Sub-compartments C3 and C7 include areas of reptile mitigation as part of the Lower Thames crossing (LTC) NSIP project. The sub-compartment C3 reptile mitigation is over a large area. To facilitate this mitigation, much of the northern section has been mown short and new soil and aggregate bund features created. These features are all similar in profile

and material. It is likely that they will all be colonised by ruderal vegetation (already occurring on some bunds) and will not contribute to any F111 or F112. The mown areas will likely grow to tall swards and lose some of the variation that was noticeable in 2021 during a previous survey by A.Jukes. Therefore (and notwithstanding that a conservation management plan may have been created to deal with the following but is not known to the author of this report) without immediate and ongoing rotational management, this area in particular may rapidly become generic tall grassland with tall ruderal bunds. It is recognised that the ecological prescriptions for reptiles and invertebrates of open mosaic habitats differ to at least some extent, and some degree of balance of varying habitat types ought to contribute to greater overall biodiversity, so long as substantial areas are kept essentially as open habitats, as discussed above.

It is strongly recommended that the site has a conservation management plan drawn up (if not already) that takes into consideration the landfill site's valuable invertebrate resources. Any conservation management plan also needs to acknowledge that the site requires varied substrates in order to maximise its potential towards the 'bare sand and chalk' species of the site and local area. This can be done through creating (and subsequently managing) a series of variably profiled sandy bunds as were previously evident on earlier surveys.

Coupled with the successive bund creation (or rotational scraping management of a number of fixed large sandy bund features) there needs to be a program of monitoring and scraping of tall and rank vegetation to ensure bare ground and early succession habitats which forms a prominent component of the landfill site. It is recommended that at least 20% of the total area of the compartment be optimal bare ground and open short swards.

The fiery clearwing is an obvious constraint (by virtue of it's legal status) to any habitat creation and ongoing management of the site. It is recommended that a conservation management plan pays special attention to the moth's ecological and legal requirements.

As part of the conservation plan objectives to safeguard the fiery clearwing on the Enovert site, it is recommended that discussions are held between the site operators, their ecologists and Natural England (and potentially other stakeholders) to explore an appropriate form of site management (including any remaining restoration works) which recognises the need for ongoing management to maintain open habitat conditions which are driving the current ecological importance, whilst working within a legal framework which pre-dates the recently observed range expansion out of north Kent. Such discussions would potentially benefit from the wider input of a range of stakeholders including both conservation bodies with expertise in the species, as well as those who can be expected to encounter the species (and the specific challenges it brings) on similar habitats with development potential.

1. Appendices

Appendix 1: Conservation Status
Appendix 2: Survey results
Appendix 3: Photographs

Appendix 1: Conservation Status

Table 6: Definitions of Conservation Status

Criteria	Category	Category	Definition
Pre IUCN (2001)	RDB1	Red Data Book 1: Endangered	Species that are known or believed to occur as only a single population within one 10-km square of the National Grid.
Pre IUCN (2001)	RDB2	Red Data Book 2: Vulnerable	Species declining throughout their range or in vulnerable habitats.
Pre IUCN (2001)	RDB3	Red Data Book 3: Rare	Species that are estimated to exist in only 15 or fewer post-1970 10-km squares. This criterion may be relaxed where populations are likely to exist in over 15 10-km squares but occupy small areas of especially vulnerable habitat.
Pre IUCN (2001)	NS A	Nationally Scarce - Notable A	Taxa that do not fall within the RDB category but that are nonetheless uncommon in Great Britain and thought to occur in 30 or fewer 10-km squares of the National Grid or, for less well-recorded groups, between eight and 20 vice counties.
Pre IUCN (2001)	NS B	Nationally Scarce – Notable B	Taxa that do not fall within the RDB category but that are nonetheless uncommon in Great Britain and thought to occur in 31–100 10-km squares of the National Grid or, for less well-recorded groups, between eight and 20 vice counties.
Pre IUCN (2001)	NS	Nationally Scarce - Notable	Species that are estimated to occur within the range of 16–100 10-km squares. The subdividing of this category into Notable A and Notable B

Criteria	Category	Category	Definition
			has not been attempted for many species in this part of the review.
IUCN (2001)	EX	Extinct	A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range, have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.
IUCN (2001)	CR	Critically Endangered	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.
IUCN (2001)	EN	Endangered	A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.
IUCN (2001)	VU	Vulnerable	A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.
IUCN (2001)	NT	Near Threatened	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered, or

Criteria	Category	Category	Definition
			Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
IUCN (2001)	LC	Least Concern	A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable, or Near Threatened. Widespread and abundant taxa are included in this category.
IUCN (2001)	DD	Data Deficient	A taxon is Data Deficient (DD) when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. DD is therefore not a category of threat.

GB Rarity Status categories and criteria
Broadly speaking, the Nationally Rare category is equivalent to the Red Data Book, namely: Endangered (RDB1), Vulnerable (RDB2), Rare (RDB3), Insufficiently Known (RDBK), and Extinct, which will not be used in this report.

The Nationally Scarce category is directly equivalent to the combined Nationally Notable A (Na) and Nationally Notable B (Nb) categories used in the assessment of various taxonomic groups, e.g. by Hyman and Parsons (1992) in assessing the status of beetles, but never used in a published format to assess these three families.

Nationally Rare Native species recorded from 15 or fewer hectads of the Ordnance Survey National Grid in Great Britain since 31 December 1989 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species that are probably extinct.

Nationally Scarce Native species that are not regarded as Nationally Rare and have not been recorded from more than 100 hectads of the Ordnance Survey National Grid in Great

Britain since 31 December 1989 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

England NERC S.41 Biodiversity Lists – England NERC S.41 Species 'of principal importance for the purpose of conserving biodiversity' covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. 2008 Natural Environment and Rural Communities Act 2006 – Species of Principal Importance in England (section 41) and Wales (section 42).

Appendix 2: Survey Results

In each table showing the species lists, only species with a national status have been annotated. All others are common or local species and the associated cells in the table have been left blank.

Table 7: Composite Site Species List

Scientific name	Family	Order	National status
Ablattaria laevigata	Silphidae	Coleoptera	
Achenium depressum	Staphylinidae	Coleoptera	
Aelia acuminata	Pentatomidae	Hemiptera	
Aglais io	Nymphalidae	Lepidoptera	
Agriotes pallidulus	Elateridae	Coleoptera	
Agriotes sputator	Elateridae	Coleoptera	
Aleochara bipustulata	Staphylinidae	Coleoptera	
Altica palustris	Chrysomelidae	Coleoptera	
Amalus scortillum	Curculionidae	Coleoptera	
Amara aenea	Carabidae	Coleoptera	
Amara anthobia	Carabidae	Coleoptera	

Scientific name	Family	Order	National status
Amara convexior	Carabidae	Coleoptera	
Amara eurynota	Carabidae	Coleoptera	
Amara familiaris	Carabidae	Coleoptera	
Amara plebeja	Carabidae	Coleoptera	
Amara similata	Carabidae	Coleoptera	
Amara tibialis	Carabidae	Coleoptera	
Ammophila sabulosa	Sphecidae	Hymenoptera	
Ampedus elongatulus	Elateridae	Coleoptera	Notable A [Note 4]; Near Threatened
Andrena bicolor	Andrenidae	Hymenoptera	
Andrena chrysosceles	Andrenidae	Hymenoptera	
Andrena flavipes	Andrenidae	Hymenoptera	
Andrena fulvago	Andrenidae	Hymenoptera	Notable A [Note 4]
Andrena labialis	Andrenidae	Hymenoptera	
Andrena labiata	Andrenidae	Hymenoptera	Notable A [Note 4]
Andrena minutula	Andrenidae	Hymenoptera	
Andrena nigroaenea	Andrenidae	Hymenoptera	
Andrena nitida	Andrenidae	Hymenoptera	
Andrena pilipes	Andrenidae	Hymenoptera	Notable B

Scientific name	Family	Order	National status
Andrena semilaevis	Andrenidae	Hymenoptera	
Anotylus mutator/sculpturatus	Staphylinidae	Coleoptera	
Anotylus sculpturatus	Staphylinidae	Coleoptera	
Anthicus antherinus	Anthicidae	Coleoptera	
Anthocoris nemorum	Anthocoridae	Hemiptera	
Anthonomus rubi	Curculionidae	Coleoptera	
Aphantopus hyperantus	Nymphalidae	Lepidoptera	
Aphthona euphorbiae	Chrysomelidae	Coleoptera	
Arachnospila trivialis	Pompilidae	Hymenoptera	
Athous haemorrhoidalis	Elateridae	Coleoptera	
Auplopus carbonarius	Pompilidae	Hymenoptera	Notable B
Badister bullatus	Carabidae	Coleoptera	
Bathysolen nubilus	Coreidae	Hemiptera	Nationally Scarce
Bembidion lunulatum	Carabidae	Coleoptera	
Bembidion minimum	Carabidae	Coleoptera	
Bembidion obtusum	Carabidae	Coleoptera	
Bembidion properans	Carabidae	Coleoptera	

Scientific name	Family	Order	National status
Bembidion quadrimaculatum	Carabidae	Coleoptera	
Bombus hortorum	Apidae	Hymenoptera	
Bombus humilis	Apidae	Hymenoptera	Section 41 Priority Species
Bombus pascuorum	Apidae	Hymenoptera	
Bombus pratorum	Apidae	Hymenoptera	
Bombus terrestris	Apidae	Hymenoptera	
Brachinus crepitans	Carabidae	Coleoptera	Nationally Scarce
Brachypterus urticae	Kateretidae	Coleoptera	
Bradycellus verbasci	Carabidae	Coleoptera	
Bruchidius imbricornis	Chrysomelidae	Coleoptera	
Bruchidius varius	Chrysomelidae	Coleoptera	
Bruchus brachialis	Chrysomelidae	Coleoptera	
Bruchus loti	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Calathus ambiguus	Carabidae	Coleoptera	Nationally Scarce
Calathus cinctus	Carabidae	Coleoptera	
Calathus fuscipes	Carabidae	Coleoptera	
Calathus melanocephalus	Carabidae	Coleoptera	

Scientific name	Family	Order	National status
Callophrys rubi	Lycaenidae	Lepidoptera	
Cantharis cryptica	Cantharidae	Coleoptera	
Cantharis lateralis	Cantharidae	Coleoptera	
Cantharis nigricans	Cantharidae	Coleoptera	
Cantharis rustica	Cantharidae	Coleoptera	
Capsus ater	Miridae	Hemiptera	
Celastrina argiolus	Lycaenidae	Lepidoptera	
Ceratapion carduorum	Apionidae	Coleoptera	
Ceratina cyanea	Apidae	Hymenoptera	Red Data Book 3 [Note 4]
Ceutorhynchus obstrictus	Curculionidae	Coleoptera	
Ceutorhynchus picitarsis	Curculionidae	Coleoptera	
Chaetocnema concinna	Chrysomelidae	Coleoptera	
Chaetocnema hortensis	Chrysomelidae	Coleoptera	
Cheilosia latifrons	Syrphidae	Diptera	
Chiasmia clathrata	Geometridae	Lepidoptera	
Closterotomus trivialis	Miridae	Hemiptera	

Scientific name	Family	Order	National status
Coccinella septempunctata	Coccinellidae	Coleoptera	
Coelositona puberulus	Curculionidae	Coleoptera	
Coenonympha pamphilus	Nymphalidae	Lepidoptera	Section 41 Priority Species; Vulnerable
Colletes similis	Colletidae	Hymenoptera	
Cordylepherus viridis	Malachiidae	Coleoptera	
Coriomeris denticulatus	Coreidae	Hemiptera	
Crepidodera fulvicornis	Chrysomelidae	Coleoptera	
Cryptocephalus moraei	Chrysomelidae	Coleoptera	
Cymus melanocephalus	Lygaeidae	Hemiptera	
Dalopius marginatus	Elateridae	Coleoptera	
Dasysyrphus venustus sensu lato	Syrphidae	Diptera	
Dasytes aeratus	Dasytidae	Coleoptera	
Demetrias atricapillus	Carabidae	Coleoptera	
Dioctria rufipes	Asilidae	Diptera	
Diodontus luperus	Crabronidae	Hymenoptera	
Diplapion confluens	Apionidae	Coleoptera	

Scientific name	Family	Order	National status
Dolycoris baccarum	Pentatomidae	Hemiptera	
Dorycera graminum	Ulidiidae	Diptera	Provisionally Nationally Scarce; provisionally Near Threatened; Section 41 Priority Species [Note 4];
Dryophilocoris (Dryophilocoris) flavoquadrimaculatus	Miridae	Hemiptera	
Eristalinus sepulchralis	Syrphidae	Diptera	
Eristalis arbustorum	Syrphidae	Diptera	
Euclidia glyphica	Erebidae	Lepidoptera	
Eupeodes corollae	Syrphidae	Diptera	
Eurydema (Eurydema) oleracea	Pentatomidae	Hemiptera	
Eurygaster maura	Scutelleridae	Hemiptera	Nationally Scarce
Eutrichapion vorax	Apionidae	Coleoptera	
Exomias pellucidus	Curculionidae	Coleoptera	
Formica cunicularia	Formicidae	Hymenoptera	
Formica fusca	Formicidae	Hymenoptera	
Gastrophysa polygoni	Chrysomelidae	Coleoptera	

Scientific name	Family	Order	National status
Gonocerus acuteangulatus	Coreidae	Hemiptera	
Gonodera luperus	Tenebrionidae	Coleoptera	Nationally Scarce
Gronops inaequalis	Curculionidae	Coleoptera	Red Data Book K [Note 4]
Gymnosoma nitens	Tachinidae	Diptera	Red Data Book 1 [Note 4]
Halictus rubicundus	Halictidae	Hymenoptera	
Harpalus affinis	Carabidae	Coleoptera	
Harpalus attenuatus	Carabidae	Coleoptera	Nationally Scarce
Harpalus rubripes	Carabidae	Coleoptera	
Harpalus rufipes	Carabidae	Coleoptera	
Harpalus tardus	Carabidae	Coleoptera	
Harpocera thoracica	Miridae	Hemiptera	
Helophilus pendulus	Syrphidae	Diptera	
Helophorus brevipalpis	Helophoridae	Coleoptera	
Helophorus griseus	Helophoridae	Coleoptera	
Heterogaster urticae	Lygaeidae	Hemiptera	
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	
Holotrichapion aethiops	Apionidae	Coleoptera	

Scientific name	Family	Order	National status
Hylaeus signatus	Colletidae	Hymenoptera	Notable B [Note 4]
Hypera melancholica	Curculionidae	Coleoptera	Notable B [Note 4]
Hypera postica	Curculionidae	Coleoptera	
Ischnopterapion loti	Apionidae	Coleoptera	
Ischnosoma splendidum	Staphylinidae	Coleoptera	
Lagria hirta	Tenebrionidae	Coleoptera	
Larinus carlinae	Curculionidae	Coleoptera	Notable B [Note 4]
Lasioglossum albipes	Halictidae	Hymenoptera	
Lasioglossum laevigatum	Halictidae	Hymenoptera	
Lasioglossum malachurum	Halictidae	Hymenoptera	Notable B [Note 4]
Lasioglossum minutissimum	Halictidae	Hymenoptera	
Lasioglossum parvulum	Halictidae	Hymenoptera	
Lasioglossum pauperatum	Halictidae	Hymenoptera	Red Data Book 3 [Note 4]
Lasioglossum pauxillum	Halictidae	Hymenoptera	Notable A [Note 4]
Lasioglossum punctatissimum	Halictidae	Hymenoptera	

Scientific name	Family	Order	National status
Lasioglossum puncticolle	Halictidae	Hymenoptera	Notable B
Lasioglossum smeathmanellum	Halictidae	Hymenoptera	
Lasioglossum villosulum	Halictidae	Hymenoptera	
Lasioglossum xanthopus	Halictidae	Hymenoptera	Notable B
Lasiommata megera	Nymphalidae	Lepidoptera	Endangered; Section 41 Priority Species
Legnotus limbosus	Cydnidae	Hemiptera	
Leptogaster cylindrica	Asilidae	Diptera	
Lindenius albilabris	Crabronidae	Hymenoptera	
Liparus coronatus	Curculionidae	Coleoptera	Notable B
Longitarsus dorsalis	Chrysomelidae	Coleoptera	
Longitarsus parvulus	Chrysomelidae	Coleoptera	
Lygus maritimus	Miridae	Hemiptera	
Malachius bipustulatus	Malachiidae	Coleoptera	
Malvapion malvae	Apionidae	Coleoptera	
Maniola jurtina	Nymphalidae	Lepidoptera	
Margarinotus purpurascens	Histeridae	Coleoptera	

Scientific name	Family	Order	National status
Mecinus pascuorum	Curculionidae	Coleoptera	
Mecinus pyraster	Curculionidae	Coleoptera	
Megalonotus antennatus	Lygaeidae	Hemiptera	Notable B
Megalonotus emarginatus	Lygaeidae	Hemiptera	
Megalonotus praetextatus	Lygaeidae	Hemiptera	Notable B
Meligethes aeneus	Nitidulidae	Coleoptera	
Meligethes carinulatus	Nitidulidae	Coleoptera	
Meligethes fulvipes	Nitidulidae	Coleoptera	Notable
Meligethes rotundicollis	Nitidulidae	Coleoptera	Notable
Merodon equestris	Syrphidae	Diptera	
Metopoplax ditomoides	Lygaeidae	Hemiptera	
Microdynerus exilis	Vespidae	Hymenoptera	Notable B
Microlestes maurus	Carabidae	Coleoptera	
Microlestes minutulus	Carabidae	Coleoptera	
Nebria brevicollis	Carabidae	Coleoptera	
Nebria salina	Carabidae	Coleoptera	

Scientific name	Family	Order	National status
Nedyus quadrimaculatus	Curculionidae	Coleoptera	
Nemotelus notatus	Stratiomyidae	Diptera	
Neocrepidodera ferruginea	Chrysomelidae	Coleoptera	
Nomada fabriciana	Apidae	Hymenoptera	
Nomada flava	Apidae	Hymenoptera	
Nomada flavoguttata	Apidae	Hymenoptera	
Nomada fucata	Apidae	Hymenoptera	Notable A
Nomada leucophthalma	Apidae	Hymenoptera	
Nomada marshamella	Apidae	Hymenoptera	
Notiophilus quadripunctatus	Carabidae	Coleoptera	Nationally Scarce
Notiophilus substriatus	Carabidae	Coleoptera	
Nysius huttoni	Lygaeidae	Hemiptera	
Nysius senecionis	Lygaeidae	Hemiptera	
Ochlodes sylvanus	Hesperiidae	Lepidoptera	
Ocypus olens	Staphylinidae	Coleoptera	
Odynerus melanocephalus	Vespidae	Hymenoptera	Notable A [Note 4]; Section 41 Priority Species

Scientific name	Family	Order	National status
Oedemera lurida	Oedemeridae	Coleoptera	
Oedemera nobilis	Oedemeridae	Coleoptera	
Olibrus corticalis	Phalacridae	Coleoptera	
Olibrus flavicornis	Phalacridae	Coleoptera	Red Data Book K
Omphalapion hookerorum	Apionidae	Coleoptera	
Ophonus ardosiacus	Carabidae	Coleoptera	
Ophonus azureus	Carabidae	Coleoptera	Nationally Scarce
Orthops (Orthops) kalmii	Miridae	Hemiptera	
Osmia spinulosa	Megachilidae	Hymenoptera	
Othius laeviusculus	Staphylinidae	Coleoptera	
Oxystoma pomonae	Apionidae	Coleoptera	
Paradromius linearis	Carabidae	Coleoptera	
Pedius longicollis	Carabidae	Coleoptera	Nationally Scarce
Pemphredon inornata	Crabronidae	Hymenoptera	
Perapion curtirostre	Apionidae	Coleoptera	
Perapion hydrolapathi	Apionidae	Coleoptera	
Peritrechus geniculatus	Lygaeidae	Hemiptera	
Peritrechus nubilus	Lygaeidae	Hemiptera	

Scientific name	Family	Order	National status
Phalacrus fimetarius	Phalacridae	Coleoptera	
Philonthus carbonarius	Staphylinidae	Coleoptera	
Philonthus cognatus	Staphylinidae	Coleoptera	
Philorhizus melanocephalus	Carabidae	Coleoptera	
Phyllobius glaucus	Curculionidae	Coleoptera	
Phyllobius pyri	Curculionidae	Coleoptera	
Pieris rapae	Pieridae	Lepidoptera	
Pipizella viduata	Syrphidae	Diptera	
Podops inuncta	Pentatomidae	Hemiptera	
Poecilus cupreus	Carabidae	Coleoptera	
Polydrusus formosus	Curculionidae	Coleoptera	Notable A [Note 4]
Polyommatus icarus	Lycaenidae	Lepidoptera	
Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	
Protapion apricans	Apionidae	Coleoptera	
Protapion fulvipes	Apionidae	Coleoptera	
Protapion trifolii	Apionidae	Coleoptera	
Psenulus pallipes	Crabronidae	Hymenoptera	

Scientific name	Family	Order	National status
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	
Psyllobora vigintiduopunctata	Coccinellidae	Coleoptera	
Pterostichus macer	Carabidae	Coleoptera	
Ptomaphagus subvillosus	Leiodidae	Coleoptera	
Pyropteron chrysidiformis	Sesiidae	Lepidoptera	Legal Protection; Red Data Book 1; Section 41 Priority Species
Quedius levicollis	Staphylinidae	Coleoptera	
Quedius schatzmayri	Staphylinidae	Coleoptera	
Quedius semiaeneus	Staphylinidae	Coleoptera	
Quedius semiobscurus	Staphylinidae	Coleoptera	
Quedius simplicifrons	Staphylinidae	Coleoptera	
Rhabdomiris striatellus	Miridae	Hemiptera	
Rhagonycha fulva	Cantharidae	Coleoptera	
Rhagonycha nigriventris	Cantharidae	Coleoptera	
Rhinoncus pericarpius (pre 2014 type revision)	Curculionidae	Coleoptera	
Rhyzobius litura	Coccinellidae	Coleoptera	

Scientific name	Family	Order	National status
Saprinus virescens	Histeridae	Coleoptera	Nationally Rare; Near Threatened
Sciocoris (Sciocoris) cursitans	Pentatomidae	Hemiptera	Nationally Scarce
Sepedophilus marshami	Staphylinidae	Coleoptera	
Sepedophilus nigripennis	Staphylinidae	Coleoptera	
Simplocaria semistriata	Byrrhidae	Coleoptera	
Sitona cylindricollis	Curculionidae	Coleoptera	
Sitona hispidulus	Curculionidae	Coleoptera	
Sitona humeralis	Curculionidae	Coleoptera	
Sitona lineatus	Curculionidae	Coleoptera	
Sphaeroderma testaceum	Chrysomelidae	Coleoptera	
Sphaerophoria scripta	Syrphidae	Diptera	
Sphecodes ephippius	Halictidae	Hymenoptera	
Sphecodes geoffrellus	Halictidae	Hymenoptera	
Sphecodes monilicornis	Halictidae	Hymenoptera	
Sphecodes spinulosus	Halictidae	Hymenoptera	Red Data Book 2 [Note 4]

Scientific name	Family	Order	National status
Stenodema (Brachystira) calcarata	Miridae	Hemiptera	
Stenodema (Stenodema) laevigata	Miridae	Hemiptera	
Stenopterapion meliloti	Apionidae	Coleoptera	
Stenus aceris	Staphylinidae	Coleoptera	
Stenus clavicornis	Staphylinidae	Coleoptera	
Stenus ossium	Staphylinidae	Coleoptera	
Stictopleurus abutilon	Rhopalidae	Hemiptera	
Stictopleurus punctatonervosus	Rhopalidae	Hemiptera	
Subcoccinella vigintiquattuorpunctata	Coccinellidae	Coleoptera	
Syntomus foveatus	Carabidae	Coleoptera	
Syntomus obscuroguttatus	Carabidae	Coleoptera	
Syritta pipiens	Syrphidae	Diptera	
Tachinus flavolimbatus	Staphylinidae	Coleoptera	Red Data Book K
Tachyporus hypnorum	Staphylinidae	Coleoptera	
Tachyporus pusillus	Staphylinidae	Coleoptera	
Tephritis cometa	Tephritidae	Diptera	
Tephritis neesii	Tephritidae	Diptera	

Scientific name	Family	Order	National status
Tephritis vespertina	Tephritidae	Diptera	
Tetrops praeustus	Cerambycidae	Coleoptera	
Thecophora atra	Conopidae	Diptera	
Thymelicus sylvestris	Hesperiidae	Lepidoptera	
Trechus quadristriatus	Carabidae	Coleoptera	
Trichosirocalus troglodytes	Curculionidae	Coleoptera	
Tychius picirostris	Curculionidae	Coleoptera	
Tyria jacobaeae	Erebidae	Lepidoptera	
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	
Urophora stylata	Tephritidae	Diptera	
Vanessa atalanta	Nymphalidae	Lepidoptera	
Xanthogramma pedissequum sensu lato	Syrphidae	Diptera	
Xantholinus linearis	Staphylinidae	Coleoptera	
Xantholinus longiventris	Staphylinidae	Coleoptera	

[Note 4: Widely accepted as being much more common than this status suggests; likely to be downgraded.]

Table 8: Compartment 1 Species List

Scientific name	Family	Order	National Status
Aleochara bipustulata	Staphylinidae	Coleoptera	
Amara aenea	Carabidae	Coleoptera	
Amara eurynota	Carabidae	Coleoptera	
Amara similata	Carabidae	Coleoptera	
Amara tibialis	Carabidae	Coleoptera	
Ammophila sabulosa	Sphecidae	Hymenoptera	
Andrena bicolor	Andrenidae	Hymenoptera	
Andrena labialis	Andrenidae	Hymenoptera	
Anthicus antherinus	Anthicidae	Coleoptera	
Aphantopus hyperantus	Nymphalidae	Lepidoptera	
Athous haemorrhoidalis	Elateridae	Coleoptera	
Badister bullatus	Carabidae	Coleoptera	
Bembidion minimum	Carabidae	Coleoptera	
Bombus pascuorum	Apidae	Hymenoptera	
Brachinus crepitans	Carabidae	Coleoptera	Nationally Scarce
Bradycellus verbasci	Carabidae	Coleoptera	
Bruchus brachialis	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	

Scientific name	Family	Order	National Status
Calathus ambiguus	Carabidae	Coleoptera	Nationally Scarce
Calathus cinctus	Carabidae	Coleoptera	
Cantharis lateralis	Cantharidae	Coleoptera	
Cantharis nigricans	Cantharidae	Coleoptera	
Cantharis rustica	Cantharidae	Coleoptera	
Capsus ater	Miridae	Hemiptera	
Ceratina cyanea	Apidae	Hymenoptera	Red Data Book 3
Ceutorhynchus obstrictus (=assimilis auctt.)	Curculionidae	Coleoptera	
Ceutorhynchus picitarsis	Curculionidae	Coleoptera	
Closterotomus trivialis	Miridae	Hemiptera	
Coenonympha pamphilus	Nymphalidae	Lepidoptera	Section 41 Priority Species; Vulnerable
Colletes similis	Colletidae	Hymenoptera	
Crepidodera fulvicornis	Chrysomelidae	Coleoptera	
Dasytes aeratus	Dasytidae	Coleoptera	
Diodontus luperus	Crabronidae	Hymenoptera	
Dorycera graminum	Ulidiidae	Diptera	Provisionally Nationally Scarce;

Scientific name	Family	Order	National Status
			Provisionally Near Threatened; Section 41 Priority Species
Dryophilocoris (Dryophilocoris) flavoquadrimaculatus	Miridae	Hemiptera	
Eristalinus sepulchralis	Syrphidae	Diptera	
Eupeodes corollae	Syrphidae	Diptera	
Eurygaster maura	Scutelleridae	Hemiptera	Nationally Scarce
Exomias pellucidus	Curculionidae	Coleoptera	
Gronops inaequalis	Curculionidae	Coleoptera	Red Data Book K
Halictus rubicundus	Halictidae	Hymenoptera	
Harpalus affinis	Carabidae	Coleoptera	
Harpalus attenuatus	Carabidae	Coleoptera	Nationally Scarce
Harpalus rufipes	Carabidae	Coleoptera	
Helophorus brevipalpis	Helophoridae	Coleoptera	
Helophorus griseus	Helophoridae	Coleoptera	
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	
Holotrichapion aethiops	Apionidae	Coleoptera	
Hypera melancholica	Curculionidae	Coleoptera	Notable B

Scientific name	Family	Order	National Status
Hypera postica	Curculionidae	Coleoptera	
Lagria hirta	Tenebrionidae	Coleoptera	
Lasioglossum malachurum	Halictidae	Hymenoptera	Notable B [Note 5]
Lasioglossum minutissimum	Halictidae	Hymenoptera	
Lasioglossum pauperatum	Halictidae	Hymenoptera	Red Data Book 3 [Note 5]
Lasioglossum puncticolle	Halictidae	Hymenoptera	Notable B
Lasioglossum villosulum	Halictidae	Hymenoptera	
Lasioglossum xanthopus	Halictidae	Hymenoptera	Notable B
Lasiommata megera	Nymphalidae	Lepidoptera	Endangered; Section 41 Priority Species
Malachius bipustulatus	Malachiidae	Coleoptera	
Malvapion malvae	Apionidae	Coleoptera	
Maniola jurtina	Nymphalidae	Lepidoptera	
Mecinus pascuorum	Curculionidae	Coleoptera	
Mecinus pyraster	Curculionidae	Coleoptera	
Megalonotus emarginatus	Lygaeidae	Hemiptera	

Scientific name	Family	Order	National Status
Megalonotus praetextatus	Lygaeidae	Hemiptera	Notable B
Meligethes aeneus	Nitidulidae	Coleoptera	
Meligethes carinulatus	Nitidulidae	Coleoptera	
Meligethes rotundicollis	Nitidulidae	Coleoptera	Notable
Merodon equestris	Syrphidae	Diptera	
Metopoplax ditomoides	Lygaeidae	Hemiptera	
Microlestes minutulus	Carabidae	Coleoptera	
Nebria salina	Carabidae	Coleoptera	
Nomada fabriciana	Apidae	Hymenoptera	
Nomada flava	Apidae	Hymenoptera	
Nomada flavoguttata	Apidae	Hymenoptera	
Nomada fucata	Apidae	Hymenoptera	Notable A [Note 5]
Nomada marshamella	Apidae	Hymenoptera	
Notiophilus substriatus	Carabidae	Coleoptera	
Nysius huttoni	Lygaeidae	Hemiptera	
Nysius senecionis	Lygaeidae	Hemiptera	
Ochlodes sylvanus	Hesperiidae	Lepidoptera	

Scientific name	Family	Order	National Status
Odynerus melanocephalus	Vespidae	Hymenoptera	[Notable A [Note 5]; Section 41 Priority Species
Oedemera lurida	Oedemeridae	Coleoptera	
Oedemera nobilis	Oedemeridae	Coleoptera	
Olibrus flavicornis	Phalacridae	Coleoptera	Red Data Book K
Oxystoma pomonae	Apionidae	Coleoptera	
Peritrechus geniculatus	Lygaeidae	Hemiptera	
Peritrechus nubilus	Lygaeidae	Hemiptera	
Philorhizus melanocephalus	Carabidae	Coleoptera	
Phyllobius pyri	Curculionidae	Coleoptera	
Poecilus cupreus	Carabidae	Coleoptera	
Polydrusus formosus	Curculionidae	Coleoptera	Notable A [Note 5]
Polyommatus icarus	Lycaenidae	Lepidoptera	
Protapion apricans	Apionidae	Coleoptera	
Psenulus pallipes	Crabronidae	Hymenoptera	
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	
Psyllobora vigintiduopunctata	Coccinellidae	Coleoptera	

Scientific name	Family	Order	National Status
Quedius schatzmayri	Staphylinidae	Coleoptera	
Quedius semiaeneus	Staphylinidae	Coleoptera	
Quedius semiobscurus	Staphylinidae	Coleoptera	
Quedius simplicifrons	Staphylinidae	Coleoptera	
Rhabdomiris striatellus	Miridae	Hemiptera	
Rhinoncus castor (pre 2014 type revision)	Curculionidae	Coleoptera	
Rhyzobius litura	Coccinellidae	Coleoptera	
Simplocaria semistriata	Byrrhidae	Coleoptera	
Sitona hispidulus	Curculionidae	Coleoptera	
Sitona humeralis	Curculionidae	Coleoptera	
Sitona lineatus	Curculionidae	Coleoptera	
Sphaerophoria scripta	Syrphidae	Diptera	
Sphecodes ephippius	Halictidae	Hymenoptera	
Sphecodes geoffrellus	Halictidae	Hymenoptera	
Sphecodes monilicornis	Halictidae	Hymenoptera	
Sphecodes spinulosus	Halictidae	Hymenoptera	Red Data Book 2 [Note 5]
Stenodema (Stenodema) laevigata	Miridae	Hemiptera	

Scientific name	Family	Order	National Status
Stenus aceris	Staphylinidae	Coleoptera	
Stenus ossium	Staphylinidae	Coleoptera	
Stictopleurus abutilon	Rhopalidae	Hemiptera	
Stictopleurus punctatonervosus	Rhopalidae	Hemiptera	
Subcoccinella vigintiquattuorpunctata	Coccinellidae	Coleoptera	
Syntomus foveatus	Carabidae	Coleoptera	
Syntomus obscuroguttatus	Carabidae	Coleoptera	
Tachyporus hypnorum	Staphylinidae	Coleoptera	
Tachyporus pusillus	Staphylinidae	Coleoptera	
Tephritis cometa	Tephritidae	Diptera	
Tephritis neesii	Tephritidae	Diptera	
Tephritis vespertina	Tephritidae	Diptera	
Trichosirocalus troglodytes	Curculionidae	Coleoptera	
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	
Urophora stylata	Tephritidae	Diptera	
Xantholinus linearis	Staphylinidae	Coleoptera	

[Note 5: Widely accepted as being much more common than this status suggests; likely to be downgraded.]

Table 9: Compartment 3 Species List

Scientific name	Family	Order	National Status
Ablattaria laevigata	Silphidae	Coleoptera	
Aelia acuminata	Pentatomidae	Hemiptera	
Amara aenea	Carabidae	Coleoptera	
Amara convexior	Carabidae	Coleoptera	
Amara plebeja	Carabidae	Coleoptera	
Amara tibialis	Carabidae	Coleoptera	
Andrena bicolor	Andrenidae	Hymenoptera	
Andrena chrysosceles	Andrenidae	Hymenoptera	
Andrena flavipes	Andrenidae	Hymenoptera	
Andrena labialis	Andrenidae	Hymenoptera	
Andrena minutula	Andrenidae	Hymenoptera	
Andrena nigroaenea	Andrenidae	Hymenoptera	
Andrena pilipes	Andrenidae	Hymenoptera	Notable B
Anthicus antherinus	Anthicidae	Coleoptera	
Anthonomus rubi	Curculionidae	Coleoptera	
Badister bullatus	Carabidae	Coleoptera	
Bathysolen nubilus	Coreidae	Hemiptera	Nationally Scarce
Bembidion minimum	Carabidae	Coleoptera	

Scientific name	Family	Order	National Status
Bombus humilis	Apidae	Hymenoptera	Section 41 Priority Species
Bombus pratorum	Apidae	Hymenoptera	
Bombus terrestris	Apidae	Hymenoptera	
Brachinus crepitans	Carabidae	Coleoptera	Nationally Scarce
Bruchus loti	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Calathus ambiguus	Carabidae	Coleoptera	Nationally Scarce
Calathus cinctus	Carabidae	Coleoptera	
Calathus fuscipes	Carabidae	Coleoptera	
Calathus melanocephalus	Carabidae	Coleoptera	
Callophrys rubi	Lycaenidae	Lepidoptera	
Cantharis lateralis	Cantharidae	Coleoptera	
Cantharis rustica	Cantharidae	Coleoptera	
Ceutorhynchus obstrictus (=assimilis auctt.)	Curculionidae	Coleoptera	
Ceutorhynchus picitarsis	Curculionidae	Coleoptera	
Cheilosia latifrons	Syrphidae	Diptera	
Chiasmia clathrata	Geometridae	Lepidoptera	

Scientific name	Family	Order	National Status
Coccinella septempunctata	Coccinellidae	Coleoptera	
Coelositona puberulus	Curculionidae	Coleoptera	Red Data Book K [Note 6]
Coenonympha pamphilus	Nymphalidae	Lepidoptera	Section 41 Priority Species; Vulnerable
Coriomeris denticulatus	Coreidae	Hemiptera	
Cryptocephalus moraei	Chrysomelidae	Coleoptera	
Dasysyrphus venustus sensu lato	Syrphidae	Diptera	
Dolycoris baccarum	Pentatomidae	Hemiptera	
Dorycera graminum	Ulidiidae	Diptera	provisionally Nationally Scarce; provisionally Near Threatened; Section 41 Priority Species
Eristalis arbustorum	Syrphidae	Diptera	
Euclidia glyphica	Erebidae	Lepidoptera	
Eurygaster maura	Scutelleridae	Hemiptera	Nationally Scarce
Eutrichapion vorax	Apionidae	Coleoptera	
Exomias pellucidus	Curculionidae	Coleoptera	
Formica cunicularia	Formicidae	Hymenoptera	

Scientific name	Family	Order	National Status
Halictus rubicundus	Halictidae	Hymenoptera	
Harpalus affinis	Carabidae	Coleoptera	
Harpalus attenuatus	Carabidae	Coleoptera	Nationally Scarce
Harpalus rubripes	Carabidae	Coleoptera	
Harpalus rufipes	Carabidae	Coleoptera	
Helophilus pendulus	Syrphidae	Diptera	
Helophorus brevipalpis	Helophoridae	Coleoptera	
Helophorus griseus	Helophoridae	Coleoptera	
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	
Hypera postica	Curculionidae	Coleoptera	
Ischnopterapion loti	Apionidae	Coleoptera	
Larinus carlinae	Curculionidae	Coleoptera	Notable B [Note 6]
Lasioglossum albipes	Halictidae	Hymenoptera	
Lasioglossum villosulum	Halictidae	Hymenoptera	
Leptogaster cylindrica	Asilidae	Diptera	
Malachius bipustulatus	Malachiidae	Coleoptera	
Malvapion malvae	Apionidae	Coleoptera	
Maniola jurtina	Nymphalidae	Lepidoptera	

Scientific name	Family	Order	National Status
Mecinus pascuorum	Curculionidae	Coleoptera	
Megalonotus antennatus	Lygaeidae	Hemiptera	Notable B
Megalonotus emarginatus	Lygaeidae	Hemiptera	
Megalonotus praetextatus	Lygaeidae	Hemiptera	Notable B
Meligethes aeneus	Nitidulidae	Coleoptera	
Meligethes carinulatus	Nitidulidae	Coleoptera	
Meligethes rotundicollis	Nitidulidae	Coleoptera	Notable
Microlestes maurus	Carabidae	Coleoptera	
Microlestes minutulus	Carabidae	Coleoptera	
Nebria salina	Carabidae	Coleoptera	
Notiophilus substriatus	Carabidae	Coleoptera	
Nysius huttoni	Lygaeidae	Hemiptera	
Nysius senecionis	Lygaeidae	Hemiptera	
Ocypus olens	Staphylinidae	Coleoptera	
Oedemera lurida	Oedemeridae	Coleoptera	
Oedemera nobilis	Oedemeridae	Coleoptera	
Olibrus flavicornis	Phalacridae	Coleoptera	Red Data Book K

Scientific name	Family	Order	National Status
Ophonus azureus	Carabidae	Coleoptera	Nationally Scarce
Orthops (Orthops) kalmii	Miridae	Hemiptera	
Othius laeviusculus	Staphylinidae	Coleoptera	
Oxystoma pomonae	Apionidae	Coleoptera	
Paradromius linearis	Carabidae	Coleoptera	
Peritrechus geniculatus	Lygaeidae	Hemiptera	
Philonthus carbonarius	Staphylinidae	Coleoptera	
Pieris rapae	Pieridae	Lepidoptera	
Pipizella viduata	Syrphidae	Diptera	
Podops inuncta	Pentatomidae	Hemiptera	
Poecilus cupreus	Carabidae	Coleoptera	
Polyommatus icarus	Lycaenidae	Lepidoptera	
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	
Quedius levicollis	Staphylinidae	Coleoptera	
Quedius schatzmayri	Staphylinidae	Coleoptera	
Rhagonycha fulva	Cantharidae	Coleoptera	
Rhyzobius litura	Coccinellidae	Coleoptera	

Scientific name	Family	Order	National Status
Sciocoris (Sciocoris) cursitans	Pentatomidae	Hemiptera	Nationally Scarce
Sepedophilus nigripennis	Staphylinidae	Coleoptera	
Sitona lineatus	Curculionidae	Coleoptera	
Sphaerophoria scripta	Syrphidae	Diptera	
Sphecodes geoffrellus	Halictidae	Hymenoptera	
Stenodema (Brachystira) calcarata	Miridae	Hemiptera	
Stenus clavicornis	Staphylinidae	Coleoptera	
Stictopleurus punctatonervosus	Rhopalidae	Hemiptera	
Subcoccinella vigintiquattuorpunctata	Coccinellidae	Coleoptera	
Syntomus foveatus	Carabidae	Coleoptera	
Syntomus obscuroguttatus	Carabidae	Coleoptera	
Syritta pipiens	Syrphidae	Diptera	
Tachinus flavolimbatus	Staphylinidae	Coleoptera	Red Data Book K
Tachyporus hypnorum	Staphylinidae	Coleoptera	
Tephritis cometa	Tephritidae	Diptera	
Tephritis neesii	Tephritidae	Diptera	

Scientific name	Family	Order	National Status
Tephritis vespertina	Tephritidae	Diptera	
Thymelicus sylvestris	Hesperiidae	Lepidoptera	
Trechus quadristriatus	Carabidae	Coleoptera	
Trichosirocalus troglodytes	Curculionidae	Coleoptera	
Tyria jacobaeae	Erebidae	Lepidoptera	
Tytthaspis sedecimpunctata	Coccinellidae	Coleoptera	
Vanessa atalanta	Nymphalidae	Lepidoptera	
Xantholinus longiventris	Staphylinidae	Coleoptera	

[Note 6: Widely accepted as being much more common than this status suggests; likely to be downgraded.]

Table 10: Compartment 4 Species List

Scientific name	Family	Order	National Status
Agriotes pallidulus	Elateridae	Coleoptera	
Aleochara bipustulata	Staphylinidae	Coleoptera	
Amara aenea	Carabidae	Coleoptera	
Amara eurynota	Carabidae	Coleoptera	
Amara tibialis	Carabidae	Coleoptera	

Scientific name	Family	Order	National Status
Ampedus elongatulus	Elateridae	Coleoptera	Notable A [Note 7]
Andrena labialis	Andrenidae	Hymenoptera	
Anthicus antherinus	Anthicidae	Coleoptera	
Anthocoris nemorum	Anthocoridae	Hemiptera	
Aphthona euphorbiae	Chrysomelidae	Coleoptera	
Athous haemorrhoidalis	Elateridae	Coleoptera	
Badister bullatus	Carabidae	Coleoptera	
Bembidion properans	Carabidae	Coleoptera	
Bombus pascuorum	Apidae	Hymenoptera	
Brachinus crepitans	Carabidae	Coleoptera	Nationally Scarce
Brachypterus urticae	Kateretidae	Coleoptera	
Bruchidius varius	Chrysomelidae	Coleoptera	
Bruchus brachialis	Chrysomelidae	Coleoptera	
Bruchus loti	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Calathus cinctus	Carabidae	Coleoptera	
Cantharis cryptica	Cantharidae	Coleoptera	

Scientific name	Family	Order	National Status
Cantharis lateralis	Cantharidae	Coleoptera	
Cantharis nigricans	Cantharidae	Coleoptera	
Cantharis rustica	Cantharidae	Coleoptera	
Ceutorhynchus obstrictus (=assimilis auctt.)	Curculionidae	Coleoptera	
Ceutorhynchus picitarsis	Curculionidae	Coleoptera	
Coccinella septempunctata	Coccinellidae	Coleoptera	
Coriomeris denticulatus	Coreidae	Hemiptera	
Cymus melanocephalus	Lygaeidae	Hemiptera	
Dalopius marginatus	Elateridae	Coleoptera	
Dasytes aeratus	Dasytidae	Coleoptera	
Diodontus luperus	Crabronidae	Hymenoptera	
Diplapion confluens	Apionidae	Coleoptera	
Dryophilocoris (Dryophilocoris) flavoquadrimaculatus	Miridae	Hemiptera	
Eurydema (Eurydema) oleracea	Pentatomidae	Hemiptera	
Eurygaster maura	Scutelleridae	Hemiptera	Nationally Scarce

Scientific name	Family	Order	National Status
Gonodera luperus	Tenebrionidae	Coleoptera	Nationally Scarce
Halictus rubicundus	Halictidae	Hymenoptera	
Harpalus affinis	Carabidae	Coleoptera	
Harpocera thoracica	Miridae	Hemiptera	
Helophorus brevipalpis	Helophoridae	Coleoptera	
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	
Ischnosoma splendidum	Staphylinidae	Coleoptera	
Lasioglossum laevigatum	Halictidae	Hymenoptera	
Lasioglossum malachurum	Halictidae	Hymenoptera	Notable B [Note 7]
Lasioglossum minutissimum	Halictidae	Hymenoptera	
Lasioglossum parvulum	Halictidae	Hymenoptera	
Lasioglossum pauperatum	Halictidae	Hymenoptera	Red Data Book 3 [Note 7]
Lasioglossum pauxillum	Halictidae	Hymenoptera	Notable A [Note 7]
Lasioglossum villosulum	Halictidae	Hymenoptera	

Scientific name	Family	Order	National Status
Lasioglossum xanthopus	Halictidae	Hymenoptera	Notable B
Lindenius albilabris	Crabronidae	Hymenoptera	
Longitarsus parvulus	Chrysomelidae	Coleoptera	
Malvapion malvae	Apionidae	Coleoptera	
Mecinus pascuorum	Curculionidae	Coleoptera	
Megalonotus emarginatus	Lygaeidae	Hemiptera	
Megalonotus praetextatus	Lygaeidae	Hemiptera	Notable B
Meligethes aeneus	Nitidulidae	Coleoptera	
Meligethes carinulatus	Nitidulidae	Coleoptera	
Meligethes fulvipes	Nitidulidae	Coleoptera	Notable
Meligethes rotundicollis	Nitidulidae	Coleoptera	Notable
Microlestes minutulus	Carabidae	Coleoptera	
Nebria salina	Carabidae	Coleoptera	
Nedyus quadrimaculatus	Curculionidae	Coleoptera	
Nemotelus notatus	Stratiomyidae	Diptera	
Neocrepidodera ferruginea	Chrysomelidae	Coleoptera	

Scientific name	Family	Order	National Status
Notiophilus quadripunctatus	Carabidae	Coleoptera	Nationally Scarce
Notiophilus substriatus	Carabidae	Coleoptera	
Nysius senecionis	Lygaeidae	Hemiptera	
Ochlodes sylvanus	Hesperiidae	Lepidoptera	
Olibrus corticalis	Phalacridae	Coleoptera	
Olibrus flavicornis	Phalacridae	Coleoptera	Red Data Book K
Omphalapion hookerorum	Apionidae	Coleoptera	
Ophonus ardosiacus	Carabidae	Coleoptera	
Ophonus azureus	Carabidae	Coleoptera	Nationally Scarce
Orthops (Orthops) kalmii	Miridae	Hemiptera	
Paradromius linearis	Carabidae	Coleoptera	
Pedius longicollis	Carabidae	Coleoptera	Nationally Scarce
Perapion curtirostre	Apionidae	Coleoptera	
Phyllobius glaucus	Curculionidae	Coleoptera	
Poecilus cupreus	Carabidae	Coleoptera	
Polydrusus formosus	Curculionidae	Coleoptera	Notable A [Note 7]
Polyommatus icarus	Lycaenidae	Lepidoptera	

Scientific name	Family	Order	National Status
Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	
Protapion fulvipes	Apionidae	Coleoptera	
Protapion trifolii	Apionidae	Coleoptera	
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	
Ptomaphagus subvillosus	Leiodidae	Coleoptera	
Quedius semiaeneus	Staphylinidae	Coleoptera	
Quedius semiobscurus	Staphylinidae	Coleoptera	
Rhagonycha nigriventris	Cantharidae	Coleoptera	
Sitona cylindricollis	Curculionidae	Coleoptera	
Sitona hispidulus	Curculionidae	Coleoptera	
Sitona lineatus	Curculionidae	Coleoptera	
Sphaerophoria scripta	Syrphidae	Diptera	
Stenodema (Stenodema) laevigata	Miridae	Hemiptera	
Stenopterapion meliloti	Apionidae	Coleoptera	
Stictopleurus punctatonervosus	Rhopalidae	Hemiptera	
Subcoccinella vigintiquattuorpunctata	Coccinellidae	Coleoptera	

Scientific name	Family	Order	National Status
Syntomus obscuroguttatus	Carabidae	Coleoptera	
Tachyporus hypnorum	Staphylinidae	Coleoptera	
Tetrops praeustus	Cerambycidae	Coleoptera	
Thecophora atra	Conopidae	Diptera	
Thymelicus sylvestris	Hesperiidae	Lepidoptera	
Trechus quadristriatus	Carabidae	Coleoptera	
Trichosirocalus troglodytes	Curculionidae	Coleoptera	
Tychius picirostris	Curculionidae	Coleoptera	

[Note 7: Widely accepted as being much more common than this status suggests; likely to be downgraded.]

Table 11: Compartment 7 Species List

Scientific name	Family	Order	National Status
Agriotes pallidulus	Elateridae	Coleoptera	
Aleochara bipustulata	Staphylinidae	Coleoptera	
Amara aenea	Carabidae	Coleoptera	
Amara eurynota	Carabidae	Coleoptera	
Amara tibialis	Carabidae	Coleoptera	
Ampedus elongatulus	Elateridae	Coleoptera	Notable A [Note 8]
Andrena labialis	Andrenidae	Hymenoptera	

Scientific name	Family	Order	National Status
Anthicus antherinus	Anthicidae	Coleoptera	
Anthocoris nemorum	Anthocoridae	Hemiptera	
Aphthona euphorbiae	Chrysomelidae	Coleoptera	
Athous haemorrhoidalis	Elateridae	Coleoptera	
Badister bullatus	Carabidae	Coleoptera	
Bembidion properans	Carabidae	Coleoptera	
Bombus pascuorum	Apidae	Hymenoptera	
Brachinus crepitans	Carabidae	Coleoptera	Nationally Scarce
Brachypterus urticae	Kateretidae	Coleoptera	
Bruchidius varius	Chrysomelidae	Coleoptera	
Bruchus brachialis	Chrysomelidae	Coleoptera	
Bruchus loti	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Bruchus rufimanus	Chrysomelidae	Coleoptera	
Calathus cinctus	Carabidae	Coleoptera	
Cantharis cryptica	Cantharidae	Coleoptera	
Cantharis lateralis	Cantharidae	Coleoptera	
Cantharis nigricans	Cantharidae	Coleoptera	

Scientific name	Family	Order	National Status
Cantharis rustica	Cantharidae	Coleoptera	
Ceutorhynchus obstrictus (=assimilis auctt.)	Curculionidae	Coleoptera	
Ceutorhynchus picitarsis	Curculionidae	Coleoptera	
Coccinella septempunctata	Coccinellidae	Coleoptera	
Coriomeris denticulatus	Coreidae	Hemiptera	
Cymus melanocephalus	Lygaeidae	Hemiptera	
Dalopius marginatus	Elateridae	Coleoptera	
Dasytes aeratus	Dasytidae	Coleoptera	
Diodontus luperus	Crabronidae	Hymenoptera	
Diplapion confluens	Apionidae	Coleoptera	
Dryophilocoris (Dryophilocoris) flavoquadrimaculatus	Miridae	Hemiptera	
Eurydema (Eurydema) oleracea	Pentatomidae	Hemiptera	
Eurygaster maura	Scutelleridae	Hemiptera	Nationally Scarce
Gonodera luperus	Tenebrionidae	Coleoptera	Nationally Scarce
Halictus rubicundus	Halictidae	Hymenoptera	

Scientific name	Family	Order	National Status
Harpalus affinis	Carabidae	Coleoptera	
Harpocera thoracica	Miridae	Hemiptera	
Helophorus brevipalpis	Helophoridae	Coleoptera	
Himacerus (Aptus) mirmicoides	Nabidae	Hemiptera	
Ischnosoma splendidum	Staphylinidae	Coleoptera	
Lasioglossum laevigatum	Halictidae	Hymenoptera	
Lasioglossum malachurum	Halictidae	Hymenoptera	Notable B [Note 8]
Lasioglossum minutissimum	Halictidae	Hymenoptera	
Lasioglossum parvulum	Halictidae	Hymenoptera	
Lasioglossum pauperatum	Halictidae	Hymenoptera	Red Data Book 3 [Note 8]
Lasioglossum pauxillum	Halictidae	Hymenoptera	Notable A [Note 8]
Lasioglossum villosulum	Halictidae	Hymenoptera	
Lasioglossum xanthopus	Halictidae	Hymenoptera	Notable B
Lindenius albilabris	Crabronidae	Hymenoptera	

Scientific name	Family	Order	National Status
Longitarsus parvulus	Chrysomelidae	Coleoptera	
Malvapion malvae	Apionidae	Coleoptera	
Mecinus pascuorum	Curculionidae	Coleoptera	
Megalonotus emarginatus	Lygaeidae	Hemiptera	
Megalonotus praetextatus	Lygaeidae	Hemiptera	Notable B
Meligethes aeneus	Nitidulidae	Coleoptera	
Meligethes carinulatus	Nitidulidae	Coleoptera	
Meligethes fulvipes	Nitidulidae	Coleoptera	Notable
Meligethes rotundicollis	Nitidulidae	Coleoptera	Notable
Microlestes minutulus	Carabidae	Coleoptera	
Nebria salina	Carabidae	Coleoptera	
Nedyus quadrimaculatus	Curculionidae	Coleoptera	
Nemotelus notatus	Stratiomyidae	Diptera	
Neocrepidodera ferruginea	Chrysomelidae	Coleoptera	
Notiophilus quadripunctatus	Carabidae	Coleoptera	Nationally Scarce
Notiophilus substriatus	Carabidae	Coleoptera	

Scientific name	Family	Order	National Status
Nysius senecionis	Lygaeidae	Hemiptera	
Ochlodes sylvanus	Hesperiidae	Lepidoptera	
Olibrus corticalis	Phalacridae	Coleoptera	
Olibrus flavicornis	Phalacridae	Coleoptera	Red Data Book K
Omphalapion hookerorum	Apionidae	Coleoptera	
Ophonus ardosiacus	Carabidae	Coleoptera	
Ophonus azureus	Carabidae	Coleoptera	Nationally Scarce
Orthops (Orthops) kalmii	Miridae	Hemiptera	
Paradromius linearis	Carabidae	Coleoptera	
Pedius longicollis	Carabidae	Coleoptera	Nationally Scarce
Perapion curtirostre	Apionidae	Coleoptera	
Phyllobius glaucus	Curculionidae	Coleoptera	
Poecilus cupreus	Carabidae	Coleoptera	
Polydrusus formosus	Curculionidae	Coleoptera	Notable A [Note 8]
Polyommatus icarus	Lycaenidae	Lepidoptera	
Propylea quattuordecimpunctata	Coccinellidae	Coleoptera	
Protapion fulvipes	Apionidae	Coleoptera	
Protapion trifolii	Apionidae	Coleoptera	

Scientific name	Family	Order	National Status
Psylliodes chrysocephala	Chrysomelidae	Coleoptera	
Ptomaphagus subvillosus	Leiodidae	Coleoptera	
Quedius semiaeneus	Staphylinidae	Coleoptera	
Quedius semiobscurus	Staphylinidae	Coleoptera	
Rhagonycha nigriventris	Cantharidae	Coleoptera	
Sitona cylindricollis	Curculionidae	Coleoptera	
Sitona hispidulus	Curculionidae	Coleoptera	
Sitona lineatus	Curculionidae	Coleoptera	
Sphaerophoria scripta	Syrphidae	Diptera	
Stenodema (Stenodema) laevigata	Miridae	Hemiptera	
Stenopterapion meliloti	Apionidae	Coleoptera	
Stictopleurus punctatonervosus	Rhopalidae	Hemiptera	
Subcoccinella vigintiquattuorpunctata	Coccinellidae	Coleoptera	
Syntomus obscuroguttatus	Carabidae	Coleoptera	
Tachyporus hypnorum	Staphylinidae	Coleoptera	
Tetrops praeustus	Cerambycidae	Coleoptera	

Scientific name	Family	Order	National Status
Thecophora atra	Conopidae	Diptera	
Thymelicus sylvestris	Hesperiidae	Lepidoptera	
Trechus quadristriatus	Carabidae	Coleoptera	
Trichosirocalus troglodytes	Curculionidae	Coleoptera	
Tychius picirostris	Curculionidae	Coleoptera	

[Note 8: Widely accepted as being much more common than this status suggests; likely to be downgraded.]

Appendix 3 Photographs

C1.01 Sub-Compartment C1. The image shows the short turf and patchy bare ground. There is a strong dominance of low-growing Fabaecae.

C3.01 Sub-Compartment C3. The image shows large areas of rank grass dominated by tufted hair-grass.

C3.02 Sub-Compartment C3 – The image shows a sandy bund in 2021.

C3.03 Sub-Compartment C3. The image shows the same bund as in the previous image but this photograph was taken in 2024 and it has now been colonised by vegetation.

C4.01 Sub-Compartment C4. The image shows short turf and patchy bare ground.

C4.02 Sub-Compartment C4. The image shows an area with more established taller swards on lower slopes. It will soon undergo ecological succession further, losing its value as it begins to scrub up.

Reference List

Essex Field Club (2024) *Coelositona puberulus* species page [online]. Available at: www.essexfieldclub.org.uk/portal.php/p/Species+Account/s/Coelositona+puberulus [Accessed 17 October 2024].

Jukes, A (2021) A Common Standards Monitoring Assessment of the F111 (bare sand and chalk) and F112 (short sward and bare ground) assemblages At East Tilbury. An unpublished report for Thomson Environmental.

Met Office (2024) *2023 in weather* [online] Available at: www.metoffice.gov.uk/blog/2023/2023-in-weather (Accessed: 09. 12. 2024).

Webb, J., Heaver, D., Lott, D., Dean, H.J., van Breda, J., Curson, J., Harvey, M.C., Gurney, M., Roy, D.B., van Breda, A., Drake, M., Alexander, K.N.A. and Foster, G. (2017) *Pantheon – Database Version 3.7.6* [online]. Available at: www.brc.ac.uk (Accessed: 16 October 2024).

www.gov.uk/natural-england